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RESEARCH AREAS

Environmental Economics · Climate · Energy Economics · Applied Econometrics

POSITIONS

2021–	Director, Social Cost of Carbon Initiative, RFF
2020–	Fellow, RESOURCES FOR THE FUTURE (RFF)
2018–2020	Postdoctoral Fellow, RESOURCES FOR THE FUTURE
2011–2013	Senior Analyst, NERA ECONOMIC CONSULTING
2009–2011	Analyst, CONGRESSIONAL BUDGET OFFICE (CBO)
2006 & 2007	Intern, THE BROOKINGS INSTITUTION

EDUCATION

2013–2018	Duke University
	PH.D., ENVIRONMENTAL & RESOURCE ECONOMICS · 2018
	M.A., ECONOMICS · 2014
2005–2009	Williams College
	B.A., ECONOMICS · 2009

PEER-REVIEWED PUBLICATIONS

RCTs Against the Machine: Can Machine Learning Prediction Methods Recover Experimental Treatment Effects?

*Machine learning
& causal inference*

Evaluating the effectiveness of machine learning counterfactual prediction methods for causal inference, with an application to electricity demand.

Brian C. Prest, Casey Wichman, Karen Palmer. Available at [RFF](#). *Conditionally accepted at the Journal of the Association of Environmental and Resource Economists.*

Comprehensive Evidence Implies a Higher Social Cost of CO₂

*Social cost of
carbon*

RFF's comprehensive update of the social cost of carbon, in a manner fully responsive to recommendations from the National Academies of Sciences, Engineering, and Medicine. See [here](#) for results and data visualization.

Kevin Rennert, Frank Errickson, **Brian C. Prest**, Lisa Rennels, Richard G. Newell, William Pizer, Cora Kingdon, Jordan Wingenroth, Roger Cooke, Bryan Parthum, David Smith, Kevin Cromar, Delavane Diaz, Frances C. Moore, Ulrich K. Müller, Richard J. Plevin, Adrian E. Raftery, Hana Ševčíková, Hannah Sheets, James H. Stock, Tammy Tan, Mark Watson, Tony E. Wong, David Anthoff. *Nature*, (2022).

- Social cost of carbon & discounting*
- A Discounting Rule for the Social Cost of Carbon**
- Estimating an empirically-driven discounting rule for the Social Cost of Carbon in an integrated assessment framework with stochastic economic growth and discount rates.
- Richard G., Newell, William A. Pizer, **Brian C. Prest**. *Journal of the Association of Environmental and Resource Economists*, 9, no. 5 (September 2022): 1017-1046. Working paper available at [RFF](#).
- Oil & gas drilling on federal lands*
- Supply side reforms to oil and gas production on federal lands: Modeling the implications for CO₂ emissions, revenues, and production shifts**
- Modeling the emissions and revenues impacts of reforming policies on oil and gas development on US federal lands, in context of the threat of production leakage to state and private lands.
- Brian C. Prest**. *Journal of the Association of Environmental and Resource Economists*, 9, no. 4 (July 2022): 681-720. Preprint version available at [RFF](#).
- Social cost of carbon*
- The Social Cost of Carbon: Advances in Long-Term Probabilistic Projections of Population, GDP, Emissions, and Discount Rates**
- Improving the science underlying the social cost of carbon.
- Kevin Rennert, **Brian C. Prest**, William A. Pizer, Richard G. Newell, David Anthoff, Cora Kingdon, Lisa Rennels, Roger Cooke, Adrian E. Raftery, Hana Ševčíková, Frank Errickson. *Brookings Papers on Economic Activity*. 2021, no. 2 (Fall 2021): 223-305.
- Economic impacts of temperature*
- The GDP-Temperature Relationship: Implications for Climate Change Damages**
- Estimating the economic impacts of temperature, and the implication for damages of climate change—in context of model uncertainty by using cross-validation techniques.
- Richard G. Newell, **Brian C. Prest**, Steven Sexton. *Journal of Environmental Economics and Management*, 108, (July 2021), 102445. Working paper available at [RFF](#).
- Coal subsidies & air quality*
- How Clean is “Refined Coal”? An Empirical Assessment of a Billion-Dollar Tax Credit**
- Assessing the effectiveness of, and legal compliance with, coal tax credits.
- Brian C. Prest**, Alan Krupnick. *Energy Economics*, 97, (May 2021), 105023. Working paper available at [RFF](#).
- Environmental policy design*
- Prices versus Quantities with Policy Updating**
- Dynamic modeling of the economics of inter-temporal environmental policy when policies are updated over time.
- William A. Pizer, **Brian C. Prest**. *Journal of the Association of Environmental and Resource Economists*, 7, no. 3 (May 2020): 483-518. Working version available at [NBER](#).
- Machine learning & electricity demand*
- Peaking Interest: How awareness drives the effectiveness of time-of-use electricity pricing**
- Using machine learning to determine the key factors driving consumer responses to time-of-use electricity pricing.

