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**Peter Cramton** is Professor of Economics at the University of Maryland and on the International Faculty at the University of Cologne. Since 1983, he has conducted research on auction theory and practice. This research appears in the leading economics journals. The main focus is the design of auctions for many related items. Applications include spectrum, energy, and financial auctions. On the practical side, he is an independent director on the board of the Electric Reliability Council of Texas, director and chief economist of Tremor, and chief economist of Rivada. Since 1993, he has advised 13 governments and 42 bidders in spectrum auctions. He is a co-inventor of the spectrum auction design used in Canada, Australia, and many European countries to auction 4G spectrum. Since 2001, he has played a lead role in the design and implementation of electricity and gas auctions in North America, South America, and Europe. He has advised on the design of carbon auctions in Europe, Australia, and the United States, including conducting the world's first greenhouse-gas auction held in the UK in 2002. He has led the development of innovative auctions in new applications, such as auctions for airport slots, wind rights, diamonds, medical equipment, and Internet top-level domains. He received his B.S. in Engineering from Cornell University in 1980 and his Ph.D. in Business from Stanford University in 1984.

### **Academic Positions**

*Professor of Economics*—Department of Economics, University of Maryland, August 1996 to present. *Affiliate*, Agriculture and Resource Economics, 2008 to present.

*International Faculty*—Department of Economics, University of Cologne, July 2015 to present.

*Part-time Professor of Economics*—Department of Economics, European University Institute, September 2015 to August 2017.

*Associate Professor of Economics*—Department of Economics, University of Maryland, August 1993 to June 1996.

*National Fellow*—Hoover Institution, Stanford University, September 1992 to August 1993.

*Associate Professor of Economics and Management*—Yale School of Management, Yale University, July 1988 to August 1993.

*Assistant Professor of Decision Theory*—Yale School of Management, Yale University, July 1984 to June 1988.

### **Education**

*Stanford University*, Doctor of Philosophy, June 1984, Graduate School of Business.

Dissertation: *The Role of Time and Information in Bargaining*.

Cornell University, Bachelor of Science with distinction, May 1980, School of Operations Research and Industrial Engineering. Graduated first in class.

## Recent Courses

[Market Design](#). Doctoral and advanced masters course on market design.

[Advanced Microeconomics](#). Doctoral course in game theory with emphasis on auctions and market design.

[Methods and Tools of Economic Analysis](#). Undergraduate introduction to the mathematical tools used in economics.

[Game Theory](#). Undergraduate introduction to modern game theory.

[Market Design](#). An advanced undergraduate course on auction and market design.

## Research Interests

Market design, auction theory and practice, bargaining theory, industrial organization, experimental economics, contract theory, game theory, decision theory, labor economics, information economics, and law and economics.

## Honors

Winner of the [Utah Winter Finance Conference Best Paper Award](#), 2015.

Winner of the [AQR Insight Award](#) for most insightful unpublished paper in finance, 2014.

Distinguished Service Award, American Association for Homecare, 2012.

Resident Scholar, Rockefeller Foundation, Villa Serbelloni, Bellagio, Italy, Spring 2007.

Departmental Undergraduate Teaching Award, Spring 1996 (2), Spring 1997 and Spring 2002.

Departmental Graduate Teaching Award, Fall 1994, Fall 1998, and Fall 2007.

Hoover National Fellow, Hoover Institution, Stanford University, 1992-93.

Winner of the *1984 Leonard J. Savage Thesis Award* for an outstanding dissertation in Bayesian Economics.

American Assembly of Collegiate Schools of Business Doctoral Fellowship, 1983-84.

National Association of Purchasing Management Scholarship, 1983-84.

Dean's Award for Service to Stanford University, 1983-84.

Two-time recipient of *Stanford Merit Fellowship*, 1981-83.

Elected by the Operations Research faculty as outstanding senior, 1980.

## Affiliations

Econometric Society, American Economic Association, Society for Economic Analysis, and Society for the Promotion of Economic Theory.

## Research on Auction and Market Design

### Highlights

[Global Carbon Pricing—The Path to Climate Cooperation](#) (with David JC MacKay, Axel Ockenfels and Steven Stoff), *MIT Press*, 2017.

[“The High-Frequency Trading Arms Race: Frequent Batch Auctions as a Market Design Response,”](#) (with Eric Budish and John Shim), *Quarterly Journal of Economics*, 130:4, 1547–1621, November 2015.

[“Demand Reduction and Inefficiency in Multi-Unit Auctions,”](#) (with Lawrence M. Ausubel, Marek Pycia, Marzena Rostek, and Marek Weretka), *Review of Economic Studies*, 81:4, 1366-1400, 2014.

[Combinatorial Auctions](#), (with Yoav Shoham and Richard Steinberg) [MIT Press](#), 2006.

[“Strikes and Holdouts in Wage Bargaining: Theory and Data,”](#) (with Joseph S. Tracy) *American Economic Review*, 82, 100–121, 1992. Reprinted in Bengt Holmstrom, Paul Milgrom, and Alvin E. Roth (eds.), *Game Theory in the Tradition of Bob Wilson*, Berkeley Electronic Press, May 2002.

[“Strategic Delay in Bargaining with Two-Sided Uncertainty,”](#) *Review of Economic Studies*, 59, 205–225, 1992.

[“Dissolving a Partnership Efficiently,”](#) (with Robert Gibbons and Paul Klemperer) *Econometrica*, 55, 615–632, 1987. Reprinted in Paul Klemperer (ed.), *The Economic Theory of Auctions*, Volume 2, Cheltenham, UK: Edward Elgar, 2000.

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## Market design

[“Markets for Road Use: Eliminating Congestion through Scheduling, Routing, and Real-time Road Pricing,”](#) (with R. Richard Geddes and Axel Ockenfels) Working Paper, University of Maryland, August 2017.

[“Market Design in Energy and Communications,”](#) Working Paper, University of Maryland, April 2015

[“Demand Reduction and Inefficiency in Multi-Unit Auctions,”](#) (with Lawrence M. Ausubel, Marek Pycia, Marzena Rostek, and Marek Weretka) *Review of Economic Studies*, 81:4, 1366-1400, 2014.

[“Applicant Auctions for Internet Top-Level Domains: Resolving Conflicts Efficiently”](#) (with Ulrich Gall, Pacharasut Sujarittanonta, and Robert Wilson), Working Paper, University of Maryland, January 2013.

[“Fear of Losing in a Clock Auction”](#) (with Emel Filiz-Ozbay, Erkut Y. Ozbay, and Pacharasut Sujarittanonta), *Review of Economic Design*, 16:2-3, 119-134, 2012.

US Patent No. 8,224,743, [“System and Method for a Hybrid Clock and Proxy Auction”](#) (with Lawrence M. Ausubel and Paul Milgrom) issued July 17, 2012.

US Patent No. 8,145,555, [“System and Method for the Efficient Clearing of Spectrum Encumbrances”](#) (with Lawrence M. Ausubel and Paul Milgrom) issued March 27, 2012.

[“Comparison of Auction Formats for Auctioning Wind Rights”](#) (with Lawrence M. Ausubel) Power Auctions Report for the Bureau of Ocean Energy Management, September 2011.

[“Multiple Factor Auction Design for Wind Rights”](#) (with Lawrence M. Ausubel) Power Auctions Report for the Bureau of Ocean Energy Management, September 2011.

[“Auction Design for Wind Rights”](#) (with Lawrence M. Ausubel) Power Auctions Report for the Bureau of Ocean Energy Management, August 2011.

[“Discrete Clock Auctions: An Experimental Study”](#) (with Emel Filiz-Ozbay, Erkut Ozbay, and Pacharasut Sujarittanonta), *Experimental Economics*, 15:2, 309-322, 2012.

