LYNN PRICE

Senior Scientist
Head, International Energy Analysis Department
Leader, China Energy Group
Energy Analysis & Environmental Impacts Division
Energy Technologies Area
Lawrence Berkeley National Laboratory

1 Cyclotron Road
MS 90R2121
Berkeley, CA 94720
(510) 486-6519
(510) 710-2877 cell
LKPrice@LBL.gov

EMPLOYMENT

Lawrence Berkeley National Laboratory, Berkeley, California
1990 - Present

Price Associates, Berkeley, California
1989 - 1990

MHB Technical Associates, San Jose, California
1983 -1989

PROFESSIONAL EXPERIENCE

- Lead author, Intergovernmental Panel on Climate Change Second Assessment Report, Technical Paper on Technologies, Policies and Measures for Mitigating Climate Change, Special Report on Emissions Scenarios, Third Assessment Report, Fourth Assessment Report, Fifth Assessment Report
- Principal investigator, Energy Foundation China projects on industrial energy efficiency policies and programs, modeling, benchmarking, auditing, energy-efficient technologies and measures, and low-carbon development in China
- Principal investigator, Energy Foundation China, Rocky Mountain Institute, and Energy Research Institute project on Reinventing Fire: China modeling China's potential energy use and CO_2 emissions in 2050
- Principal investigator, U.S. Department of Energy projects related to industrial sector energy efficiency policies and programs in China
- Principal investigator, U.S. Department of State projects on energy service performance contracting, boiler/steam system energy efficiency and fuel switching, and for the Asia Pacific Partnership on cement industry energy efficiency and greenhouse gas mitigation in China
- Principal investigator, U.S. Environmental Protection Agency projects related to benchmarking, energy efficiency improvement, and use of alternative fuels for the Chinese cement industry
- Principal investigator, Hewlett Foundation and Oak Foundation projects related to future coal consumption scenarios for China

- Principal investigator, California Air Resources Board project on Evaluation of Efficiency Activities in the Industrial Sector Undertaken in Response to Greenhouse Gas Emission Reduction Targets
- Principal investigator, California Energy Commission project on development of an energy balance for the State of California and on optimization of product lifecycle greenhouse gas emissions from products produced in California

PROFESSIONAL SERVICE AND AWARDS

Department Head, International Energy Analysis Department, Energy Analysis & Environmental Impacts Division, Energy Technologies Area, Lawrence Berkeley National Laboratory – 2016 to present

Group Leader of the China Energy Group, Energy Analysis & Environmental Impacts Division, Energy Technologies Area, Lawrence Berkeley National Laboratory – 2012 to present

Deputy Group Leader of the China Energy Group, Group, Energy Analysis & Environmental Impacts Department, Environmental Energy Technologies Division, Lawrence Berkeley National Laboratory – 2011 to 2012

Deputy Group Leader, International Energy Studies Group, Energy Analysis Department, Lawrence Berkeley National Laboratory – 1998 to 2007

Guest Professor, University of Science and Technology Beijing

Affiliated Faculty, Energy and Resources Group, University of California-Berkeley

Lead Author of Intergovernmental Panel on Climate Change (which won the Nobel Peace Prize 2007) - 1993 to present

Member of China Industry Team, which was awarded the *Extraordinary Achievement and Leadership Results Award* in 2010 by ClimateWorks Foundation

Member of China Cement Kiln Project Team that was awarded the U.S. Environmental Protection Agency's *James W. Craig Pollution Prevention Leadership Award* – 2009.

Member of the Strategic Advisory Group of the Institute for Industrial Productivity

Member of the Leadership Council of the China-U.S. Energy Efficiency Alliance

Outstanding Performance Award, Lawrence Berkeley National Laboratory – 2007, 1999, 1995

Co-Chair, 2003 American Council for an Energy-Efficient Economy's Summer Study on Energy Efficiency in Industry

Guest Editor, Special Issue on Industrial Emissions in Developing Countries, *Applied Energy*

Guest Editor, Special Issue on Resource Efficiency in Chinese Industry, *Resources, Conservation and Recycling*

Reviewer for *Nature Climate Change*, *Energy, The International Journal*, *Energy Policy, Climate Policy, Journal of Industrial Ecology*, *Environmental Science & Technology*, *ACEEE Summer Study on Energy Efficiency in Industry, ACEEE Summer Study on Energy Efficiency in Buildings*

Web of Science h-index = 17

Expert for World Resources Institute's China FAQs Network for Climate and Energy Information

Host and advisor for international guests in the International Energy Studies Group and China Energy Group at Lawrence Berkeley National Laboratory

EDUCATION

University of Wisconsin – Madison, Institute For Environmental Studies
Master of Science in Land Resources, May 1982
Phi Kappa Phi Honor Society

University of Wisconsin - Madison
Bachelor of Arts in Geography, May 1980
Graduation with Distinction

PUBLICATIONS

Peer-Reviewed Journal Articles

1. Lu, H., L. Price, Q. Zhang. 2016. "Capturing the Invisible Resource: Analysis of Waste Heat Potential in Chinese Industry" *Applied Energy* 161 (2016) 497-511

2. Lewis, J., Fridley, D., Price, L., Lu, H., and Romankeiwicz, J., 2015. "Understanding China's Non-Fossil Energy Targets," *Science* Vol 30, Issue 6264: 1034-1036.

3. de la Rue du Can, S., Price, L., Zwickle, T., 2015. "Understanding the Full Climate Change Impact of Energy Consumption and Mitigation at the End-Use Level: A Proposed Methodology for Allocating Indirect Carbon Dioxide Emissions," *Applied Energy* 159 (2015) 548-559.

4. Kong, L., Hasanbeigi, A., Price, L., Liu, H., in review. "Technical and Cost Analysis of Energy-Efficiency and Carbon Dioxide Emissions Reduction Potential in China's Pulp and Paper Industry." *Resource Conservation and Recycling*.

5. Ma, D., Hasanbeigi, A., Price, L., Chen, W., Wang, L., 2014. "A Bottom-Up Approach for Quantifying the Air Emission Reductions and Co-Benefits: the Case of China's Ammonia Industry," *Clean Technology and Environmental Policy Journal*.

6. Shen, B., Dai, F., Price, L., and Lu, H., 2014. "California's Cap-and-Trade Program and Insights for China's Pilots," *Energy and Environment*, Volume 25 (3 & 4): 551-575.

7. Hasanbeigi, A., Arens, M., Price, L. 2014. "Alternative Emerging Ironmaking Technologies for Energy-efficiency and Carbon Dioxide Emissions Reduction: A Technical Review," *Renewable and Sustainable Energy Reviews,* Volume 33: 645–658.

8. Hasanbeigi, A., Jiang, Z., Price, L., 2014. "Retrospective and Prospective Analysis of the Trends of Energy Use in Chinese Iron and Steel Industry," *Journal of Cleaner Production*, Volume 74: 105-188.

9. Hasanbeigi, A. Price, L., Zhang, C., Aden, N., Li, X., and Shangguan, F., 2014. "Comparison of Iron and Steel Production Energy Use and Energy Intensity in China and the U.S.," *Journal of Cleaner Production*, Volume 65: 108-199.

10. Price, L., Zhou, N., Fridley, D., Ohshita, S., Lu, H., Zheng, N., Fino-Chen, C., 2013. "Development of a Low-Carbon Indicator System for China," *Habitat International,* Volume 37: 4-21.

11. Zhou, N., Price, L., Fridley, D., Ohshita, S., Zheng, N., Hu, M. and Hu, X., 2013. "Strategies for Low Carbon Development"(in Chinese). *Science and Management*. Volume 33: 3-25.

12. Shen, B., Wang, J., Li, M., Li, J., Price, L. and Zeng, L., 2013. "China's Approaches to Financing Sustainable Development: Policies, Practices, and Issues," *WIREs Energy Environment*. Volume 2: 178–198. doi: 10.1002/wene.66

13. Hasanbeigi, A., Price, L., Fino-Chen, C., Lu, H., Ke, J. 2013. "Retrospective and Prospective Decomposition Analysis of Chinese Manufacturing Energy Use and Policy Implications." *Energy Policy*, Volume 63: 562–574.

