Paul Bernstein, PhD

Energy Policy Specialist

For the past 25 years Dr. Bernstein has led the construction of, operation of, and reporting of analysis from economic models used to study energy and environmental policies. He specializes in developing economic models applied to such diverse fields as climate change policy, alternative-fueled vehicles, fuel markets, and electricity generation, and then synthesizing the results of these models into reports for government agencies, lawmakers, trade organizations, and corporate executives.

He developed NERA Economic Consulting’s electricity sector model, which NERA utilizes in many engagements ranging from ones studying environmental issues such as carbon limits or renewable portfolio standards to projects that forecast regional wholesale electricity prices and unit-level costs and dispatch. He has also led engagements using this model and other NERA models to evaluate international and national climate change policies as well as state environmental policies such as California’s cap-and-trade program, low carbon fuel standard, renewable portfolio standard, and electric vehicle mandate.

In addition, Dr. Bernstein has analyzed international energy trade, specifically liquefied natural gas (LNG), crude oil, and refined petroleum products. He directed the development of NERA’s Global Natural Gas Model (GNGM) and NERA’s Global Petroleum Model (GPM). GNGM was used in NERA’s study for the Department of Energy (DOE) to determine supply and demand of LNG for major world regions and U.S. LNG exports under several multiple scenarios. After revamping this model, Dr. Bernstein employed it in NERA’s updated 2014 analysis of the economic impacts of LNG exports for the DOE. NERA utilized GPM to assess the impacts on the global petroleum market and the U.S. economy if the U.S. were to lift its ban on crude oil exports, which was shared with the Obama White House.

Over the past 14 years, while consulting for NERA and Charles River Associates (CRA), Dr. Bernstein continues to work for the University of Hawaii where he develops and works with economic models to analyze energy and environmental issues for the state of Hawaii. He collaborates extensively with professors at the University of Hawaii. His recent research focuses on the following topics: economic impacts of Hawaii imposing a carbon tax, the effect of time of use electricity prices on generation, forecasting Hawaii’s greenhouse gas emissions under alternative scenarios, the economic impacts of linking the Hawaii Islands with wind energy, and the impact on the Hawaii economy of importing LNG.

Before his second stint at CRA, Dr. Bernstein oversaw and coordinated the Integrated Resource Plans for Hawaiian Electric Company (HECO) and its two sister companies: Hawaii Electric Light Co. (HELCO) and Maui Electric Company (MECO).

Education

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Stanford University

Ph.D., Operations Research, 1996

Thesis: Reducing Emissions Caused by Light-Duty Vehicles: CARB’s Low Emissions Vehicle Program vs. Taxation

Stanford University

MA (Honors), Operations Research, 1992

University of California at San Diego

BA (summa cum laude), Mathematics and Physics, 1985

Professional Experience

University of Hawaii

2006-Present Researcher and Policy Specialist with Research Corporation of the University of Hawaii

Citizens’ Climate Lobby - Volunteer

2018-Present Liaison to Representative Ed Case (HI-01)

Co-liaison to Senator Brian Schatz (HI)

Co-coordinator for the state of Hawaii

NERA Economic Consulting

2016-2018 Associate Director, Energy & Environment Practice

2012-2016 Vice President, Energy & Environment Practice

2011-2012 Senior Consultant, Energy & Environment Practice

Charles River Associates

* 1. Principal, Climate & Sustainability Group

Hawaiian Electric Company

2004-2006 Senior Resource Planning Engineer, Generation Planning Group

Charles River Associates

2001-2004 Principal, Energy & Environment Practice

1996-2001 Senior Associate, Energy & Environment Practice

Selected Experiences

**Tax Review Commission –Policy specialist with the University of Hawaii – 2021**

The study employs a computable general equilibrium model to assess the economic and environmental impacts on Hawaii of the State implementing a carbon tax policy. The scenarios consider a carbon tax set at the social cost of carbon with several different revenue recycling schemes. The report also discusses best practices for implementing a carbon tax and dividend policy at the state level.

**Hawaii State Energy Office –Policy specialist with the University of Hawaii – 2020**

The study employs a computable general equilibrium model to assess the economic and environmental impacts on Hawaii of the State implementing a carbon tax policy. The scenarios include combining two select carbon price pathways with two different revenue recycling schemes. The resulting report is intended to help legislators and government officials design a future carbon pricing policy for Hawaii.