US Patent No. 7,899,734 B2, [“System and Method for an Auction of Multiple Types of Items”](#) (with Lawrence M. Ausubel and Wynne P. Jones) issued March 1, 2011.

[“Market Design: Harnessing Market Methods to Improve Resource Allocation,”](#) White Paper, University of Maryland, October 2010.

[“Auctioning Rough Diamonds: A Competitive Sales Process for BHP Billiton’s Ekati Diamonds”](#) (with Samuel Dinkin and Robert Wilson). Forthcoming in the *Handbook of Market Design*, Zvika Neeman, Al Roth, and Nir Vulkan (eds.), Oxford University Press. January 2013.

US Patent No. 7,729,975, [“System and Method for a Hybrid Clock and Proxy Auction”](#) (with Lawrence M. Ausubel and Paul Milgrom) issued June 1, 2010.

[“Pricing Rule in a Clock Auction”](#) (with Pacharasut Sujarittanonta), *Decision Analysis*, 7, 40-57, 2010.

[“How Best to Auction Natural Resources,”](#) in Philip Daniel, Brenton Goldsworthy, Michael Keen, and Charles McPherson (eds.), *Handbook of Oil, Gas And Mineral Taxation*, Chapter 10, forthcoming, Washington, DC: IMF, 2009.

- [“Innovation and Market Design.”](#) In Josh Lerner and Scott Stern (eds.), *Innovation Policy and the Economy*, Volume 9, National Bureau of Economic Research, 113-137, Chicago: University of Chicago Press, 2009.
- [“Market Design: Auctions and Matching.”](#) In John Siegfried (ed.), *Better Living Through Economics*, Harvard University Press, 223-225, 2010.
- [“An Overview of Combinatorial Auctions”](#) (with Yoav Shoham and Richard Steinberg), *ACM SIGecom Exchanges*, 7, 3-14, 2007.
- [“Market-Based Alternatives for Managing Congestion at New York’s LaGuardia Airport,”](#) (with Michael O. Ball, Lawrence M. Ausubel, Frank Berardino, George Donohue, Mark Hansen, and Karla Hoffman), in *Optimal Use of Scarce Airport Capacity*, Proceedings of AirNeth Annual Conference, The Hague, April 2007.
- [“Introduction to Combinatorial Auctions,”](#) (with Yoav Shoham and Richard Steinberg) in Peter Cramton, Yoav Shoham, and Richard Steinberg (eds.), *Combinatorial Auctions*, 1-13, MIT Press, 2006.
- [“The Clock-Proxy Auction: A Practical Combinatorial Auction Design,”](#) (with Lawrence M. Ausubel and Paul Milgrom) in Peter Cramton, Yoav Shoham, and Richard Steinberg (eds.), *Combinatorial Auctions*, Chapter 5, 115-138, MIT Press, 2006.
- [“Dynamic Auctions in Procurement,”](#) (with Lawrence M. Ausubel) in Nicola Dimitri, Gustavo Piga, and Giancarlo Spagnolo (eds.) *Handbook of Procurement*, Cambridge, England: Cambridge University Press, 2006.
- [“How Best to Auction Oil Rights,”](#) in Macartan Humphreys, Jeffrey D. Sachs, Joseph E. Stiglitz (eds.), *Escaping the Resource Curse*, Chapter 5, 114-151, New York: Columbia University Press, 2007.
- [“Auctioning Many Divisible Goods,”](#) (with Lawrence M. Ausubel) *Journal of the European Economic Association*, 2, 480-493, April-May 2004.
- [“Vickrey Auctions with Reserve Pricing,”](#) (with Lawrence M. Ausubel) *Economic Theory*, 23, 493-505, April 2004. Reprinted in Charalambos Aliprantis, et al. (eds.), *Assets, Beliefs, and Equilibria in Economic Dynamics*, Berlin: Springer-Verlag, 355-368, 2003.
- [“The Optimality of Being Efficient,”](#) (with Lawrence M. Ausubel) Working Paper, University of Maryland, March 2001. [Maryland Auction Conference](#), May 29-31, 1998.
- [“Ascending Auctions,”](#) *European Economic Review*, 42:3-5, 745-756, May 1998.
- [“Dissolving a Partnership Efficiently,”](#) (with Robert Gibbons and Paul Klemperer) *Econometrica*, 55, 615–632, 1987. Reprinted in Paul Klemperer (ed.), *The Economic Theory of Auctions*, Volume 2, Cheltenham, UK: Edward Elgar, 2000.

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## Climate policy

- [Global Carbon Pricing—The Path to Climate Cooperation](#) (with David JC MacKay, Axel Ockenfels and Steven Stoft), MIT Press, 2017.
- [“Translating the Collective Climate Goal into a Common Climate Commitment”](#) (with Axel Ockenfels and Jean Tirole), *Review of Environmental Economics and Policy*, 11:1, 165-171, February 2017.
- [“Price Carbon—I will if you will”](#) (with David JC MacKay, Axel Ockenfels and Steven Stoft), *Nature*, 15 October 2015.
- [“Symposium on International Climate Negotiations”](#) (with Axel Ockenfels and Steven Stoft), *Economics of Energy & Environmental Policy*, 4:2, 1-64, September 2015.
- [“An International Carbon-Price Commitment Promotes Cooperation”](#) (with Axel Ockenfels and Steven Stoft), *Economics of Energy & Environmental Policy*, 4:2, 51-64, September 2015.
- [“Solving the Climate Dilemma”](#) (with David MacKay, Axel Ockenfels and Steven Stoft), [carbon-price.com](#), March 2015.

[“How to Negotiate Ambitious Global Emissions Abatement”](#) (with Axel Ockenfels and Steven Stoft), [carbon-price.com](#), May 2013.

[“How to Fix the Inefficiency of Global Cap and Trade”](#) (with Steven Stoft), *The Economists’ Voice*, 9:1, April 2012.

[“Global Climate Games: How Pricing and a Green Fund Foster Cooperation”](#) (with Steven Stoft), *Economics of Energy & Environmental Policy*, 1:2, March 2012. [[Appendix](#), [Spreadsheet](#)]

[“Kyoto’s Climate Game and How to Fix It”](#) (with Steven Stoft), Issue Brief, Global Policy Center, August 2010.

[“International Climate Games: From Caps to Cooperation”](#) (with Steven Stoft), Research Paper, Global Energy Policy Center, July 2010.

[“Price is a Better Climate Commitment”](#) (with Steven Stoft), *The Economists’ Voice*, 7:1, February 2010.

[“Global Carbon Pricing: A Better Climate Commitment”](#) (with Steven Stoft), Research Paper, Global Energy Policy Center, December 2009.

[“Auctioning Greenhouse Gas Emissions Permits in Australia”](#) (with Regina Betz, Stefan Seifert, and Suzi Kerr), *Australian Journal of Agricultural and Resource Economics*, 54, 219-238, 2010.

[“Comments on the RGGI Market Design.”](#) Submitted to RGGI, Inc. by ISO New England and NYISO, 15 November 2007.

[“Tradeable Carbon Permit Auctions: How and Why to Auction Not Grandfather.”](#) (with Suzi Kerr) *Energy Policy*, 30, 333-345, 2002.

[“A Review of Markets for Clean Air: The U.S. Acid Rain Program.”](#) *Journal of Economic Literature*, 38, 627-633, September 2000.

[“The Distributional Effects of Carbon Regulation.”](#) (with Suzi Kerr) in Thomas Sterner (ed.) *The Market and the Environment*, Cheltenham, United Kingdom: Edward Elgar, chapter 12, 1999.

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## **Spectrum auctions**

[“The German 4G Spectrum Auction: Design and Behaviour”](#) (with Axel Ockenfels), *Economic Journal*, 127, F305-F324, October 2017.