14. Zhou N., Price L., Ohshita S., Zheng N., and M. Hu. 2013. "A Guidebook for Low-Carbon Development at the Local Level (in Chinese)." *Science and Management* Volume 33 (5): 21 – 35.

15. Ke, J., McNeil, M., Price, L., Khanna, N., Zhou, N., 2013. "Estimation of CO_2 Emissions from China's Cement Production: Methodologies and Uncertainties," *Energy Policy*, Volume 57: 172-181.

16. Hasanbeigi, A., Lobscheid, A., Lu, H., Price, L., and Dai, Y. 2013. "Quantifying the Co-benefits of Energy-Efficiency Programs: A Case-study for the Cement Industry in Shandong Province, China," *Science of the Total Environment*, Volumes 458–460: 624-636

17. Ke, J., Price, L., McNeil, M., Khanna, N., and Zhou, N. 2013. "Analysis and Practices of Energy Benchmarking for Industry from the Perspective of Systems Engineering," *Energy* Volume 54 (2013) 32-44.

18. Kong, L., Price, L., Hasanbeigi, A., Liu, H., Li, J. 2013. "Potential for Reducing Paper Mill Energy Use and Carbon Dioxide Emissions through Plant-wide Energy Audits: A Case Study in China," *Applied Energy*, Volume 102: 1334–1342.

19. Hasanbeigi, A., Price, L., Lin, E. 2012. "Emerging Energy-efficiency and CO_2 Emission-reduction Technologies for Cement and Concrete Production: A Technical Review." *Renewable and Sustainable Energy Reviews* Volume 16 (2012) 6220–6238.

20. Ke, J., Price, L., Ohshita, S., Fridley, D., Zheng, N., Zhou, N., and Levine, M., 2012. "China's Industrial Energy Consumption Trends and Impacts of the Top-1000 Enterprises Energy-Saving Program and the Ten Key Energy-Saving Projects," *Energy Policy* Volume 45 (2012) 739-751.

21. Hasanbeigi, A. and Price, L. 2012. "A Review of Energy Use and Energy Efficiency Technologies for the Textile Industry," *Renewable and Sustainable Energy Reviews*. Volume 16:6 (August 2012): 3648-3665. http://escholarship.org/uc/item/4531h558

22. Shen, B., Price, L, and Lu, H., 2012. "Energy Audit Practices in China: National and Local Experiences and Issues," *Energy Policy* Volume 46 (2012): 346-358.

23. Ke, J., Zheng, N., Fridley, D., Price, L., and Zhou, N., 2012. "Potential Energy Savings and CO_2 Emissions Reduction of China's Cement Industry," *Energy Policy* Volume 45 (2012): 739-751.

24. Zhou, N., Ohshita, S., Price, L., and Zheng, N. 2011. "A Low Carbon Development Guide for Local Government Actions in China," *Carbon Management.* Volume 2 (4): 455-469.

25. Price, L., Levine, M.D., Price, L., Zhou, N., Fridley, D., Aden, N., Lu, H., McNeil, M., Zheng, N., Qin, Y., Yowargana, P., 2011. "Assessment of China's Energy-Saving and Emission-Reduction Accomplishments and Opportunities During the 11th Five-Year Plan," *Energy Policy* Volume 39(4): 2165-2178.

26. Hasanbeigi, A., Menke, C., and Price, L., 2010. "CO_2 Abatement Cost Curve for the Thailand's Cement Industry," *Journal of Cleaner Production,* Volume 18 (15): 1509-1518.

27. Hasanbeigi, A., Price, L., Lu, H., Wang, L., 2010. "Analysis of Energy-Efficiency Opportunities for the Cement Industry in Shandong Province, China: A Case-Study of Sixteen Cement Plants," *Energy* Volume 35: 3461-3473

28. Koomey, J., Akbari, H., Blumstein, C., Brown, M., Brown, R., Calwell, C., Carter, S., Cavanagh, R., Chang, A., Claridge, D., Craig, P., Diamond, R., Eto, J., Fulkerson, W., Gadgil, A., Geller, H., Goldemberg, J., Goldman, C., Goldstein, D., Greenberg, S., Hafemeister, D., Harris, J, Harvey, H., Heitz, E., Hirst, E., Hummel, H., Kammen, D., Kelly, H., Laitner, S., Levine, M., Lovins, A., Masters, G., McMahon, J.E., Meier, A., Messenger, M., Millhone, J., Mills, E., Nadel, S., Nordman, B., Price, L., Romm, J., Ross, M., Rufo, M., Sathaye, J., Schipper, L., Schneider, S.H., Sweeney, J.L., Verdict, M., Vorsatz, D., Wang, D., Weinberg, C., Wilk, R., Wilson, J., and Worrell, E., 2010. "Defining a Standard Metric for Electricity Savings," *Environmental Research Letters.* Volume 5 (1) January-March 2010.

29. Zhou, N., Levine, M.D., and Price, L., 2010. "Overview of Current Energy-Efficiency Policies in China." *Energy Policy*, Volume 38 (11).

30. Price, L., Xuejun Wang, Jiang Yun, 2010. "The Challenge of Reducing Energy Consumption of the Top-1000 Largest Industrial Enterprises in China", *Energy Policy,* Volume 38 (11).

31. Worrell, E., Bernstein, L., Roy, J., Price, L., and Harnisch, J., 2009. "Industrial Energy Efficiency and Climate Change Mitigation," *Energy Efficiency*. Volume 2 (2): 109.

32. de la Rue du Can, S. and Price, L., 2008. "Sectoral Trends in Global Energy Use and Greenhouse Gas Emissions," *Energy Policy*, Volume 36(4): 1386-1403.

33. Worrell, E. and Price, L., 2006. "An Integrated Benchmarking and Energy Savings Tool for the Iron and Steel Industry," *International Journal of Green Energy* Volume 3 (2): 117-127.

34. Sathaye, J., Murtishaw, S., Price, L., Lefranc, M., Roy, J., Winkler, H., and Spalding-Fecher, R., 2004. "Multiproject Baselines for Evaluation of Electric Power Projects," *Energy Policy*, Volume 32(11): 1303-1317.

35. Price, L. and Levine, M.D., 2002. "Sustainable Production and Consumption of Energy: Developments Since the 1992 Rio Summit," *Environmental Law Reporter* 32 (August).

36. Price, L., Sinton, J., Worrell, E., Phylipsen, D., Hu, X., and Li, J., 2002. "Energy Use and Carbon Dioxide Emissions from Steel Production in China," *Energy, The International Journal* Volume 27(2002): 429-446.

37. Worrell, E., Martin, N., Price, L., Ruth, M., Elliott, N., Shipley, A. and Thorne, J., 2002. "Emerging Energy Efficient Technologies for Industry" *Energy Engineering Journal* Volume 99 (2):36-55.

38. Roy, J., Das, S., Sathaye, J., and Price, L., 2002. "Estimating Baselines for CDM: Case of Eastern Regional Power Grid in India," *Environmental Economics and Policy Studies* Volume 5: 121-134.

39. Ozawa, L., Sheinbaum, C., Martin, N., Worrell, E., and Price, L., 2002. "Energy Use and CO_2 Emissions in Mexico's Iron and Steel Industry," *Energy, The International Journal* Volume 27, 2002: 225-239.

40. Worrell, E., Price, L, Martin, N., Hendricks, C., and Ozawa Meida, L., 2001. "Carbon Dioxide Emissions from the Global Cement Industry," *Annual Review of Energy and Environment* Volume 26: 303-29.

41. Worrell, E., Price, L., and Ruth, M., 2001. "Policy Modeling for Energy Efficiency Improvement in US Industry," *Annual Review of Energy and Environment* Volume 26: 117-43.

42. Winkler, H., Spalding-Fecher, R., Sathaye, J., and Price, L., 2001. "Multi-Project Baselines for Potential Clean Development Mechanism Projects in the Electricity Sector in South Africa," *Journal of Energy in Southern Africa* Volume 12 (4): 449-457.

43. Worrell, E. and Price, L., 2001. "Policy Scenarios for Energy Efficiency Improvement in Industry," *Energy Policy* Volume 29 (2001): 1223-1241.