**Pacific Gas & Electric, San Diego Gas & Electric, Southern California Edison, British Petroleum, Chevron, and Conoco Phillips – Project Manager – 2010**

Procured and managed study that analyzed the costs and benefits of California’s climate change legislation, which included its cap-and-trade program, low carbon fuel standard, renewable portfolio standard, and electric vehicle mandate among other complementary policies. Briefed California’s Air Resources Board’s (CARB’s) Board of Directors twice on the study’s findings. Collaborated with California’s Economic Allocation and Advisory Committee (EAAC) and CARB.

**Stanford’s Energy Modeling Forum – Modeler – 1996-2016**

As a member of Charles River Associates’ and NERA Economic Consulting’s modeling teams, analyzed a range of energy and environmental policies. Topics included: energy efficiency and climate change mitigation, world and North American natural gas markets, economic impacts of the Kyoto Protocol, assessment of climate change policies, and model comparison exercises. This work resulted in several journal articles.

Peer Reviewed Publications

“Integrating Electric Vehicles and Residential Solar PV,” Coffman, M., Bernstein, P., and Wee, S. (2017).  *Transport Policy, 53,* 30-38.

“Electric vehicles revisited: a review of factors that affect adoption,” Coffman, M., Bernstein, P., Wee, S. (2016). *Transport Reviews*, 37, 79-93.

“Economics of U.S. Natural Gas Exports: Should Regulators Limit U.S. LNG Exports?” Paul Bernstein, Sugandha Tuladhar, and Mei Yuan, *Energy Economics*, (2016).

“North American Natural Gas and Energy Markets in Transition: Insights from Global Models.” Sonia Yeh, Yiyong Cai, Daniel Huppman, Paul Bernstein, Sugandha Tuladhar, and Hill Huntington, *Energy Economics*, (2016).

“Economic and GHG Analysis of LNG in Hawaii,” with Makena Coffman and Sherilyn Wee, *Environmental Economics and Policy Studies,* (2016).

“Macroeconomic Impacts of LNG Exports from the United States,” Robert Baron, Paul Bernstein, W. David Montgomery and Sugandha Tuladhar, *Economics of Energy and Environmental Policy.* (2015).

“Linking Hawaii's Islands with Wind Energy,” with Makena Coffman and Sherilyn Wee. *The Annals of Regional Science* (2014).

“Interaction Effects of Market-Based and Command-and-Control Policies,” with Sugandha Tuladhar and Sebastian Mankowski. *The Energy Journal*, Volume 35, Special Issue. (2014).

“An Assessment of Greenhouse Gas Emissions-Weighted Clean Energy Standards,” with Makena Coffman and Jay Griffin, *Energy Policy*, (2012).

“Energy Policy: Obama’s Double Vision,” with Lee Lane, *RealClearScience*, <http://www.realclearscience.com/articles/2011/02/25/energy_policy_obamas_double_vision_106229.html> (2011).

“A top-down bottom-up modeling approach to climate change policy analysis,” with Sugandha Tuladhar, Mei Yuan, W. David Montgomery, and Anne Smith. *Energy Economics*, Volume 31, Supplement 2, International, U.S. and E.U. Climate Change Control Scenarios: Results from EMF 22, Pages S223-S234. (2009).

“Revisiting-Your-Generation-Investment-Strategy-in-a-Recession,” with Tanya Bodell, James McMahon, Christopher Russo, Robert Lee, Scott Niemann, Scott Bloomberg, Bruce Tsuchida http://uaelp.pennnet.com/display\_article/354112/34/ARTCL/none/none/1/Revisiting-Your-Generation-Investment-Strategy-in-a-Recession/ (2009).

“Macroeconomic Analysis of American Clean Energy and Security Act of 2009,” with R. Baron, S. Bloomberg, K. Ditzel, J. Lamy, L. Lane, D. Montgomery, A. Smith, S. Tuladhar, and M. Yuan, in *Dialogue*, United States Association for Energy Economic, (2009).

“The Role of Expectations in Modelling Costs of Climate Change Policies,” With Robert Earle and W. David Montgomery, *Integrated Assessment of Human-induced Climate Change*, Cambridge University Press, (2007).

“Potential For Reducing Carbon Emissions from Non-Annex B Countries Through Changes in Technology,” With W. David Montgomery and Sugandha D. Tuladhar, *Energy Economics* (2007).

“Trade Impacts of Climate Policy: The MS-MRT Model.” With David Montgomery and Thomas Rutherford. *Energy and Resource Economics* 21 (1999): 375-413.

“Effects of Restrictions on International Permit Trading: The MS-MRT Model.” With David Montgomery and Thomas Rutherford. *The Energy Journal*, Special Issue on the Kyoto Protocol, pp. 221-256, (1999).