[“Open Access Wireless Markets”](#) (with Linda Doyle), *Telecommunications Policy*, 41:5-6, 379-390, June 2017.

[“An Open Access Wireless Market”](#) (with Linda Doyle), Working Paper, University of Maryland, March 2016.

[“Design of the Reverse Auction in the Broadcast Incentive Auction”](#) (with Hector Lopez, David Malec and Pacharasut Sujarittanonta), Working Paper, University of Maryland, 12 March 2015; [Appendix](#).

[“Bidding and Prices in the AWS-3 Auction”](#) (with Pacharasut Sujarittanonta), Working Paper, University of Maryland, May 2015.

[“Spectrum Auction Design,”](#) *Review of Industrial Organization*, 42:2, 161-190, March 2013.

[“Quadratic Core-Selecting Payment Rules for Combinatorial Auctions”](#) (with Robert Day), *Operations Research*, 60:3, 588-603, 2012.

[“Activity Rules for the Combinatorial Clock Auction”](#) (with Lawrence M. Ausubel), Working Paper, University of Maryland, November 2011.

[“Incentive Auctions and Spectrum Policy.”](#) Testimony of Peter Cramton before the United States House Committee on Energy and Commerce, 15 July 2011. [[Responses to questions](#)]

[“Incentive Auctions.”](#) Working Paper, University of Maryland, April 2011.

[“Using Spectrum Auctions to Enhance Competition in Wireless Services”](#) (with Evan Kwerel, Gregory Rosston, and Andrzej Skrzypacz), *Journal of Law and Economics*, 54:4, S167-S188, 2011.

[“Auctioning the Digital Dividend,”](#) in Jan Kramer and Stefan Seifert (eds.), *Communications Regulation in the Age of Digital Convergence: Legal and Economic Perspectives*, Karlsruhe, Germany: Karlsruhe Institute of Technology, 2009.

[“A Review of the 10-40 GHz Auction,”](#) [Office of Communications](#), United Kingdom, September 2008.

[“A Review of the L-Band Auction,”](#) [Office of Communications](#), United Kingdom, September 2008.

[“The 700 MHz Spectrum Auction: An Opportunity to Protect Competition In a Consolidating Industry”](#) (with Andrzej Skrzypacz and Robert Wilson), submitted to the U.S. Department of Justice, Antitrust Division, 13 November 2007.

[“Comments on the FCC’s Proposed Competitive Bidding Procedures for Auction 73”](#) (with Gregory Rosston, Andrzej Skrzypacz, and Robert Wilson), 31 August 2007.

[“The Effect of Incumbent Bidding in Set-Aside Auctions: An Analysis of Prices in the Closed and Open Segments of FCC Auction 35”](#) (with Allan T. Ingraham and Hal J. Singer) *Telecommunications Policy*, 32, 273-290, 2008.

[Economist Letter to NTIA on 700 MHz Spectrum Auction](#) (with Andrzej Skrzypacz, Simon Wilkie, and Robert Wilson), 30 July 2007.

[“Essential Entry: Revenues in the 700 MHz Spectrum Auction,”](#) University of Maryland, 13 July 2007.

[“Revenues in the 700 MHz Spectrum Auction”](#) (with Andrzej Skrzypacz and Robert Wilson), Working Paper, University of Maryland, 27 June 2007.

[“Economic Comments on the Design of the 700 MHz Spectrum Auction”](#) (with Andrzej Skrzypacz and Robert Wilson), submitted with [testimony of James L. Barksdale](#) to the U.S. Senate Committee on Commerce, Science, and Transportation, 14 June 2007.

[“Simultaneous Ascending Auctions,”](#) in Peter Cramton, Yoav Shoham, and Richard Steinberg (eds.), [Combinatorial Auctions](#), Chapter 4, 99-114, [MIT Press](#), 2006.

[“Collusive Bidding in the FCC Spectrum Auctions,”](#) (with Jesse Schwartz) *Contributions to Economic Analysis & Policy*, 1:1, 2002.

[“Spectrum Auctions,”](#) in Martin Cave, Sumit Majumdar, and Ingo Vogelsang, eds., *Handbook of Telecommunications Economics*, Amsterdam: Elsevier Science B.V., Chapter 14, 605-639, 2002.

“How Affirmative Action at the FCC Auctions Decreased the Deficit,” (with Ian Ayres) in Ian Ayres, ed., *Pervasive Prejudice? Unconventional Evidence of Race and Gender Discrimination*, Chicago: University of Chicago Press, 315-395, 2001.

[“Lessons Learned from the UK 3G Spectrum Auction.”](#) In U.K. National Audit Office Report, *The Auction of Radio Spectrum for the Third Generation of Mobile Telephones*, Appendix 3, October 2001.

[“Collusive Bidding: Lessons from the FCC Spectrum Auctions,”](#) (with Jesse Schwartz) *Journal of Regulatory Economics*, 17, 229-252, May 2000.

[Simultaneous Ascending Auctions with Package Bidding](#), (with John McMillan, Paul Milgrom, Bradley Miller, Bridger Mitchell, Daniel Vincent, and Robert Wilson) Report to the Federal Communications Commission, March 1998.

[“Efficient Relocation of Spectrum Incumbents,”](#) (with Evan Kwerel and John Williams) *Journal of Law and Economics*, 41, 647-675, October 1998.

[“The Efficiency of the FCC Spectrum Auctions,”](#) *Journal of Law and Economics*, 41, 727-736, October 1998.

[Package Bidding for Spectrum Licenses](#), (with John McMillan, Paul Milgrom, Bradley Miller, Bridger Mitchell, Daniel Vincent, and Robert Wilson) Report to the Federal Communications Commission, October 1997.

[Auction Design Enhancements for Non-Combinatorial Auctions](#), (with John McMillan, Paul Milgrom, Bradley Miller, Bridger Mitchell, Daniel Vincent, and Robert Wilson) Report to the Federal Communications Commission, September 1997.

- [“Synergies in Wireless Telephony: Evidence from the Broadband PCS Auctions,”](#) (with Lawrence M. Ausubel, R. Preston McAfee, and John McMillan) *Journal of Economics and Management Strategy*, 6:3, 497-527, 1997.
- [“Deficit Reduction Through Diversity: How Affirmative Action at the FCC Increased Auction Competition,”](#) (with Ian Ayres) *Stanford Law Review*, 48:4, 761-815, 1996.
- [“The FCC Spectrum Auctions: An Early Assessment,”](#) *Journal of Economics and Management Strategy*, 6:3, 431-495, 1997. Reprinted in Donald L. Alexander (ed.), *Telecommunications Policy*, Praeger Publishers, 1997.
- [“Money Out of Thin Air: The Nationwide Narrowband PCS Auction,”](#) *Journal of Economics and Management Strategy*, 4, 267–343, 1995.
- [“The Case for Affirmative Auction: From Conscience to Coffers,”](#) (with Ian Ayres) *New York Times*, 21 May 1995, F13.
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## Electricity market design