44. Worrell, E., Martin, N., and Price, L., 2001. "Energy Efficiency and Carbon Dioxide Emissions Reduction Opportunities in the U.S. Iron and Steel Industry," *Energy, The International Journal* Volume 26: 513-536.

45. Worrell, E., Martin, N., and Price, L., 2000. "Potentials for Energy Efficiency Improvement in the U.S. Cement Industry," *Energy, The International Journal* Volume 25: 1189-1214.

46. Worrell, E., Martin, N., Price, L., 1999, "Energy Efficiency Opportunities in Electric Arc Steelmaking," *Iron and Steelmaker*, January.

47. Price, L., Michaelis, L., Worrell, E., and Khrushch, M., 1998. "Sectoral Trends and Driving Forces of Global Energy Use and Greenhouse Gas Emissions," *Mitigation and Adaptation Strategies for Global Change*, Volume 3:263-319.

48. Koomey, J.G., Martin, N.C., Brown, M., Price, L.K., and Levine, M.D., 1998. "Costs of Reducing Carbon Emissions: U.S. Building Sector Scenarios," *Energy Policy*, Volume 26 (5).

49. Worrell, E., Price, L., Martin, N., Farla, J., Schaeffer, R., 1997. "Energy Intensity in the Iron and Steel Industry: A Comparison of Physical and Economic Indicators," *Energy Policy*, Volume 25 (7-9).

50. Schipper, L., Scholl, L., and Price, L., 1997. "Energy Use and Carbon Emissions from Freight in 10 Industrialized Countries: An Analysis of Trends from 1973 to 1992," *Transportation Research* Volume 2(1): 57-76, 1997.

51. Levine, M.D., Price, L., and Martin, N., 1996. "Mitigation Options for Carbon Dioxide Emissions from Buildings: A Global Analysis," *Energy Policy* Volume 24(10): 937-949.

52. Levine, M.D., Geller, H., Koomey, J., Nadel, S., and Price, L., 1995. "Electricity End-Use Efficiency: Experience with Technologies, Markets, and Policies Throughout the World," *Energy: The International Journal* Volume 20(1): 37-61.

53. Schipper, L. and Price, L., 1994. "Efficient Energy Use and Well Being: The Swedish Example After 20 Years," *Natural Resources Forum* Volume 18(2): 125-142.

54. Schipper, L., Figueroa, M.J., Price, L., and Espey, M., 1993. "Mind the Gap: The Vicious Circle of Measuring Automobile Fuel Use," *Energy Policy*, Volume 21(12): 1173-1190.

55. Schipper, L., Howarth, R., Andersson, B., and Price, L., 1993. "Energy Use in Denmark: An International Perspective," *Natural Resources Forum* Volume 17(2): 83-103.

56. Rosenfeld, A., Atkinson, C., Koomey, J., Meier, A., Mowris, R., and Price, L., 1993. "Conserved Energy Supply Curves," *Contemporary Policy Issues* Volume 11(1): 45-98.

Peer-Reviewed Conference Proceedings

1. Price, L., He, G., Zhou, N., Fridley, D., Hong, L., Ohshita, S., Hu, M. Zhou, Y., 2015. "Promoting Energy Efficiency as the First Fuel Through Enabling Local Government Action in China," Proceedings of the *European Council for an Energy-Efficient Economy's 2015 Summer Study on Energy Efficiency*.

2. Price, L., Hasanbeigi, A., Xiong, H., Fu, G., Wanless, E., Hong, L., Lu, H., McIntosh, R., and He, P., 2014. "Envisioning China's Energy-Efficient and Low-Carbon Industrial Sector in 2050: Reinventing Fire Pathway Vision and Methodology," *Proceedings of the*

China Council for an Energy-Efficient Economy 2014 Fall Study on Industrial Energy Efficiency and Regional Haze, Beijing, China.

3. Hasanbeigi, A., Jiang, Z., Price, L., 2014. "Future Pathway for Energy Use in Chinese Steel Industry,"*Proceedings of the China Council for an Energy-Efficient Economy 2014 Fall Study on Industrial Energy Efficiency and Regional Haze*, Beijing, China.

4. Price, L., Zhou, N., Fridley, D., Lu, H., Hong, L., Fino-Chen, C., Ke, J., Ohshita, S., Hu, M., Zhou, Y., Hammer, S., and Hu, X., 2014. "Energy-Efficiency and Greenhouse Gas Mitigation Policy Options: Assisting Chinese Cities in Prioritizing and Choosing Strategies to Implement to Become a Sustainable Community," *Proceedings of the American Council for An Energy-Efficient Economy 2014 Summer Study on Energy Efficiency*. Washington DC: ACEEE.

5. Hasanbeigi, A., Zeyi J., Price, L. 2014. "Why the Energy Use of Chinese Steel Industry May Peak as Early as 2015?" *Proceedings of the 2014 ECEEE Summer Study on Energy Efficiency in Industry*, June 2-5, 2014. Arnhem, the Netherlands.

6. Hasanbeigi, A., Lobscheid, A., Lu, H., Price, L., Dai, Y. 2014. "Including the Co-benefits of Energy-Efficiency Programs and Projects in Cost-Benefit Analysis - A Case Study for the Cement Industry." *Proceedings of the International Conference on Clean Energy*. June 8-12, 2014. Istanbul, Turkey.

7. Hasanbeigi, A., Price, L. 2014. "Emerging Technologies for an Energy-Efficient, Water-Efficient, and Low-Pollution Textile Industry: A Technical Review." *Proceedings of the International Conference on Clean Energy*. June 8-12, 2014. Istanbul, Turkey.

8. Hasanbeigi, A., Price, L., Lu, H., Fino-Chen, C., Ke, J. 2013. "Retrospective and Prospective Decomposition Analysis of Chinese Manufacturing Energy Use and Policy Implications for Industry Structural Change." *Proceedings of the International Conference on Frontier Issues in Economics and Management.* Beijing University of Chemical Technology. July 3-4, 2013.

9. Hasanbeigi, A., Kong, L., Arens, M., Price, L. 2013. "Emerging Energy-Efficiency and CO_2 Emissions-Reduction Technologies for Industry: A Review of Technologies for Alternative Ironmaking and Pulp and Paper Industry." *Proceedings of the 2013 American Council for An Energy Efficiency Economy Industrial Summer Study*. Washington DC: ACEEE.

10. Hasanbeigi, A., Price, L., Lu, H., Fino-Chen, C., Ke, J. 2013. "What Shaped the Chinese Manufacturing Energy Use Since 1995 and What's the Prediction for the Future?" *Proceedings of the 2013 American Council for An Energy Efficiency Economy Industrial Summer Study*. Washington DC: ACEEE.

11. Hasanbeigi, A., Price, L., Lu, H., Fino-Chen, C. 2013. "Bottom-up Assessment of Chinese Manufacturing Growth and Energy Use Up to 2020." *Proceedings of the 2013 International Energy Workshop*. Paris: International Energy Agency.

12. Price, L., Zhou, N., Fridley, D., Ohshita, S., Lu, H., Zheng, N., Fino-Chen, C., 2012. "Development of an End-Use Sector-Based Low-Carbon Indicator System for Cities in China," *Proceedings of the American Council for an Energy-Efficient Economy's 2012 Summer Study on Energy Efficiency in Buildings*. Washington, DC: ACEEE.

13. Shen, B., Ni, C., Ghatikar, G., and Price, L., 2012. "What China Can Learn from International Experiences in Developing a Demand Response Program," *Proceedings of the European Council for an Energy-Efficient Economy's 2012 Summer Study*. No. 3-153-12. Stockholm: ECEEE.

14. Hasanbeigi, A., Price, L., Lu, H., Williams, C. 2012. "International Best Practices in Pre-treatment and Co-processing of Municipal Solid Waste and Sewage Sludge in the Cement Industry." *2012 ECEEE Summer Study on Energy Efficiency in Industry*, September 11-14, 2012. Arnhem, the Netherlands.

15. Hasanbeigi, A., Price, L., Lu, H., Williams, C. 2012. "Co-processing of Municipal Solid Waste and Sewage Sludge in the Cement Industry." *The 3rd ISIE Asia-Pacific Meeting*, October 20-21 2012. Beijing, China.