Brian C. Prest. *Journal of the Association of Environmental and Resource Economists*, 7, no. 1 (January 2020): 103-143. Working version available [here](#).

The Unconventional Oil Supply Boom: Aggregate Price Response from Micro-data

Economics of shale/tight oil

Econometrically estimating the effects of the shale revolution on the price elasticity of U.S. oil supply.

Richard G. Newell, **Brian C. Prest.** *The Energy Journal*, 40, no. 3 (May 2019). Working version available [here](#).

Trophy Hunting vs. Manufacturing Energy: The Price-Responsiveness of Shale Gas

Economics of shale gas

Econometric analysis of the effects of advanced drilling technology (hydraulic fracturing and horizontal drilling) on the price elasticity of U.S. natural gas supply.

Richard G. Newell, Ashley Vissing, **Brian C. Prest.** *Journal of the Association of Environmental and Resource Economists*, 6, no. 2 (March 2019): 391-431.

Explanations for the 2014 Oil Price Decline: Supply or Demand?

Oil markets and price formation

Time series econometrics analyzing the relative contributions of supply and demand factors to the decline in global oil prices in 2014.

Brian C. Prest. *Energy Economics*, 74 (August 2018): 63-75.

WORK IN PROGRESS

The Shadow Price of Capital: Accounting for Capital Displacement in Benefit-Cost Analysis

Discounting in benefit-cost analysis

Explaining why common approaches to discounting in benefit-cost based on investment rates of return are biased, and how to properly account for capital displacement concerns.

Richard G. Newell, William A. Pizer, **Brian C. Prest**, Available at [RFF](#).

Climate Royalty Surcharges

Optimal federal royalty policy

Combining both theoretical and empirical models of oil and gas production to estimate welfare-maximizing and revenue-maximizing federal royalty policies, accounting for leakage.

Brian C. Prest, James Stock. Available at [RFF](#) and [NBER](#). *Revisions requested*.

REPORTS AND OTHER WRITING

2022 · Barron's, Commentary, by Maureen Cropper, Richard Newell, Brian Prest, and Kevin Rennert. [The Damage from Carbon Is More Costly Than We Thought](#)

2022 · Karen Palmer, Brian Prest, Seth Villanueva, and Stuart Iler. [Options for EIA to Publish CO₂ Emissions Rates for Electricity](#), RFF Report

2022 · Brian Prest, [Partners, Not Rivals: The Power of Parallel Supply-Side and Demand-Side Climate Policy](#), RFF Report

2022 · Daniel Raimi, Erin Campbell, Richard Newell, Brian Prest, Seth Villanueva, and Jordan Wingenroth, [Global Energy Outlook 2022: Turning Points and Tension in the Energy Transition](#), RFF Report

2021 · Brian Prest, [Methane Fees' Effects on Natural Gas Prices and Methane Leakage](#), RFF Issue Brief

2021 · Richard Newell, Daniel Raimi, Seth Villanueva, and Brian Prest, [The Global Energy Outlook 2021: Pathways from Paris](#), RFF Report

2021 · Brian Prest, [Federal Climate Policy 108: The Oil and Gas Industry](#), RFF Explainer Series

2021 · Brian Prest, Dallas Burtraw, and Karen Palmer, [Waiting for Clarity: How a Price on Carbon Can Inspire Investment](#), RFF Report

2020 · Richard Newell, Daniel Raimi, Seth Villanueva, and Brian Prest, [The Global Energy Outlook 2020: Energy Transition or Energy Addition?](#), RFF Report

2020 · Brian Prest, [Discounting 101](#), RFF Explainer Series

2019 · Contributing author, [IPBES Global Assessment of Biodiversity and Ecosystem Services](#)