- [“Electricity Market Design,”](#) *Oxford Review of Economic Policy*, 33:4, 589-612, November 2017.
- [“Capacity Market Fundamentals”](#) (with Axel Ockenfels and Steven Stoft), *Economics of Energy & Environmental Policy*, 2:2, September 2013.
- [“Economics and Design of Capacity Markets for the Power Sector”](#) (with Axel Ockenfels) *Zeitschrift für Energiewirtschaft*, 36:113-134, 2012.
- [“Ökonomik und Design von Kapazitätsmärkten im Stromsektor”](#) (with Axel Ockenfels), *Energiewirtschaftlichen Tagesfragen*, 61:9, 14-15, 2011.
- [“Wind Energy in Colombia: A Framework for Market Entry”](#) (with Walter Vergara, Alejandro Deeb, Natsuko Toba, and Irene Leino) The World Bank, Washington, DC, July 2010.
- [“Using Forward Markets to Improve Electricity Market Design”](#) (with Lawrence M. Ausubel), *Utilities Policy*, 18, 195-200, 2010.
- [“Virtual Power Plant Auctions”](#) (with Lawrence M. Ausubel), *Utilities Policy*, 18, 201-208, 2010.
- [“Prediction Markets to Forecast Electricity Demand”](#) (with Luciano I. de Castro), Working Paper, University of Maryland, August 2009.
- [“Auctioning Long-term Gas Contracts in Colombia,”](#) Working Paper, University of Maryland, September 2008.
- [“Forward Reliability Markets: Less Risk, Less Market Power, More Efficiency”](#) (with Steven Stoft) *Utilities Policy*, 16, 194-201, 2008.
- [“Colombia’s Forward Energy Market,”](#) Working Paper, University of Maryland, August 2007.
- [“Product Design for Colombia’s Regulated Market,”](#) Working Paper, University of Maryland, June 2007.
- [“Colombia Firm Energy Market,”](#) (with Steven Stoft), *Proceedings of the Hawaii International Conference on System Sciences*, January 2007.
- [“Simulation of the Colombian Firm Energy Market,”](#) (with Steven Stoft and Jeffrey West), Working Paper, University of Maryland, December 2006.
- [“Why We Need to Stick with Uniform-Price Auctions in Electricity Markets,”](#) (with Steven Stoft), *Electricity Journal*, 20:1, 26-37, 2007.
- [“The Convergence of Market Designs for Adequate Generating Capacity,”](#) (with Steven Stoft), White Paper, California Electricity Oversight Board, April 2006.
- [“New England’s Forward Capacity Auction,”](#) University of Maryland, June 2006.
- [“A Capacity Market that Makes Sense,”](#) (with Steven Stoft) *Electricity Journal*, 18, 43-54, August/September 2005.

- [“Review of the Proposed Reserve Markets in New England,”](#) (with Hung-po Chao and Robert Wilson) White Paper, Market Design Inc., January 2005.
- [“Competitive Bidding Behavior in Uniform-Price Auction Markets,”](#) *Proceedings of the Hawaii International Conference on System Sciences*, January 2004.
- [“Competitive Bidding Behavior in Uniform-Price Auction Markets,”](#) Report before the Federal Energy Regulatory Commission, March 2003.
- [“Rebuttal Addendum: Assessment of Submissions of the California Parties,”](#) Report before the Federal Energy Regulatory Commission, March 2003.
- [“Electricity Market Design: The Good, the Bad, and the Ugly,”](#) *Proceedings of the Hawaii International Conference on System Sciences*, January, 2003.
- [“Pricing in the California Power Exchange Electricity Market: Should California Switch from Uniform Pricing to Pay-as-Bid Pricing?”](#) (with Alfred E. Kahn, Robert H. Porter, and Richard D. Tabors), Blue Ribbon Panel Report, California Power Exchange, January 2001.
- [“Uniform Pricing or Pay-as-Bid Pricing: A Dilemma for California and Beyond,”](#) (with Alfred E. Kahn, Robert H. Porter, and Richard D. Tabors), *Electricity Journal*, 70-79, July 2001.
- [“Eliminating the Flaws in New England's Reserve Markets,”](#) (with Jeffrey Lien) Working Paper, University of Maryland, March 2000.
- [“Review of the Reserves and Operable Capability Markets: New England's Experience in the First Four Months,”](#) White Paper, Market Design Inc., November 1999.
- [“The Role of the ISO in U.S. Electricity Markets: A Review of Restructuring in California and PJM,”](#) (with Lisa Cameron) *Electricity Journal*, 71-81, April 1999.
- [“A Review of ISO New England's Proposed Market Rules,”](#) (with Robert Wilson) White Paper, Market Design Inc., September 1998.
- [“Auction Design for Standard Offer Service,”](#) (with Andrew Parece and Robert Wilson) Working Paper, University of Maryland, July 1997.
- [“Using Auctions to Divest Generation Assets,”](#) (with Lisa J. Cameron and Robert Wilson) *Electricity Journal*, 10:10, 22-31, December 1997.

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## Financial market design

- [“The High-Frequency Trading Arms Race: Frequent Batch Auctions as a Market Design Response,”](#) (with Eric Budish and John Shim), *Quarterly Journal of Economics*, 130:4, 1547–1621, November 2015.
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- [“Common-Value Auctions with Liquidity Needs: An Experimental Test of a Troubled Assets Reverse Auction”](#) (with Lawrence M. Ausubel, Emel Filiz-Ozbay, Nathaniel Higgins, Erkut Ozbay, and Andrew Stocking). Forthcoming in the *Handbook of Market Design*, Zvika Neeman, Al Roth, and Nir Vulkan (eds.), Oxford University Press. January 2013.
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- [“No Substitute for the 'P'-Word in Financial Rescue”](#) (with Lawrence M. Ausubel), *The Economists' Voice*, 6:2, February 2009.
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[“Complicated Reverse Auction May Aid In Bailout,”](#) National Public Radio Morning Edition, 10 October 2008.

TV: [“Geithner to Unveil Financial Rescue Plan Monday,”](#) *PBS Nightly Business Report*, 6 February 2009.

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[“Auctioning Securities,”](#) (with Lawrence M. Ausubel) Working Paper, University of Maryland, March 1998.

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## **Medicare auctions and how to fix them**

[“Designed to Fail: The Medicare Auction for Durable Medical Equipment”](#) (with Sean Ellermeyer and Brett E. Katzman) *Economic Inquiry*, 53:1, 469-485, 2014.

[“Medicare Auction Reform,”](#) Testimony of Peter Cramton before the United States House Committee on Small Business, 11 September 2012. [[Oral Testimony](#), [Transcript of Hearing](#), [Comments of Peter Cramton](#)]

[Market Pricing Program Summary](#), July 2012. A brief summary of the proposed legislation to replace Medicare’s Competitive Bidding Program with an auction based on best-practice and science.

[Letter from Esta E. Willman to US House of Representatives Committee on Small Business](#), 11 September 2012.

[Letter from Thomas J. Milam to Peter Cramton](#) on the costs of competitive bidding in diabetes, 10 September 2012.

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[“The Hidden Costs of a Flawed Medicare Auction,”](#) University of Maryland, January 2012.

[“Medicare Auction Reform,”](#) a 12-minute video with problems and solution from leading experts, July 2011.

[Letter from 244 Concerned Auction Experts on the Medicare Competitive Bidding Program](#) to President Obama, the White House, 17 June 2011.

[“Repeal and Reform Legislation for Medicare DME Auctions,”](#) University of Maryland, July 2011.

[“Early Pilots of Medicare Auctions Bring No Solace to Auction Experts”](#) (with Brett E. Katzman), *The Economists’ Voice*, July 2011.

[Competitive Bidding Congressional Update—What You Need to Know](#), Longworth House Office Building, sponsored by U.S. Representative Sue Myrick (R-NC), 24 May 2011. Also Briefing for Senate Staff on the Impact of the CMS Competitive Bidding Program for Durable Medical Equipment, Russell Senate Office Building, 24 May 2011.