16. Romankiewicz, J., Shen, B., Price, L., and Lu, H.Y., 2012. "Addressing the effectiveness of industrial energy efficiency incentives in overcoming investment barriers in China," *Proceedings of the European Council for an Energy-Efficient Economy's 2012 Summer Study*. No. 6-156-12. Stockholm: ECEEE.

17. Hasanbeigi, A., Lin, E., and Price, L., 2012. "Emerging Energy Efficiency Technologies for the Cement and Concrete Production, Iron and Steel, and Textile Industry: A Technical Review Paper," accepted for oral presentation at the *Industrial Energy Technology Conference* (IETC), May 2012. New Orleans, LA.

18. Hasanbeigi, A., Morrow, W., Fridley, D., Masanet, E., Sathaye, J., Xu, T., Zheng, N., and Price, L. 2012. "Energy Efficiency Potential for China's Cement Industry: A Bottom-up Technology-level Analysis," accepted for oral presentation at *the 19th CIRP International Conference on Life Cycle Engineering*, March 2012. Berkeley, CA.

19. Zheng N., Fridley D., Zhou N., Levine M. Price L. and J. Ke. 2011. "China's Pathways to Achieving 40% - 45% Reduction in CO_2 Emissions per Unit of GDP in 2020: Sectoral Outlook and Assessment of Savings Potential." *Proceedings of the 7th Session of the 13th*

Annual Meeting of the China Association of Science and Technology. Tianjin, China: 22 September 2011. (LBNL-5257E)

20. Price, L., Hasanbeigi, A., Aden, N., Zhang Chunxia, Li Xiuping, Shangguan Fangqin, 2011. "A Comparison of Iron and Steel Production Energy Use and Energy Intensity in China and the U.S.," *Proceedings of the American Council for an Energy-Efficient Economy's 2011 Summer Study on Energy Efficiency in Industry*. Washington, DC: ACEEE.

21. Price, L. and Lu, H., 2011. "Industrial Energy Auditing and Assessments: A Survey of Programs Around the World," *Proceedings of the European Council for an Energy-Efficient Economy's 2011 Summer Study*. Stockholm: ECEEE.

22. Jiang, Y. and Price, L., 2011. "Voluntary Energy Efficiency Agreements in China: History, Impact, and Future," *Proceedings of the European Council for an Energy-Efficient Economy's 2011 Summer Study*. Stockholm: ECEEE.

23. Ohshita, S., Price, L., Tian, Z., 2011. "Target Allocation Methodology for China's Provinces: Energy Intensity in the 12th Five-Year Plan," *Proceedings of the European Council for an Energy-Efficient Economy's 2011 Summer Study*. Stockholm: ECEEE.

24. Zhou, N., Price, L., and Ohshita, S., 2011. "A Low Carbon Development Guide for Local Government Actions in China." *Proceedings of the European Council for an Energy-Efficient Economy's 2011 Summer Study*. Stockholm: ECEEE.

25. Price, L., 2008. "Technologies and Policies to Improve Energy Efficiency in Industry." *Proceedings of the American Physical Society's Forum on Physics and Society, Physics of Sustainable Energy: Using Energy Efficiently and Producing It Renewably*, March 1, 2008, Berkeley, California.

26. Price, L. and Wang, X., 2007. "Constraining Energy Consumption of China's Largest Industrial Enterprises Through the Top-1000 Energy-Consuming Enterprise Program," *Proceedings of the 2007 ACEEE Summer Study on Energy Efficiency in Industry.* Washington, DC: American Council for An Energy-Efficient Economy.

27. Galitsky, C. and Price, L., 2007. "Opportunities for Improving Energy Efficiency, Reducing Pollution and Increasing Economic Output in Chinese Cement Kilns," *Proceedings of the 2007 ACEEE Summer Study on Energy Efficiency in Industry.* Washington, DC: American Council for An Energy-Efficient Economy.

28. Price, L., 2005. "Voluntary Agreements for Energy Efficiency or Greenhouse Gas Emissions Reduction in Industry: An Assessment of Programs Around the World," *Proceedings of the 2005 ACEEE Summer Study on Energy Efficiency in Industry*. Washington, DC: American Council for An Energy-Efficient Economy.

29. Coito, F., Powell, F., Worrell, E., Price, L., and Friedmann, R., 2005. "Case Study of the California Cement Industry," *Proceedings of the 2005 ACEEE Summer Study on Energy Efficiency in Industry*. Washington, DC: American Council for An Energy-Efficient Economy.

30. Coito, F., Worrell, E., Price, L., Masanet, E., Friedmann, R., and Rufo, M., 2005. "California Industrial Energy Efficiency Potential," *Proceedings of the 2005 ACEEE Summer Study on Energy Efficiency in Industry*. Washington, DC: American Council for An Energy-Efficient Economy.

31. Price, L., Bartholomew, E., and Mulholland, D., 2004. "Taking Credit for GHG Emissions Reduction Activities of the EPA's State and Local Capacity Building Branch," *Proceedings of the 2004 ACEEE Summer Study on Energy Efficiency in Buildings.* Washington, DC: American Council for an Energy-Efficient Economy.

32. Worrell, E. and Price, L, 2004. "An Integrated Benchmarking and Energy Savings Tool for the Iron and Steel Industry," *SCANMET II: 2nd International Conference on Process Development in Iron and Steelmaking,* 6-9 June 2004.

33. Price, L, Worrell, E., Sinton, J., and Jiang, Y., 2003. "Voluntary Agreements for Increasing Energy-Efficiency in Industry: Case Study of a Pilot Project with the Steel Industry in Shandong Province, China," *Proceedings of the 2003 ACEEE Summer Study on Energy Efficiency in Industry*. Washington, DC: American Council for an Energy-Efficient Economy.

34. Price, L., Worrell, E., and Sinton, J., 2003. "Voluntary Agreements in the Industrial Sector in China," *Proceedings of the Earth Technologies Forum*, April 22-24, 2003, Washington DC.

35. Price, L., Marnay, C., Sathaye, J., Murtishaw, S., Fisher, D., Phadke, A., and Franco, G., 2002. "The California Climate Action Registry: Development of Methodologies for Calculating Greenhouse Gas Emissions from Electricity Generation," *ACEEE Summer Study on Energy Efficiency in Buildings*. Washington, DC: American Council for an Energy-Efficient Economy.

36. Price, L., Marnay, C., Sathaye, J., Murtishaw, S., Fisher, D., Phadke, A., and Franco, G., 2002. "Development of Methodologies for Calculating Greenhouse Gas Emissions from Electricity Generation for the California Climate Action Registry," *11th International Emission Inventory Conference*, Atlanta, GA, April 15-18, 2002.

37. Price, L., Worrell, E., Sinton, J., and Jiang, Y., 2001. "Industrial Energy Efficiency Policy in China," *Proceedings of the ACEEE Summer Study on Energy Efficiency in Industry*. Washington, DC: American Council for an Energy-Efficient Economy.

38. Ruth, M., Worrell, E., and Price, L., 2001. "A Process-Step Benchmarking Approach to Energy Use at Industrial Facilities: Examples from the Iron and Steel and Cement Industries," *Proceedings of the ACEEE Summer Study on Energy Efficiency in Industry*. Washington, DC: American Council for an Energy-Efficient Economy.

39. Martin, N., Worrell, E., and Price, L, 2001. "Energy Efficiency Opportunities for the U.S. Cement Industry," *Proceedings of the ACEEE Summer Study on Energy Efficiency in Industry*. Washington, DC: American Council for an Energy-Efficient Economy.

40. Worrell, E., Martin, N., Price, L., Ruth, M., Elliott, N., Shipley, A., and Thorne, J., 2001. "Emerging Energy-Efficient Technologies for Industry," *Proceedings of the ACEEE Summer Study on Energy Efficiency in Industry.* Washington, DC: American Council for an Energy-Efficient Economy.

41. Worrell, E. and Price, L., 2001. "Potential Impact of Energy Efficiency Policies in U.S. Industry: Results from the Clean Energy Futures Study," *Proceedings of the 2001 ACEEE Summer Study on Energy Efficiency in Industry.* Washington, DC: American Council for an Energy-Efficient Economy.

42. Worrell, E. and Price, L., 2001. "Barriers and Opportunities: A Review of Selected Successful Energy-Efficiency Programs," *Proceedings 2001 Industrial Energy Technology Conference*, Houston, TX, May 1-4, 2001.