2017 · Richard Newell and Brian Prest, [Informing SPR Policy Through Oil Futures and Inventory Dynamics](#), NBER Working Paper

2017 · Richard Newell and Brian Prest, [How the Shale Boom Has Transformed the US Oil and Gas Industry](#), RFF Issue Brief

2011 · Terry Dinan and Brian Prest, [The Effects of Renewable or Clean Electricity Standards](#), CBO Report

2010 · Paige Piper-Bach and Brian Prest, [Immigration Policy in the United States: An Update](#)

AWARDS, GRANTS & HONORS

2021 · *Honorable Mention for 2020 AERE Best JAERE Paper Award*

2020 · *Federal Oil and Gas Leasing Reform*, research grant, The Wilderness Society, PI

2018-20 · *Postdoctoral Fellowship*, Alfred P. Sloan Foundation/Resources for the Future.

2017-8 · *Fisher Dissertation Fellow-in-Residence*, Resources for the Future.

2017-8 · *Joseph L. Fisher Doctoral Dissertation Fellowship*, Resources for the Future.

2017 · *Student Paper Award*, United States Association for Energy Economics (USAEE)

2016 · *The Economics of Energy Markets* Grant (with Richard Newell), National Bureau of Economic Research (NBER), Department of Energy, and National Science Foundation (NSF).

2016 · *Duke University Summer Research Fellowship*, Stuart Irwin Harris Fellowship.

2016-8 · *Energy Doctoral Student Fellow*, Duke University Energy Initiative.

2015 · *Pathfinder Fellow*, Data Expedition Grant, Information Initiative at Duke (*iiD*).

2014 · *Duke Environmental Economics Doctoral Scholars Fellowship (DEEDS)*, Nicholas Institute for Environmental Policy Solutions.

2011 · *CBO Director's Award*, the agency's highest honor, granted annually to a select few individuals for exceptional achievement.

2009 · *Highest Honors* for a senior thesis in Economics, Williams College.

2009 · *Jack Larned 1942 International Management Prize*, for best undergraduate paper "dealing with the management of development in governments and private or public enterprises in African, Asian, or Latin American countries".

2008 · *Class of 1960 Scholar*, Economics, Williams College.

2007 · *Mead Internship Program*, policy internship sponsorship, Williams College.

INVITED PRESENTATIONS & TESTIMONY

2023 · AEA Annual Conference (scheduled).

2022 · Cornell University, Saint Albans School, Duke University, Harvard Kennedy School, Integrated Assessment Modeling Consortium Annual Meeting (scheduled).

2021 · United States Congress House Committee on Natural Resources, Department of the Interior, EPA NCEE, AERE Summer Conference, Brookings Institution, Duke University, Georgetown University, AERE “Preparing for Success on the Job Market” Workshop.

2020 · AEA Annual Conference, National Council for Science and the Environment, AERE Virtual Summer Conference, Duke University).

2019 · Environmental Protection Agency (Clean Air Markets Division), Congressional Budget Office, AERE Summer Conference (Lake Tahoe, NV), Southern Economic Association (Fort Lauderdale, FL)

2018 · London School of Economics, Virginia Tech, University of Georgia, Environmental Protection Agency (NCEE), Resources for the Future, Federal Reserve Bank of Dallas

2017 · United States Association of Energy Economics (USAEE) Conference (Houston, TX), Colorado University Environmental and Resource Economics Workshop (Vail, CO), Camp Resources XXIV Conference (Wrightsville Beach, NC), AERE Summer Conference (Pittsburgh, PA), AEA Annual Conference (Chicago, IL)

2016 · Camp Resources XXIII Conference (Wrightsville Beach, NC), AERE Summer Conference (Breckenridge, CO), NBER Environmental and Energy Economics Conference (Cambridge, MA), Rice University (Houston, TX)

REFEREE SERVICE

The Review of Economic Studies, *American Economic Journal: Economic Policy (AEJ:EP)*, *American Economic Journal: Insights*, *Nature Climate Change*, *Journal of the Association of Environmental and Resource Economists (JAERE)*, *Environmental and Resource Economics (EARE)*, *Journal of Environmental Economics and Management (JEEM)*, *The Energy Journal*, *Energy Economics*, *Energy Policy*, *Journal of Benefit-Cost Analysis*, *Economic Inquiry*, *Climate Policy*, *Journal of Environmental Economics and Policy*, *Resource and Energy Economics*