- [Video of opening remarks](#) (33 minutes) [[Transcript of entire event](#), [Presentation](#), [pptx with animation](#)]
  - Peter Cramton, Professor of Economics, University of Maryland
- [Video of panelists](#) (42 minutes)
  - Tom Milam, Member, Program Advisory and Oversight Committee (PAOC), Former COO, AmMed Direct
  - Barbara Rogers, PAOC Member and President/CEO National Emphysema/COPD Association
  - Paul Gabos, Chief Financial Officer, Lincare, Round One Re-Bid Winner
  - Robert Brandt, Owner, City Medical Services, Round One Re-Bid Winner
  - Nancy Johnson, 24-year Congresswoman (R-CT)
  - Sue Myrick, Congresswoman (R-NC)

[Letter to PAOC with Public Comments of Peter Cramton at PAOC Meeting on Medicare DME Competitive Bidding Program](#), 7 April 2011. [[Presentation](#)]

[Medicare Auction Conference, Inn & Conference Center](#), University of Maryland, 1 April 2011. [[HomeCare 11 Apr](#), [InsideHealthPolicy 4 Apr](#)]

- [Video of opening remarks](#) (30 minutes) [[Transcript](#)]
  - Peter Cramton, Professor of Economics, *University of Maryland* [[Presentation](#)]
  - Jonathan Blum, Deputy Administrator, *Centers for Medicare & Medicaid Services*
- [Video of a proposed auction approach for Round 2](#) (40 minutes), Peter Cramton [[Presentation](#), [Transcript](#)]
- Video of auction demonstration, Larry Ausubel and Peter Cramton, *University of Maryland* [[Presentation](#), [Transcript](#)]
- [Video of first panel: Sustainability, market structure, and beneficiary choice](#) (43 minutes) [[Transcript](#)]
  - Moderated by Lance Leggitt, Chair, Federal Health Policy, *Baker Donelson*
  - Zachary Schiffman, President, *United States Medical Supply*
  - Nancy Lutz, Program Director, Economics, *National Science Foundation*
  - Joel Marx, Chairman, *Medical Service Company*
  - Amy Law, Vice President Government and Healthcare Strategy, *KCI, Inc.*
  - Paul Gabos, Chief Financial Officer, *Lincare*
- Video of second panel: Product design and ensuring performance [[Transcript](#)]
  - Moderated by Thomas Milam, Member of *Program Advisory and Oversight Committee (PAOC)*
  - Cara Bachenheimer, Senior Vice President Government Relations, *Invacare Corporation*
  - Michael Iskra, Chief Operating Officer, *Simplex Healthcare*
  - Scott Lloyd, Co-founder and President, *Extrakare LLC*
  - Mike Pfister, Executive Vice President, Government Relations, *The SCOOTER Store*
  - John Shirvinsky, Executive Director, *Pennsylvania Association of Medical Suppliers*
- [Video of final panel: What have we learned?](#) (59 minutes) [[Transcript](#)]
  - Tom Bradley, Chief, Medicare Cost Estimates, *Congressional Budget Office*
  - Walt Gorski, Vice President, Government Affairs, *American Association for Homecare*
  - Nancy Johnson, 24-year Congresswoman (R-CT), Senior Public Policy Advisor, *Baker Donelson*
  - Thomas Kruse, President and CEO, *Hoveround Corporation*
  - Evan Kwerel, Senior Economic Advisor, *Federal Communications Commission*
  - Wayne Sale, Chairman, NAIMES, and President and CEO, *Health First*

- [“An Auction for Medicare Durable Medical Equipment: Evidence from an Industry Mock Auction,”](#) Working Paper, University of Maryland, April 2011.
- [Data visualization of auction results and raw data](#) ([Tableau Reader](#) to view data visualization)
- [Program of Medicare Auction Conference](#)
- Trade press on conference announcement: [HomeCare 7 Mar](#), [HomeCare 10 Mar](#)

[“Auction Design for Medicare Durable Medical Equipment,”](#) Working Paper, University of Maryland, March 2011. [Full Presentation: [.pdf](#) [.pptx](#); [Short Presentation](#); [Short Presentation 2-per-Page](#), [HomeCare 1 Feb 2011](#)]

[“Medicare Auction Failure: Early Evidence from the Round 1 Rebid,”](#) Working Paper, University of Maryland, March 2011. [[Raw Data and Tableau Packaged Workbook](#), [Tableau Reader](#), [FOIA Data Request](#), [Original Paper](#)]

[“Medicare’s Troubled Auction System,”](#) *FIRE Podcast*, *Out of the Storm News*, interview with Arin Greenwood, February 2011.

[Letter to Deputy Administrator Blum \(CMS\) on Medicare Auction](#), 5 November 2010. [[Data request](#), 17 November 2010]

[“Reducing Healthcare Costs Requires Good Market Design”](#) (with Brett E. Katzman) *The Economists’ Voice*, 7:4, October 2010.

[“Fix Medicare’s Bizarre Auction Program”](#) (with Ian Ayres), *Opinion Pages*, *New York Times*, 30 September 2010.

[Email to Auction Experts on Medicare Competitive Bidding Program](#), 20 September 2010.

Source material sent with email:

0. [Cramton and Katzman \(2010\)](#), a brief note on the current problems and the need for action (final published version).
1. [Request for Bid Instructions](#) (Round 1 Rebid), which defines the median pricing rule and other auction rules.
2. [Federal Register](#), which presents the final rule and a discussion of its rationale.
3. [Katzman and McGeary \(2008\)](#), the study of the earlier trials showing the bid skewing and other problems.
4. [Request for Bids Bidding Form](#) to see what a bid looks like.
5. [Eligibility Requirements](#) to get a sense of bidder qualification.
6. [Quality Standards](#) to see the limited information on quality standards and performance obligations.

[Excerpts from the Email Replies of Auction Experts Asked to be Signatories of Letter from Concerned Auction Experts](#), 22 September 2010.

[Letter from 167 Concerned Auction Experts on Medicare Competitive Bidding Program](#) to Chairman Stark, Health Subcommittee, Ways and Means, U.S. House of Representatives, 26 September 2010.

[Letter from Chairman Stark to Administrator Berwick \(CMS\)](#), 28 September 2010.

[Letter from Representative Braley to Secretary Sebelius \(HHS\) and Administrator Berwick \(CMS\)](#), 25 October 2010.

[Letter from Representative Tiberi to Secretary Sebelius \(HHS\) and Administrator Berwick \(CMS\)](#), 27 October 2010.

[Letter from Senator Casey to Administrator Berwick \(CMS\)](#), 22 October 2010.

[Letter from Senator Voinovich to Administrator Berwick \(CMS\)](#), 18 October 2010.

[Letter from Representatives Braley and Myrick to Administrator Berwick \(CMS\)](#), 24 November 2010.

Letters from 167 Concerned Auction Experts on Medicare Competitive Bidding Program to other Congressmen:

[Chairman Altmire](#), Investigations and Oversight Subcommittee, Small Business Committee, U.S. House of Representatives.

[Ranking Member Barton](#), U.S. House of Representatives Committee on Energy and Commerce.

[Chairman Baucus](#), U.S. Senate Committee on Finance.

[Ranking Member Camp](#), U.S. House of Representatives Committee on Ways and Means.

[Chairman Conrad](#), U.S. Senate Committee on Budget.

[Ranking Member Grassley](#), U.S. Senate Committee on Finance.

[Representative Hall](#), U.S. House of Representatives.

[Ranking Member Herger](#), U.S. House of Representatives Ways and Means Subcommittee on Health.

[Chairman Levin](#), U.S. House of Representatives Ways and Means Committee.

[Chairman Pallone](#), U.S. House of Representatives Committee on Energy and Commerce, Subcommittee on Health.

[Chairman Rockefeller](#), U.S. Senate Committee on Finance, Health Care Subcommittee.

[Ranking Member Shimkus](#), U.S. House of Representatives Committee on Energy and Commerce, Subcommittee on Health.

[Senator Snowe](#), U.S. Senate Committee on Finance.

[Representative Waxman](#), U.S. House of Representatives Committee on Energy and Commerce.