43. Worrell, E., Martin, N., Price, L., Ruth, M., Elliott, N., Shipley, A. and Thorne, J., 2001. "Emerging Energy-Efficient Technologies for Industry," *Proceedings 23rd National Industrial Energy Technology Conference*, Houston, TX, May 1-4, 2001.

44. Worrell, E., Martin, N., Anglani, N., Einstein, D., Khrushch, M., and Price, L., 2001. "Opportunities to Improve Energy Efficiency in the U.S. Pulp and Paper Industry," *Proceedings Paper Machine Technology*, February 7-8, 2001, Lanaken, Belgium.

45. Worrell, E., Martin, N., Price, L., Ruth, M., Elliott, N., Shipley, A. and Thorne, J. 2000. "Emerging Energy-Efficient Technologies for Industry," *Proceedings Earth Technologies Forum*, October 30th- November 1st, 2000, Washington, DC.

46. Price, L., Worrell, E., Martin, N., Lehman, B., and Sinton, J., 2000. "China's Industrial Sector in an International Context," *Proceedings of the Workshop on Learning from International Best Practice Energy Policies in the Industrial Sector,* May 22-23, 2000, Beijing.

47. Price, L. and Worrell, E., 2000. "International Industrial Sector Energy Efficiency Policies," *Proceedings of the Workshop on Learning from International Best Practice Energy Policies in the Industrial Sector,* May 22-23, 2000, Beijing.

48. Price, L., Worrell, E., and Phylipsen, D., 1999. "Energy Use and Carbon Dioxide Emission in Energy-Intensive Industries in Key Developing Countries," *Proceedings of the Earth Technologies Forum*, Washington DC, September 27-29, 1999.

49. Phylipsen, D., Price, L., Worrell, E., Blok K., 1999. "Industrial Energy Efficiency in Light of Climate Change Negotiations: Comparing Major Developing Countries and the U.S.," *Proceedings of the 1999 ACEEE Summer Study on Energy Efficiency in Industry*, Washington, DC: American Council for an Energy-Efficient Economy.

50. Khrushch, M., Worrell, E., Price, L., Martin, N., and Einstein, D., 1999. "Carbon Emissions Reduction Potential in the U.S. Chemicals and Pulp and Paper Industries by Applying CHP Technologies," *Proceedings of the 1999 ACEEE Summer Study on Energy Efficiency in Industry*, Washington, DC: American Council for an Energy-Efficient Economy.

51. Ozawa, L., Martin, N., Worrell, E., Price, L., and Sheinbaum, C., 1998. "New Trends in Industrial Energy Efficiency in Mexico: Iron and Steel Industry," *Proceedings of the International Association for Energy Economics, Volume 22.*

52. Worrell, E., Martin, N., and Price, L., 1998. "Energy Efficiency Opportunities in Electric Arc Steelmaking," *Proceedings of the 56th Electric Furnace Conference*.

53. Price, L., Worrell, E., Levine, M.D., and Khrushch, M., 1998. "Sectoral Trends and Driving Forces of Global Energy Use and Greenhouse Gas Emissions: Focus on Industry and Buildings," *Proceedings of the Air & Waste Management Association's Second International Conference: Global Climate Change: Science, Policy, and Mitigation/Adaptation Strategies*.

54. Worrell, E., Price, L., Martin, N., Farla, J., and Schaeffer, R., 1997. "International Energy Efficiency Comparisons and Policy Implications in the Iron and Steel Industry," *Proceedings of the European Council for an Energy-Efficient Economy Summer Study.*

55. Price, L., Worrell, E., Martin, N., Farla, J., and Schaeffer, R., 1997. "Energy Efficiency in the United States Iron and Steel Industry: An International Perspective," *Proceedings of the American Council for an Energy-Efficient Economy Summer Study on Energy Efficiency in Industry*.

56. Price, L., 1997. "Industrial Energy End-Use Demand Analysis," *Proceedings of the Asia Pacific Research Centre Workshop on Methodologies and Data for Energy Demand/Supply Outlook*, 17-19 March, 1997.

57. Levine, M.D., Price, L., and Sinton., J., 1997. "Reducing Growth in Global Energy Use and Greenhouse Gas Emissions: A Regional and Sectoral Analysis of Energy Efficiency Opportunities," *Proceedings of the World Energy Council Asia-Pacific Forum*, 22-24 April, 1997.

58. Levine, M.D. and Price, L., 1997. "The Role of Energy Efficiency in Reducing Growth in Global Energy Use and Greenhouse Gas Emissions: A Regional and Sectoral Analysis," *Proceedings of the ABARE Outlook '97 Conference*, 4-6 February, 1997.

59. Levine, M.D., Price, L., Martin, N., and Worrell, E., 1996. "Energy and Energy Efficiency in Buildings: A Global Analysis," *Proceedings of the 1996 ACEEE Summer Study on Energy Efficiency in Buildings*, Washington, DC: American Council for an Energy-Efficient Economy.

60. Wiel, S., Martin, N., Levine, M.D., Price, L., Sathaye, J., Schipper, L., 1996. "The Role of Buildings Energy Efficiency in Managing Atmospheric Carbon Dioxide," *Proceedings of the 1996 ACEEE Summer Study on Energy Efficiency in Buildings*, Washington, DC: American Council for an Energy-Efficient Economy.

61. Price, L., Martin, N., Levine, M.D., and Worrell, E., 1996. "Industrial Energy Demand and Energy Efficiency in Developing Countries," *Proceedings of the 8th National Industrial Energy Technology Conference* in Houston, TX, April 1996.

62. Worrell, E., Levine, M.D., Price, L., Martin, N., 1996. "Potentials and Policies to Improve the Efficiency of Energy Consumption," *Proceedings of the Europhysics Study Conference: Economy-Energy-Entropy*, 1996.

63. Rosenfeld, A. and Price, L., 1993. "Energy-Efficient Technologies and Policies Can Help Us Win the Race to Save the Planet," *Proceedings of the Innovative Housing '93 Conference,* June 1993.

64. Rosenfeld, A., and Price, L., 1992. "Incentives for Efficient Use of Energy: High Prices Worked Wonders from 1973 through 1985, What Are Today's Alternatives to High Prices?" Presented at the *POWER (Program on Workable Energy Regulation) Conference: The Economics of Energy Conservation*, University of California, Berkeley, June 1992.

65. Rosenfeld, A., and Price, L., 1992. "Making the World's Buildings More Energy-Efficient," *Proceedings of the Oak Ridge National Laboratory Conference on Technologies for a Greenhouse-Constrained Society Conference*, 1992.

66. Gadgil, A., Rosenfeld, A., and Price, L., 1991. "Making the Market Right For Environmentally Sound Energy Technologies: U.S. Successes That Might Work in Developing Countries and Eastern Europe," *Proceedings of ESETT '91: International*

Symposium on Environmentally Sound Energy Technologies and their Transfer to Developing Countries and European Economies in Transition, October 21-25, 1991 (also LBL-31701).

Peer-Reviewed Reports

1. Ohshita, S.B., L. Price, N. Zhou, N. Khanna, D. Fridley, and X. Liu. 2015. *The Role of Chinese Cities in Greenhouse Gas Emission Reduction*. Briefing prepared by the China Energy Group, Lawrence Berkeley National Laboratory, for Stockholm Environment Institute and Bloomberg Philanthropies. September. http://www.bloomberg.org/content/uploads/sites/2/2015/09/LBNL_SEI_China_Final.pdf

2. Price, L. and McKane, A., 2009. *Industrial Energy Efficiency and Climate Change Mitigation: Policies and Measures to Realize the Potential in the Industrial Sector*, Prepared in support of the UN-Energy Side Event on Energy Efficiency in the Post-2012 Framework: Key Issues and Challenges, December 10, 2008, United Nations Climate Change Conference COP-14/CMP4, Poznań, Poland.

3. McKane, A., Price, L., and de la Rue du Can, S., 2007. *Policies for Promoting Industrial Energy Efficiency in Developing Countries and Transition Economies*. Vienna: United Nations Industrial Development Organization.