IN THE NEWS

E&E News, Niina H. Farah and Lesley Clark, November 21, 2022, “[EPA floats sharply increased social cost of carbon](#)”

Bloomberg Law, Dean Scott, Jennifer Hijazi, and Stephen Lee, November 10, 2022, “[Biden Climate Rules Move Ahead Amid Wait for Final Carbon Metric](#)”

Time Magazine, Steven Yoder, October 20, 2022, “[It’s Crucial for the U.S. to Figure Out How Much Carbon Emissions Are Costing All of Us](#)”

E&E News, Adam Aton, October 20, 2022, “[Biden’s use of oil reserves overshadows past presidents](#)”

Reuters, Gloria Dickie and Simon Jessop, September 1, 2022, "U.S. is seriously underestimating the consequences of CO₂ - study"

Associated Press, Matthew Brown and Michael Phillis, August 18, 2022, "Climate bill's unlikely beneficiary: US oil and gas industry"

Marketplace, American Public Media, Andy Uhler and Kai Ryssdal, August 15, 2022, "Apartments are going up, but rent isn't going down yet"

E&E News, Heather Richards, August 9, 2022, "Climate bill backs oil leasing: How much of a CO₂ problem?"

EnergyIntel, Emily Meredith, August 5, 2022, "US Set to Enact Narrow GHG Fee"

Climate Home News, Joseph Lo, July 29, 2022, "US set to fine oil and gas companies for methane leaks"

U.S. Department of the Treasury, Benjamin Harris and Catherine Wolfram, July 26, 2022, "The Price Impact of the Strategic Petroleum Reserve Release"

Washington Post Editorial Board, July 13, 2022, "Opinion: Biden's offshore drilling plan won't make or break his climate agenda"

E&E News, Jean Chemnick, May 26, 2022, "How pausing the social cost of carbon affected regulation"

Associated Press, Matthew Brown, April 22, 2022, "EXPLAINER: Can climate change be solved by pricing carbon?"

CarbonBrief, Josh Gabbatiss, April 21, 2022, "'One quarter' of US emissions since 2005 come from fossil fuels on public lands"

Quartz, Nate DiCamillo, April 1, 2022, "Where does the US stash its strategic oil reserves?"

Quartz, Nate DiCamillo, February 25, 2022, "How Russia's Ukraine invasion will affect US gas prices"

E&E News, Jean Chemnick, February 10, 2022, "Here comes the social cost of carbon. Will it address EJ?"

E&E News, Benjamin Storrow, December 2, 2021, "Biden backtracked on drilling ban. What it means for CO₂"

S&P Global Market Intelligence (SNL), Meghan Gordon and Brandon Evans, November 29, 2021, "US Interior leasing reforms to have minor production impact despite higher costs"

The Washington Post, Sarah Kaplan, November 27, 2021, "Oil and gas companies should pay more to drill on public lands and waters, Interior Department says"

Quartz, Nate DiCamillo, November 25, 2021, "Will an extra 50 million barrels of crude lower US gasoline prices?"

The Wall Street Journal, Katy Stech Ferek and Siobhan Hughes, November 15, 2021, "Rising Natural-Gas Prices Pose Hurdle for Methane Tax"

Bloomberg, Liam Denning, October 5, 2021, "Why Biden's Methane Fee Isn't a Gas Tax"