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## Research on Bargaining

[“Bargaining with a Shared Interest: The Impact of Employee Stock Ownership Plans on Labor Disputes,”](#) (with Hamid Mehran and Joseph Tracy) Working Paper, University of Maryland, March 2015.

[“Unions, Bargaining and Strikes,”](#) (with Joseph S. Tracy) in John T. Addison and Claus Schnabel, eds., *International Handbook of Trade Unions*, Cheltenham, UK: Edward Elgar, Chapter 4, 86-117, 2003.

[“Bargaining with Incomplete Information,”](#) (with Lawrence M. Ausubel and Raymond J. Deneckere), Robert J. Aumann and Sergiu Hart, eds., *Handbook of Game Theory*, Vol. 3, Amsterdam: Elsevier Science B.V., Chapter 50, 1897-1945, 2002.

[“The Effect of Collective Bargaining Legislation on Strikes and Wages,”](#) (with Morley Gunderson and Joseph S. Tracy) *Review of Economics and Statistics*, 81:3, 475-487, 1999.

[“Impacts of Strike Replacement Bans in Canada,”](#) (with Morley Gunderson and Joseph S. Tracy), *Labor Law Journal*, 50:3, 173-179, Fall 1999.

[“The Use of Strike Replacements in Union Contract Negotiations: the U.S. Experience 1980–1989,”](#) (with Joseph S. Tracy) *Journal of Labor Economics*, 16:4, 667-701, 1998.

[“Efficient Relocation of Spectrum Incumbents,”](#) (with Evan Kwerel and John Williams) *Journal of Law and Economics*, 41, 647-675, October 1998.

[“Deception and Mutual Trust: A Reply to Strudler,”](#) (with J. Gregory Dees) *Journal of Business Ethics*, 5, 813–822, 1995. Reprinted in Carrie Menkel-Meadow and Michael Wheeler (eds.), *What's Fair*, John Wiley & Sons, 2004.

[“Wage Bargaining with Time-Varying Threats,”](#) (with [Joseph S. Tracy](#)), *Journal of Labor Economics*, 12, 594–617, 1994.

[“The Determinants of U.S. Labor Disputes,”](#) (with [Joseph S. Tracy](#)), *Journal of Labor Economics*, 12, 180–209, 1994.

[“Promoting Honesty in Negotiation: An Exercise in Practical Ethics,”](#) (with J. Gregory Dees) *Business Ethics Quarterly*, 3, 359-394, 1993. Reprinted in Patricia Werhane and Tom Donalson, *Ethical Issues in Business: A Philosophical Approach*, Prentice-Hall, 1996, and Carrie Menkel-Meadow and Michael Wheeler (eds.), *What's Fair*, John Wiley & Sons, 2004.

[“Strikes and Holdouts in Wage Bargaining: Theory and Data,”](#) (with Joseph S. Tracy) *American Economic Review*, 82, 100–121, 1992. Reprinted in Bengt Holmstrom, Paul Milgrom, and Alvin E. Roth (eds.), *Game Theory in the Tradition of Bob Wilson*, Berkeley Electronic Press, May 2002.

[“Strategic Delay in Bargaining with Two-Sided Uncertainty,”](#) *Review of Economic Studies*, 59, 205–225, 1992.

[“Dynamic Bargaining with Transaction Costs,”](#) *Management Science*, 37, 1221–1233, 1991.

[“Shrewd Bargaining on the Moral Frontier: Toward a Theory of Morality in Practice,”](#) (with J. Gregory Dees) *Business Ethics Quarterly*, 1, 135-167, 1991.

[“Sequential Bargaining Mechanisms,”](#) in *Game-Theoretic Models of Bargaining*, Alvin Roth (ed.), Cambridge University Press, Chapter 8, 149–179, 1985.

[“Bargaining with Incomplete Information: An Infinite-Horizon Model with Two-Sided Uncertainty,”](#) *Review of Economic Studies*, 51, 579–593, 1984.

## Other Research

[“Ratifiable Mechanisms: Learning from Disagreement,”](#) (with Thomas R. Palfrey) *Games and Economic Behavior*, 10, 255–283, 1995.

[“Relational Investing and Agency Theory,”](#) (with Ian Ayres) *Cardozo Law Review*, 15, 1033–1066, 1994.

[“Cartel Enforcement with Uncertainty About Costs,”](#) (with Thomas R. Palfrey) *International Economic Review*, 31, 17–47, 1990. Reprinted in Stephen W. Salant and Margaret C. Levenstein (eds.), *Cartels*, Volume 1, Cheltenham, UK: Edward Elgar, 2005.

[“Nonrandom Mixing Models of HIV Transmission,”](#) (with Edward Kaplan, and A. David Paltiel) in *Mathematical and Statistical Approaches to AIDS Epidemiology*, edited by Carlos Castillo-Chávez, *Lecture Notes in Biomathematics Series*, Springer-Verlag, 218–239, 1989.

## Research Grants

“Testbed Experiments for CRP Auction Design,” US Department of Agriculture, September 2013 to September 2018, \$191,000.

“Design and Experimental Testing of Land Use Mechanisms: Auctions and Coexistence,” US Department of Agriculture, June 2015 to September 2017, \$52,000.

“Common Value Auctions with Liquidity Needs,” National Science Foundation, September 2009 to August 2013, \$400,000.

“Dynamic Matching Mechanisms,” National Science Foundation, August 2005 to July 2008, \$264,188.

“Slot Auctions for U.S. Airports,” Federal Aviation Administration, Department of Transportation, September 2004 to August 2005, \$309,729.

“Rapid Response Electronic Markets for Time-Sensitive Goods,” National Science Foundation, July 2002 to June 2005, \$2,000,000.

“Multiple-Item Auctions,” National Science Foundation, July 2001 to June 2004, \$313,872.

“Auctions for Multiple Items,” National Science Foundation, April 1998 to March 2001, \$318,175.

“Auctions and Infrastructure Conference,” National Science Foundation, April 1998 to March 1999, \$25,000.

“Auctions and Infrastructure,” World Bank, March-June 1998, \$25,000.

“Applying Strategic Bargaining Models to Union Contract Negotiations,” National Science Foundation, April 1995 to March 1998, \$143,637.

“Applying Strategic Bargaining Models to Union Contract Negotiations,” National Science Foundation, April 1992 to March 1994, \$177,760.

“Strikes and Delays in Wage Bargaining: Theory and Data,” National Science Foundation, April 1990 to March 1992, \$153,407.

“Gaming Exercises in Negotiation and Dispute Resolution,” National Institute of Dispute Resolution, July to August 1988, \$6,000.

“The Role of Time and Information in Bargaining,” National Science Foundation, July 1986 to June 1988, \$40,000.

“Public Sector Cases on Negotiation,” Mellon Foundation, July to August 1985, \$12,000.

## Editorial and Public Service

Panelist, National Science Foundation, Enhanced Access to Radio Spectrum, 2012-2013.

*Journal of Industrial Economics*, Associate Editor, 1998-2007.

Member, RTO Futures (a working group of economists, executives, and government leaders to address critical issues in electricity restructuring), 2000-2007.

Panelist, National Science Foundation, Economics, 1999-2002.

Panelist, National Science Foundation, Electricity Power System Efficiency and Security, 2002.

Program Committee Chair, *North American Econometric Society Summer Meetings*, June 21-24, 2001.

Panelist, National Science Foundation, Knowledge and Distributed Intelligence, 1998.