4. Masanet, E., Price, L., de la Rue du Can, S., Brown, R., Worrell, E., 2005. *Optimization of Product Life Cycles to Reduce Greenhouse Gas Emissions in California.* Sacramento, CA: California Energy Commission (500-2005-110-F).

5. Murtishaw, S., Price, L, de la Rue du Can, S., Masanet, E., Worrell, E., and Sathaye, J., 2005. *Development of Energy Balances for the State of California*. Sacramento, CA: California Energy Commission (500-2005-068).

6. Banuri, T., Barker, T., Bashmakov, I., Blok, K., Bouille, D., Christ, R., Davidson, O., Edmunds, J., Gregory, K., Grubb, M., Halsnaes, Heller, T., Hourcade, J-C., K., Jepma, C., Kauppi, P., Markandya, A., Metz, B., Moomaw, W., Moreira, J.R., Morita, Nakicenovic, N., Price, L., Richels, R., Robinson, J., Rogner, H.H., Sathaye, J., Sedjo, R., Shukla, P., Srivastava, L., Swart, R., Toth, F., Weyant, J., 2001. "Summary for Policymakers" of *Climate Change 2001: Mitigation*. Intergovernmental Panel on Climate Change, United Nations and World Meteorological Organization, Geneva. Working Group 3.

7. Banuri, T., Barker, T., Bashmakov, I., Blok, K., Christensen, J., Davidson, O., Grubb, M., Halsnaes, K., Jepma, C., Jochem, E., Kauppi, P., Krankina, O., Krupnick, A., Kuijpers, L., Kverndokk, S., Markandya, A., Metz, B., Moomaw, W., Moreira, J.R., Morita, T., Pan, J., Price, L., Richels, R., Robinson, J., Sathaye, J., Swart, R., Tanaka, K., Taniguchi, T., Toth, F., Taylor, T, Weyant, J., 2001. "Technical Summary" of *Climate Change 2001: Mitigation*.

Intergovernmental Panel on Climate Change, United Nations and World Meteorological Organization, Geneva. Working Group 3.

8. Nakicenovic, N., Alcamo, J., Davis, G., de Vries, B., Fenhann, J., Gaffin, S., Gregory, K., Grubler, A., Jung, T.Y., Kram, T., La Rovere, E.L., Michaelis, L., Mori, S., Morita, T., Pepper, W., Pitcher, H., Price, L., Riahi, K., Roehrl, A., Rogner, H-H., Sankovski, A., Schlesinger, M., Shukla, P., Smith, S., Swart, R., van Rooijen, S., Victor, N., and Zhou, D., 2000. *Special Report on Emissions Scenarios:* Report of Working Group III of the Intergovernmental Panel on Climate Change. Cambridge University Press.

9. Interlaboratory Working Group on Energy-Efficiency and Clean Energy Technologies, 2000. *Scenarios for a Clean Energy Future.* Oak Ridge, TN: Oak Ridge National Laboratory and Berkeley, CA: Lawrence Berkeley National Laboratory.

10. Interlaboratory Working Group on Energy-Efficient and Low-Carbon Technologies, 1997. *Scenarios of U.S. Carbon Reductions: Potential Impacts of Energy Technologies by 2010 and Beyond.* Oak Ridge, TN: Oak Ridge National Laboratory and Berkeley, CA: Lawrence Berkeley National Laboratory.

11. Acosta-Moreno, R., Baron, R., Bohm, P., Chandler, W., Cole, V., Davidson, O., Dutt, G., Haites, E., Ishitani, H., Kruger, D., Levine, M.D., Zhong, L., Michaelis, L., Moomaw, W., Moreira, J.R., Mosier, A., Moss, R., Nakicenovic, N., Price, L., Ravindranath, N., Rogner, H.H., Sathaye, J., Shukla, P., and Williams, T., 1996. *Technologies, Policies, and Measures for Mitigating Climate Change,* Washington, DC: IPCC Working Group II.

12. Worrell, E., Levine, M.D., Price, L., Martin, N., van den Broek, R., and Blok, K., 1996. *Potentials and Policy Implications of Energy and Material Efficiency Improvement: A Report to the United Nations Division for Sustainable Development.* Utrecht, The Netherlands: Department of Science, Technology & Society, Utrecht University.

13. Levine, M.D., Martin, N., Price, L., and Worrell, E., 1995. *Energy Efficiency Improvement Utilizing High Technology: An Assessment of Energy Use in Industry and Buildings*, London: World Energy Council.

Peer-Reviewed Chapters/Articles in Books

1. Fischedick, M., Roy, J., Abdel-Aziz, A., Acquaye, A., Allwood, J., Ceron, J-P., Geng, Y., Kheshgi, H., Lanza, A., Perczyk, D., Price, L., Santalla, E., Sheinbaum, C., Tanaka, K., Baiocchi, G., Calvin, K., Daenzer, K., Dasgupta, S., Delgado, G., El Haggar, S., Fleiter, T., Hasanbeigi, A., Höller, S., Jewell, J., Mulugetta, Y., Neelis, M., de la Rue du Can, S., Themelis, N. Venkatagiri, K.S., Yetano Roche, M. 2014. "Industry," Chapter 10 in: *Climate Change 2014 Mitigation of Climate Change*. Working Group III Contribution to the

IPCC 5th Assessment Report. Intergovernmental Panel on Climate Change.

2. Ohshita, S.B., Zhou, N., Fridley, D., Price, L. 2014, accepted, in press. "Low-Carbon Urban Infrastructure." Chapter in *Low-Carbon Cities*. Future Science.

3. Ohshita, S.B., N. Zhou, L. Price, D. Fridley, N. Zheng Kanna, LX. Hong, HY. Lu, C. Fino-Chen, G. He. 2015. "Low Carbon Development for Cities: Methods and Measures." Chapter in Vol. 6 'Sustainability of Energy Systems' in the *Handbook of Clean Energy Systems*. JY Yan, ed. Wiley: London. http://onlinelibrary.wiley.com/book/10.1002/9781118991978

4. Levine, M., Zhou, N., Fridley, D., Price, L., and Zheng, N. 2013. "China: Efficiency Where It Really Matters." Chapter 8 in *Energy Efficiency Towards the End of Electricity Demand Growth*. Fereidoon P. Sioshanshi (ed.).

5. Ohshita, S. and Price, L., 2010. "Lessons for Industrial Energy Efficiency Cooperation with China," *China Environment Series 11.* Washington, DC: Woodrow Wilson International Center for Scholars.

6. Bernstein, L., Roy, J., Delhotal, K.C., Harnish, J., Matsuhashi, R., Price, L., Tanaka, K., Worrell, E., Yamba, F., Fenqi, Z., de la Rue du Can, S., Gielen, D., Joosen, S., Konar, M., Matysek, A., Miner, R., Okazaki, T., Sanders, J, Sheinbaum Parado, C., 2007. "Industry" Chapter in the Intergovernmental Panel on Climate Change's *Fourth Assessment Report*, Working Group III. Cambridge: Cambridge University Press.

7. Price, L., Galitsky, C., and Worrell, E., 2006. "Industry," in *Future Electricity Technologies and Systems.* Cambridge, UK: Cambridge University Press.

8. Price, L., Worrell, E., and Sinton, J., 2004. "Designing Energy Conservation Voluntary Agreements for the Industrial Sector in China: Experience from a Pilot Project with Two Steel Mills in Shandong Province," in *The Handbook of Environmental Voluntary Agreements*, E. Croci, ed., Kluwer Academic Publishers.

9. Worrell, E., Price, L., and Galitsky, C., 2004. "Emerging Energy-Efficient Technologies in Industry: Case Study of Selected Technologies," Technical Appendix Chapter 3: *Improving Energy Efficiency* of National Commission on Energy Policy report *Ending the Energy Stalemate: A Bipartisan Strategy to Meet America's Energy Challenges* (LBNL-54828).

10. Price, L. and Levine, M.D., 2002. "Production and Consumption of Energy," Chapter in: *Stumbling Toward Sustainability*. Washington, DC: Environmental Law Institute.

11. Moomaw, W. R., J. R. Moreira, K. Blok, D. Greene, K. Gregory, T. Jaszay, T. Kashiwagi, M. Levine, M. MacFarland, N. S. Prasad, L. Price, H. Rogner, R. Sims, F. Zhou, E.