- The Washington Examiner, Josh Siegel, September 9, 2021, "Methane fee could cut leaks at low cost...study"
- E&E News, Jean Chemnick, September 8, 2021, "Methane rule to eclipse past regulations, including Obama's"
- E&E News, Heather Richards, August 17, 2021, "3 things are clear about Biden's latest move on oil leasing"
- E&E News, Heather Richards, August 2, 2021, "What to expect from Interior's oil report"
- Wired, Eric Niiler, July 29, 2021, "How Much Will It Cost to Prevent Deaths by Climate-Driven Heat?"
- Politico, Lorraine Woellert, April 21, 2021, "What's the cost of carbon? There's no consensus"
- E&E News, Heather Richards, April 7, 2021, "Nada Culver shakes up BLM, oil and climate policy"
- E&E News, Miranda Wilson, March 24, 2021, "Carbon tax could ease Biden's oil troubles — report"
- Gizmodo Earther, Molly Taft, March 18, 2021, "The Myth of 'Clean Coal' Might Finally Die"
- Associated Press, Mead Gruver and Matthew Brown, March 11, 2021, "As climate fight shifts to oil, Biden faces a formidable foe"
- LA Times, *Boiling Point*, Sammy Roth, January 28, 2021, "Oil and gas companies say they support climate action. Are they serious?"
- Colorado Public Radio, Sam Brasch and Miguel Otárola, January 27, 2021, "What Biden's Pause On Oil And Gas Leases On Federal Lands Means For Colorado"
- S&P Global Market Intelligence (SNL), Ellier Potter and Mark Passwaters, January 27, 2021, "Biden pauses new oil, gas leases on federal lands pending Interior review"
- S&P Global Market Intelligence (SNL), Taylor Kuykendall, January 13, 2021, "Audit of US coal tax credit set to expire in 2021 underway by federal watchdog"
- LA Times, Sammy Roth, December 17, 2020, Paper cited in "Boiling Point: Obama wouldn't keep fossil fuels in the ground. But Biden says he will"
- S&P Global Market Intelligence (SNL), Bill Holland, September 17, 2020, "Carbon charge on federal leases could balance CO₂ cuts, revenue needs – study"
- Yale Climate Connections podcast, September 2, 2020, "A costly subsidy for 'refined coal' is failing to achieve air pollution goals, researcher finds"
- E&E News, Dylan Brown, Dylan Brown, March 2, 2020, "Report: 'Clean coal' credit fails emissions, cost tests"
- S&P Global Market Intelligence (SNL), Taylor Kuykendall, March 2, 2020, "Study says US refined coal tax credit boosts CO₂ emissions by propping up plants"
- Forbes, Ken Silverstein, January 6, 2020, "The Giving Season May Be Over — But Not For Coal And Fossil Fuels"
- E&E News, Dylan Brown, December 27, 2019, "Dems demand audit of 'clean coal' tax credit"

S&P Global Market Intelligence (SNL), Taylor Kuykendall, December 24, 2019, “US senators call for probe into tax credit for refined coal”

Reuters, Tim McLaughlin, December 23, 2019, “U.S. senators ask for government investigation of coal tax credit program”

E&E News, Dylan Brown, June 11, 2019, “Dems attack tax credit that may not cut pollution”

S&P Global Market Intelligence (SNL), Taylor Kuykendall, June 10, 2019, “3 Senate Democrats call on IRS to review refined coal credit program”

New York Times, U.S. News and World Report, Reuters, Tim McLaughlin, June 10, 2019, “U.S. Senators Target \$1 Billion a Year Coal Subsidy, Ask IRS for Test Results”

Utility Dive, Gavin Bade, August 22, 2018, “EPA’s new ACE rule is a coal lifeline ‘disguised as a GHG regulation,’ critics say”

RTO Insider, Rich Heidorn Jr., June 11, 2018, “Five Questions on Trump’s Coal, Nuke Bailout”

Forbes, Ryan Kellogg, June 7, 2018, “If Oil Prices Climb, The U.S. Is Less Able To Play The Role Of Swing Producer Than Some Think”

Forbes, Ryan Kellogg, March 5, 2018, “U.S. Shale Boom Has Led To Big Payoffs, But Energy Independence Isn’t One – Nor Should It Be”

Wall Street Journal, Grep Ip, February 21, 2018, “America’s Emerging Petro Economy Flips the Impact of Oil”

S&P Global Platts, November 10, 2017, “Interview: US oil reacts quicker to price, but remains far from swing producer”

TEACHING

Instructor, Calculus Review, Duke Nicholas School Master of Environmental Management
 Teaching Assistant for Billy Pizer, Climate Change Economics and Policy
 Teaching Assistant for Matthew Harding, Applied Big Data Science
 Teaching Assistant for Steven Sexton, Energy Economics and Policy
 Teaching Assistant for Steven Sexton, Resource and Environmental Economics

SKILLS

Subjects

Econometrics[†] · Economic Modeling · Energy Economics[†] · Environmental Policy[†] · Machine Learning[†] · Scuba Instructor (PADI)[†]

Programming

Advanced: R[†] · Matlab · Stata · L^AT_EX
Familiar: Python · VBA

[†]Teaching Experience