### **Referee for**

American Economic Review, American Political Science Review, Cambridge University Press, Econometrica, Economic Inquiry, Economic J, Economic Letters, Economic Theory, Energy J, Games & Economic Behavior, Group Decision & Negotiation, International Economic Review, International J of Game Theory, J of Business, J of Business & Economic Statistics, J of Conflict Resolution, J of Economic Theory, J of Economic Surveys, J of Economics & Management Strategy, J of Industrial Economics, J of Labor Economics, J of Law and Economics, J of Law, Economics & Organization, J of Political Economy, J of Public Economics, J of Regulatory Economics, Labour Economics, Management Science, Mathematical Social Sciences, Marketing Science, MIT Press, National Institute for Dispute Resolution, National Science Foundation, Omega, Operations Research, OPSEARCH, Quarterly J of Economics, Rand J of Economics, Research in Experimental Economics, Review of Economic Studies, Scandinavian J of Economics, Science, Social Choice & Welfare, Southern Economic J.

### **Recent Post-Docs (Initial Placement)**

Darrell Hoy, April 2014-June 2017 (Tremor Technologies)

David Malec, June 2013-June 2018 (Tremor Technologies)

### **Recent PhD Committees Chaired (Initial Placement)**

Hector Lopez, July 2015 (Rivada Networks)

Pacharasut Sujarittanonta, July 2010 (Morgan State University)

Nathaniel Higgins, December 2009 (USDA Economic Research Service)

Matias Herrera Dappe, May 2009 (Bates White)

Andrew Stocking, August 2009 (Congressional Budget Office)

Dipan Ghosh, May 2008 (CRA International)

Martin Ranger, May 2005 (Indiana University)

Jeffrey Lien, August 2001 (US Department of Justice)

Allan Ingraham, May 2001 (Criterion Auctions)

Jesse Schwartz, August 1999 (Vanderbilt University)

Laurent Martin, July 1999 (University of Washington)

### **Entrepreneurship**

Founder, [Cramton Associates](#), a consultancy providing expert advice in high-stakes auction markets. 1993 to present.

Chief Economist, [Rivada Networks](#), a company developing open access wireless markets. 2015 to present.

Director, Arpent, a company developing markets for road use. 2015 to present.

Director and Chief Economist, [Tremor Technologies](#), a company developing a smart market for reinsurance. 2017 to present.

Chair, [Market Design Inc.](#) (with Lawrence Ausubel, R. Preston McAfee, Paul Milgrom, Alvin Roth, and Robert Wilson), a consulting firm that works with governments and companies in designing and implementing state-of-the-art auction and matching methods, 1995 to 2016 (President since 1999, Chair since 2003). Major projects:

- Design auction market for rough diamonds.

- Design auction and suggest market reforms for British Columbia timber market.
- Design and implement virtual power plant auctions in France and Belgium.
- Design and implement auction to sell gas capacity in Germany and France.
- Design and implement U.K. auction to procure greenhouse gas emission reductions.
- Design and implement of spectrum auctions in U.S., Canada, Mexico, Australia, and the U.K.
- Design and implement electricity auctions in North America and South America.
- Design auctions to divest electricity generation plants and power purchase agreements in U.S. and Canada.

Founder, [Criterion Auctions](#), a consulting firm that provides auction support services to governments and companies in high-stake auctions. December 2000 to June 2007.

Chair and Founder, [Spectrum Exchange](#) (with Lawrence Ausubel, Paul Milgrom, and [Market Design Inc.](#)), a firm to create value for the public by promoting the efficient exchange of spectrum. 1999 to 2009.

### Expert Reports, Affidavits, and Testimony

[“Design of the Reverse Auction in the Broadcast Incentive Auction”](#) (with Hector Lopez, David Malec and Pacharasut Sujarittanonta), Working Paper, University of Maryland, 12 March 2015; [Appendix](#). Filed by EOBC at the FCC.

[“Bidding and Prices in the AWS-3 Auction”](#) (with Pacharasut Sujarittanonta), Working Paper, University of Maryland, May 2015. Filed by the Competitive Carriers Association.

ISO New England, Docket Nos. ER14-1050-000, -001, Federal Energy Regulatory Commission, [“Prepared Testimony of Peter Cramton on Behalf of ISO New England,”](#) January 2014. Comments on ISO New England’s proposed Pay For Performance reforms to the Forward Capacity Market.

ISO New England, Docket Nos. ER14-1050-000, -001, Federal Energy Regulatory Commission, “Supplemental Prepared Testimony of Peter Cramton on Behalf of ISO New England,” February 2014. Comments on NEPOOL’s critique of ISO New England’s proposed Pay For Performance reforms to the Forward Capacity Market.

[“The Revenue Impact of Competition Policy in the FCC Incentive Auction,”](#) December 2013. Comments on the revenue impact of spectrum-aggregation limits in the FCC’s incentive auction. On behalf of T-Mobile USA.

[“The Rationale for Spectrum Limits and Their Impact on Auction Outcomes,”](#) August 2013. Argues that well-crafted spectrum aggregation limits can increase competition both in the market for mobile broadband services and in the spectrum auctions in which they apply. On behalf of T-Mobile USA.

ISO New England and New England Power Pool, Docket No. ER12, Federal Energy Regulatory Commission, [“Testimony of Peter Cramton,”](#) April 2012. Examines the New England regulation market and proposes an alternative market design. For ISO New England.

Verizon Wireless spectrum transaction with SpectrumCo and Cox, Federal Communications Commission, WT Docket No. 12-4, [“Supplemental Declaration of Peter Cramton.”](#) March 2012. Supplemental declaration on the FCC’s spectrum screen used to evaluate spectrum transactions. On behalf of T-Mobile US.

Verizon Wireless spectrum transaction with SpectrumCo and Cox, Federal Communications Commission, WT Docket No. 12-4, [“Declaration of Peter Cramton.”](#) February 2012. Declaration on the FCC’s spectrum screen used to evaluate spectrum transactions. On behalf of T-Mobile US.

[“700 MHz Device Flexibility Promotes Competition,”](#) July 2010. Argues that the carrier-specific band plans proposed by AT&T and Verizon Wireless for the 700 MHz paired spectrum will undermine competition. On behalf of the Rural Cellular Association.

[“Foreword to Ross Baldick's 'Single Clearing Price in Electricity Markets',”](#) Compete Coalition, [www.competecoalition.com](http://www.competecoalition.com), February 2009. Argues that consumers and suppliers are better off with the clearing-price auction in electricity markets.

[“Report on Key Design Elements of Auctions Under Australia's Carbon Pollution Reduction Scheme,”](#) Tradeslot Report to Australian Department of Climate Change, 26 October 2008.

DC Energy, LLC v. HQ Energy Services (US) Inc., Docket No. EL07-67-000, Federal Energy Regulatory Commission, [“Affidavit of Peter Cramton.”](#) August 2007. Affidavit arguing that HQ manipulated the NYISO TCC and day-ahead energy markets. On behalf of DC Energy, LLC.

The People of the State of Illinois, et al., Docket No. EL07-47-000, Federal Energy Regulatory Commission, [“Affidavit of Peter Cramton.”](#) June 2007. Affidavit arguing that the Illinois auction for energy for small customers was a competitive auction. On behalf of J. Aron & Company and Morgan Stanley Capital Group Inc.

Australia National Emissions Trading Taskforce, [“Possible Design for a Greenhouse Gas Emissions Trading System,”](#) August 2007.

700 MHz Auction, Federal Communications Commission, [“Why Large Licenses are Best for the 700 MHz Spectrum Auction.”](#) April 2007. On behalf of Verizon Wireless.

New York Independent System Operator, Docket No. ER07-360-000, Federal Energy Regulatory Commission, [“Affidavit of Peter Cramton.”](#) February 2007. Affidavit identifying manipulation of New York's capacity market by KeySpan and the need for market monitoring and mitigation. On behalf of Consolidated Edison Company of New York.