Alsema, H. Audus, R. K. Bose, G. M. Jannuzzi, A. Kollmuss, L. Changsheng, E. Mills, K. Minato, S. Plotkin, A. Shafer, A. C. Walter, R. Ybema, J. de Beer, D. Victor, R. Pichs-Madruga, H. Ishitani. 2001. "Technological and Economic Potential of Greenhouse Gas Emissions Reduction." Chapter 3 in *Climate Change 2001: Mitigation*. Intergovernmental Panel on Climate Change, United Nations and World Meteorological Organization, Geneva.

12. Rosenfeld, A.H. and Price, L., 1997. "Recent Improvements in New Product Energy Efficiency," in *Plasma Science and the Environment*, Wallace Manheimer, Tom Stix, and Linda Sugiyama, eds. Woodbury, NY: American Institute of Physics Press.

13. Levine, M.D., Akbari, H., Busch, J., Dutt, G., Hogan, K., Komor, P., Meyers, S., Tsuchiya, H., Henderson, G., Price, L., Smith, K.R., and Siwie, L., 1996. *Mitigation Options for Human Settlements*, In: *Climate Change 1995: The IPCC Second Assessment Report, Volume 2: Scientific-Technical Analyses of Impacts, Adaptations, and Mitigation of Climate Change* [Watson, R.T., M.C. Zinyowera, and R.H. Moss (eds.)].Cambridge and New York: Cambridge University Press.

14. Rosenfeld, A.H. and Price, L., 1996. *Buildings and Climate Control.* Chapter in: *Encyclopedia of Climate and Weather*, Stephen H. Schneider, ed. NY: Simon and Schuster, 1996.

15. Atkinson, B., Ciliano, R., Flynn, E., Friedman, K., Hopkins, M., Mills, J., Price, L., Rosenfeld, A., Shaw, H., Wilson, J., and Wood, R., 1992. *Energy Demand Reduction,* In *The Engineering Response to Global Climate Change: Forming A Research and Development Agenda*, New Orleans, LA: National Institute for Global Climate Change and the Engineering Foundation.

16. Rosenfeld, A.H. and Price, L., 1991. "Options for Reducing Carbon Dioxide Emissions," in *Global Warming: Physics and Facts*, New York: American Institute of Physics Conference Series.

LBNL Reports

1. Shen, B., L. Price, M. Liu, L. Meng, P. Miao, and F. Dai. 2015. *White Paper: Unleashing Energy Efficiency Retrofits Through Energy Performance Contracts in China and the United States*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL - 190662).

2. Shen, B., Lu, H.Y., Price, L., Li, J.K., Williams, C., and Dougherty, A., 2013. *Carrots for Energy Efficiency: International Experiences in Design and Implementation of Incentive Programs for Stimulating Energy Efficiency Improvement*. Berkeley, CA: Lawrence Berkeley National Laboratory.

3. Hasanbeigi, A., Price, L., Fino-Chen, C., Lu, H., Ke, J. 2013. *Retrospective and Prospective Decomposition Analysis of Chinese Manufacturing Energy Use, 1995-2020*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-6028E).

4. Kong, L., Hasanbeigi, A., Price, L., Liu, H. 2013. *Analysis of Energy-Efficiency Opportunities for the Pulp and Paper Industry in China*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-6107E).

5. Hasanbeigi, A., Arens, M., Price, L. 2013. *Emerging Energy Efficiency and CO_2 Emissions Reduction Technologies for the Iron and Steel Industry*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-6106E).

6. Hasanbeigi, A., Zeyi J., Price, L., 2013. *Analysis of the Past and Future Trends of Energy Use in Key Medium and Large-Sized Chinese Steel Enterprises, 2000-2030*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-6380E).

7. Hasanbeigi, A., Lobscheid, A., Dai, Y., Price, L., Lu, H. 2012. *Quantifying the Co-benefits of Energy-Efficiency Programs: A Case-study for the Cement Industry in Shandong Province, China*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-5949E).

8. Williams, C., Hasanbeigi, A., Wu, G., Price, L. 2012. *International Experiences with Quantifying the Co-Benefits of Energy Efficiency and Greenhouse Gas Mitigation Policies and Programs*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-5924E).

9. Hasanbeigi, A., Lu, H., Price, L. 2012. *International Best Practices for Pre-processing and Co-processing of Municipal Solid Waste and Sewage Sludge in the Cement Industry*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-5581E).

10. Kong, L., Hasanbeigi, A., Price, L. 2012. *Emerging Energy Efficiency and Greenhouse Gas Mitigation Technologies for the Pulp and Paper Industry*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-5956E).

11. Hasanbeigi, A., Lin, E., and Price, L. 2012. *Emerging Energy Efficiency and CO_2 Emissions Reduction Technologies for Cement and Concrete Production*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-5434E).

12. Zhou, N., Price, L., Zheng, N., Ke, J., and Hasanbeigi, A., 2012. *National Level Co-Control Study of the Targets for Energy Intensity and Sulfur Dioxide in China*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-5253E).

13. Price, L., Zhou, N,. Fridley, D., Ohshita, S., Lu, H., Zheng, N., Fino-Chen, C., 2011. *Development of a Low-Carbon Indicator System for China*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-5243E).

14. Zhou, N., Price, L., Ohshita, S., Zheng, N., and Hu, M. 2011. *A Guidebook for Low-Carbon Development at the Local Level*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-5370E).

15. Hasanbeigi, A., Price, L., Aden, N., Zhang Chunxia, Li Xiuping, Shangguan Fangqin, 2011. *A Comparison of Iron and Steel Production Energy Use and Energy Intensity in China and the U.S.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-4836E).

16. Fridley, D., Zheng, N., Zhou, N., Ke, J., Hasanbeigi, A., Price, L., 2011. *China Energy and Emission Paths to 2030.* Berkeley, CA: Lawrence Berkeley National Laboratory.

17. Zhou, N., Price, L., Ohshita, S., Jiang Kejun, 2011. *A Low Carbon Development Guide for Local Government Actions.* Berkeley, CA: Lawrence Berkeley National Laboratory.

18. Ohshita, S., Price, L., Tian Zhiyu, 2011. *Target Allocation Methodology for China's Provinces: Energy Intensity in the 12th Five Year Plan*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-4406E).

19. Hasanbeigi, A. and Price, L., 2010. *Industrial Energy Audit Guidebook: Guidelines for Conducting an Energy Audit in Industrial Facilities*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-3991E).

20. Shen, B., Price, L., Lu, H., 2010. *Energy Audit Practices in China: National and Local Experiences and Issues*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-4159E).

21. Price, L., de la Rue du Can, S., and Lu, H., 2010. *Evaluation of Efficiency Activities in the Industrial Sector Undertaken in Response to Greenhouse Gas Emission Reduction Targets*. Berkeley, CA: Lawrence Berkeley National Laboratory.

22. Levine, M.D., Price, L., Zhou, N., Fridley, D., Aden, N., Lu, H., McNeil, M., Zheng, N., Qin, Y., Yowargana, P., 2010. *Assessment of China's Energy-Saving and Emission-Reduction Accomplishments and Opportunities During the 11th Five-Year Plan*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-3385E).

23. Price, L., Hasanbeigi, A., Lu, H., Wang, L., 2009. *Analysis of Energy-Efficiency Opportunities for the Cement Industry in Shandong Province, China*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-2751E).

24. Price, L., Wang, X., Jiang, Y., 2008. *China's Top-1000 Energy-Consuming Enterprise Program: Reducing Energy Consumption of the 1000 Largest Industrial Enterprises in China*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-519E).

25. Price, L., Galitsky, C., Kramer, K.J., and McKane, A., 2008. *International Experience with Key Program Elements of Industrial Energy Efficiency and Greenhouse Gas Emission Reduction Target-Setting Programs.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-63807).

26. Worrell, E., Galitsky, C, and Price, L., 2008. *Energy Efficiency Opportunities for the Cement Industry*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-72E).

27. Murray, A. and Price, L., 2008. *Use of Alternative Fuels in Cement Manufacture: Analysis of Fuel Characteristics and Feasibility for Use in the Chinese Cement Sector*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-525E).

28. Worrell, E., Price, L., Neelis, M. Galitsky, C., and Zhou, N., 2007. *World Best Practice Energy Intensity Values for Selected Industrial Sectors.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-62806).

29. Zhou, N., McNeil, M., Fridley, D., Lin, J., Price, L., de la Rue du Can, S., Sathaye, J., Levine, M., 2007. *Energy Use in China: Sectoral Trends and Future Outlook*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-61904).

30. Sathaye, J.A., Price, L., Kumar, S. and de la Rue du Can, S., 2006. *Partnerships for Clean Development and Climate: Business and Technology Cooperation Benefits.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-61472).

31. Price, L., de la Rue du Can, S., Sinton, J., and Worrell, E., Zhou, N., Sathaye, J., and Levine, M., 2006. *Sectoral Trends in Global Energy Use and Greenhouse Gas Emissions.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-56144).

32. Price, L. and Galitsky, C., 2006. *Opportunities for Improving Energy and Environmental Performance of China's Cement Kilns.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-60638).

33. Sathaye, J.A., de la Rue du Can, S., Kumar, S., Iyer, M., Galitsky, C., Phadke, A., McNeill, M., Price, L., Bharvirkar, R., and Padmanabhan, S., 2006. *Implementing End-use Efficiency Improvements in India: Drawing from Experience in the US and Other Countries.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-60035).

34. Price, L., Galitsky, C., Sinton, J., Worrell, E., Graus, W., 2005. *Tax and Fiscal Policies for Promotion of Industrial Energy Efficiency: A Survey of International Experience*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-58128).

35. Sathaye, J., Price, L., de la Rue du Can, S., and Fridley, D., 2005. *Assessment of Energy Use and Energy Savings Potential in Selected Industrial Sectors in India.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-57293).

36. Galitsky, C., Price, L., and Worrell, E., 2004. *Energy Efficiency Programs and Policies in the Industrial Sector in Industrialized Countries.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-54068).

37. Price, L., and Bartholomew, E., 2004. *Assessment of State and Local Greenhouse Gas Emissions Reductions Related to Programs Funded by the State and Local Capacity Building Branch, Global Programs Division, Office of Air and Radiation, U.S. Environmental Protection Agency*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-54712).

38. Price, L., Murtishaw, S., Worrell, E., 2003. *Evaluation of Metrics and Baselines for Tracking Greenhouse Gas Emissions Trends: Recommendations for the California Climate Action Registry.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-53027).

39. Price, L. Jiang, Y., Worrell, E., Du, W., Sinton, J.E, 2003. *Development of an Energy Conservation Voluntary Agreement Pilot Project in the Steel Sector in Shandong Province: Report to the State Economic and Trade Commission, People's Republic of China*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-51608).

40. Marnay, C., Fisher, D., Murtishaw, S., Phadke, A., Price, L., and Sathaye, J., 2002. *Estimating Carbon Dioxide Emissions Factors for the California Electric Power Sector.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-49945).

41. Sathaye, J, Price, L., Worrell, E., Ruth, M., Schaeffer, R., Costa, M., Wang, Y., Roy, J., Das, S., Winkler, H., Spalding-Fetcher, R., Afrane-Okese, Y, and Davidson, O., 2001. *Multi-Project Baselines for Evaluation of Industrial Energy-Efficiency and Electric Power Projects.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-48242).

42. Price, L., Phylipsen, D., and Worrell, E., 2001. *Energy Use and Carbon Dioxide Emissions in the Steel Sector in Key Developing Countries.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-46987).

43. Martin, N., Worrell, E., Ruth, M., Price, L., Elliott, R.N., Shipley, A.M., and Thorpe, J., 2000. *Emerging Energy-Efficient Industrial Technologies*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-46990) and Washington, DC: American Council for an Energy-Efficient Economy.

44. Ruth, M., Worrell, E., and Price, L, 2000. *Evaluating Clean Development Mechanism Projects in the Cement Industry Using a Process-Step Benchmarking Approach*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-45346).

45. Martin, N., Anglani, N., Einstein, D., Khrushch, M., Worrell, E., Price, L., 2000. *Opportunities to Improve Energy Efficiency and Reduce Greenhouse Gas Emissions in the U.S. Pulp and Paper Industry*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-46141).

46. Price, L., Worrell, E., and Khrushch, M., 1999. *Sectoral Trends and Driving Forces of Global Energy Use and Greenhouse Gas Emissions: Focus on Industry and Buildings*. Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL 42817).

47. Martin, N., Worrell, E., and Price, L., 1999. *Energy Efficiency and Carbon Dioxide Emissions Reduction Opportunities in the U.S. Cement Industry*, Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-44182).

48. Worrell, E., Martin, N., Price, L., 1999. *Energy Efficiency and Carbon Dioxide Emissions Reduction Opportunities in the U.S. Iron and Steel Sector*, Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-41724).

49. Schipper, L. J., Scholl, L. and Price, L., 1997. *Energy Use and Carbon Emissions from Freight in Ten Industrialized Countries: An Analysis of Trends from 1973 to 1992*, Berkeley, CA: Lawrence Berkeley National Laboratory (LBNL-38826).

50. Hanford, J.W., Koomey, J.G., Stewart, L.E., Lecar, M.E., Brown, R.E., Johnson, F.X., Hwang, R.J., and Price, L., 1994. *Baseline Data for the Residential Sector and Development of a Residential Forecasting Database*, Berkeley, CA: Lawrence Berkeley National Laboratory (LBL-33717).

51. Koomey, J.G., Johnson, F.X., Schuman, J., Franconi, E., Greenberg, S., Lutz, J.D., Griffith, B.T., Arasteh, D., Atkinson, C., Heinemeier, K., Huang, Y.J., Price, L., Rosenquist, G., Rubinstein, F.M., Selkowitz, S., Taha, H. and Turiel, I., 1994. *Buildings Sector Demand-Side Efficiency Technology Summaries*, Berkeley, CA: Lawrence Berkeley National Laboratory, 1994.

52. Schipper, L.J., Johnson, F., Howarth, R., Andersson, B., Andersson, B., and Price. L., 1993. *Energy Use in Sweden: An International Perspective*, Berkeley, CA: Lawrence Berkeley National Laboratory (LBL-33819).

53. Schipper, L. J., Howarth, R., Andersson, B., and Price, L., 1993. *Energy Use in Denmark: An International Perspective*, Berkeley, CA: Lawrence Berkeley National Laboratory (LBL-32362).

54. Schipper, L., Figueroa, M.J., Price, L., and Espey, M., 1993. *Mind the Gap: The Vicious Circle of Measuring Automobile Fuel Use.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBL-33140).

55. Rosenfeld, A., Atkinson, C., Koomey, J., Meier, A., Mowris, R., and Price, L., 1993. *A Compilation of Supply Curves of Conserved Energy for U.S. Buildings.* Berkeley, CA: Lawrence Berkeley National Laboratory (LBL-31700).

56. Levine, M.D., Geller, H., Koomey, J., Nadel, S., and Price, L., 1992. *Electricity End-Use Efficiency: Experience with Technologies, Markets, and Policies Throughout the World*, Berkeley, CA: Lawrence Berkeley National Laboratory (LBL-31885).

57. Atkinson, B.A., McMahon, J.E., Mills, E., Chan, P., Chan, T.W., Eto, J.H., Jennings, J.D., Price, L., Rubenstein, F., Sezgen, O., and Wenzel, T., 1992. *Analysis of Federal Policy Options for Improving U.S. Lighting Energy Efficiency: Commercial and Residential Buildings*, Berkeley, CA: Lawrence Berkeley Laboratory (LBL-31469).

Other Reports

1. van Sambeek, E., Yowargana, P., Liu, S., Jiang, K., Price, L,. Zhou, N, and Lu, H., 2012. *Policy Options for Encouraging Energy Efficiency Best Practices in Shandong Province's Cement Industry: Exploring Designs Options for a Sectoral Approach*. Beijing: Azure International.

2. Hendriks, C.A., Worrell, E., Price, L., Martin, N., Ozawa Meida, L., 1999. *Greenhouse Gases from Cement Production*. Prepared for the IEA Greenhouse Gas R&D Programme. Utrecht, The Netherlands: Ecofys.