United States vs. Mario Gabelli. Expert report showing the damages caused by Gabelli's false claims in FCC spectrum auctions. The case was settled in June 2006. Gabelli paid \$130 million in damages. On behalf of the United States.

Devon Power LLC, et al., Docket No. ER03-563-030, Federal Energy Regulatory Commission, [“Affidavit of Peter Cramton,”](#) March 2006. Affidavit in support of the settlement agreement defining the New England Forward Capacity Market. For ISO New England.

AWS Auction, Federal Communications Commission, [“Declaration of Peter Cramton.”](#) February 2006. Declaration on various auction rules for the AWS auction. On behalf of T-Mobile US.

AWS Auction, Federal Communications Commission, [“Reply Declaration of Peter Cramton.”](#) February 2006. Reply declaration on various auction rules for the AWS auction. On behalf of T-Mobile US.

AWS Auction, Federal Communications Commission, [“Ex Parte of Peter Cramton.”](#) March 2006. Ex parte communication on various auction rules for the AWS auction. On behalf of T-Mobile US.

[MDI retained as Auction Manager](#) for virtual divestiture of 2,600 MW of nuclear energy as part of the proposed merger between Exelon and PSEG. August 2005.

US-Canada Softwood Lumber Trade Dispute, [“Competitive Auction Markets in British Columbia”](#) (with Susan Athey). December 2005. White Paper, Market Design Inc. On behalf of British Columbia Ministry of Forests.

US-Canada Softwood Lumber Trade Dispute, [“Comments on DOC Notice of Preliminary Results of Countervailing Duty Review”](#) (with Susan Athey). July 2005. White Paper, Market Design Inc. On behalf of British Columbia Ministry of Forests.

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US-Canada Softwood Lumber Trade Dispute, [“Upset Pricing in Auction Markets: An Overview”](#) (with Susan Athey and Allan Ingraham). March 2003. White Paper, Market Design Inc. On behalf of British Columbia Ministry of Forests.

US-Canada Softwood Lumber Trade Dispute, [“An Analysis of Auction Volume and Market Competition for the Coastal Forest Regions in British Columbia”](#)(with Susan Athey and Allan Ingraham). September 2002. White Paper, Market Design Inc. On behalf of British Columbia Ministry of Forests.

US-Canada Softwood Lumber Trade Dispute, [“Reserve Prices, Stumpage Fees, and Efficiency”](#) (with Susan Athey and Allan Ingraham). September 2002. White Paper, Market Design Inc. On behalf of British Columbia Ministry of Forests.



US-Canada Softwood Lumber Trade Dispute, [“Auction-Based Timber Pricing and Complementary Market Reforms in British Columbia”](#) (with Susan Athey and Allan Ingraham). March 2002. White Paper, Market Design Inc. On behalf of British Columbia Ministry of Forests.

US-Canada Softwood Lumber Trade Dispute, [“Setting the Upset Price in British Columbia Timber Auctions”](#) (with Susan Athey and Allan Ingraham). September 2002. White Paper, Market Design Inc. On behalf of British Columbia Ministry of Forests.

US-Canada Softwood Lumber Trade Dispute, [“Auctioning Timber to Maximize Revenues in British Columbia”](#) (with Susan Athey and Allan Ingraham). June 2002. White Paper, Market Design Inc. On behalf of British Columbia Ministry of Forests.

US-Canada Softwood Lumber Trade Dispute, [“A Comparison of Equation-Based and Parity Pricing of Stumpage Fees for British Columbia Timber Under Long-Term Tenures”](#) (with Susan Athey and Allan Ingraham). April 2002. White Paper, Market Design Inc. On behalf of British Columbia Ministry of Forests.

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New England Power Pool, Federal Energy Regulatory Commission, [“Review of the Proposed Reserve Markets in New England,”](#) (with Hung-po Chao and Robert Wilson) Market Design Inc., January 2005.

U.S. Department of Defense, Services, “Criterion Auctions, December 2003.

Expert Report of Peter Cramton, *D. Lamar Deloach, et al. v. Philip Morris, Inc., et al.*, Civil Action No. 00-CV-1253, United States District Court, Middle District of North Carolina. October 2003. For R.J. Reynolds. Concluded that R.J. Reynolds did not collude in U.S. tobacco auctions during the class period.

Supplier Behavior in California Energy Crisis, Federal Energy Regulatory Commission, Docket Nos. EL00-95-075 and EL00-98-063, [“Competitive Bidding Behavior in Uniform-Price Auction Markets,”](#) March 2003. For Duke Energy.

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U.S. Department of Transportation, Docket Nos. FAA–2001–9852, FAA–2001–9854, [“Comments on Alternative Policy Options for Managing Capacity and Mitigating Congestion and Delay at LaGuardia Airport,”](#) June 2002. Recommending auctions to manage congestion at LaGuardia.

Verizon Wireless Petition for Permanent Forbearance from CMRS Number Portability, Federal Communications Commission, WT Docket No. 01-184, [“Declaration of Peter Cramton,”](#) February 2002. Comments in support of wireless number portability. For Leap Wireless.

ISO New England, Docket No. ER02, Federal Energy Regulatory Commission, [“Affidavit of Peter Cramton,”](#) February 2002. Comments on proposed changes to how the energy clearing price is calculated. For ISO New England.

2000 Biennial Regulatory Review Spectrum Aggregation Limits For Commercial Mobile Radio Services, WT Docket No. 01-14, Federal Communications Commission, [“Ex Parte Declaration of Peter Cramton,”](#) October 2001. Further comments on the CMRS spectrum cap. For Leap Wireless.

ISO New England, Docket No. EL00-62-015, Federal Energy Regulatory Commission, [“Affidavit of Peter Cramton,”](#) June 2001. Comment on modifications to installed capability market. For ISO New England.

2000 Biennial Regulatory Review Spectrum Aggregation Limits For Commercial Mobile Radio Services, WT Docket No. 01-14, Federal Communications Commission, [“Declaration of Peter Cramton,”](#) April 2001. Comments on the CMRS spectrum cap. For Leap Wireless.

C and F Block Broadband PCS Auction, Federal Communications Commission, [“Declaration of Peter Cramton,”](#) March 2001. Comments on the impact of fronts in the C and F Block Broadband PCS auction.

[“Lessons Learned from the UK 3G Spectrum Auction,”](#) May 2001. An expert report on the UK 3G Spectrum Auction. For UK National Audit Office.

[“Market Effectiveness Assessment,”](#) (with Jeffrey Lien) May 2001. An expert report assessing the effectiveness of the electricity restructuring plan in Ontario. For TransCanada.

First Millennium Communications, Inc. and Barbara Laurence vs. Entravision Communications Company, No. 1420009074, “Expert Report of Peter Cramton,” May 2001. Comment on the value of clearing rights for broadcast television stations 59 to 69. For First Millennium Communications and Barbara Laurence.

Pacific Communications vs. American Wireless, Superior Court of Fulton County, Georgia, No. 2000CV20099, [“Reply Declaration of Peter Cramton,”](#) April 2001. Further comments on the impact of a delayed sale of spectrum license by Pacific Communication. For American Wireless.

Pacific Communications vs. American Wireless, Superior Court of Fulton County, Georgia, No. 2000CV20099, [“Expert Affidavit of Peter Cramton,”](#) February 2001. Comments on the impact of a delayed sale of spectrum license by Pacific Communication. For American Wireless.

[“Lessons from the United States Spectrum Auctions,”](#) Prepared Testimony of Peter Cramton before the United States Senate Budget Committee, February 2000.

New England Power Pool, Docket No. EL00-83-000, Federal Energy Regulatory Commission, [“Affidavit of Peter Cramton,”](#) July 2000. Comment on deficiency charge in installed capability market. For ISO New England.

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## Personal

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