

# RESUME

**Alvaro E. Pereira, Ph.D.**

*Managing Consultant*

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Alvaro Pereira is an accomplished energy professional with 20 years of experience in economic, technical, and policy analysis with expertise in rate design, power markets, and climate change policy. Dr. Pereira joined La Capra Associates in 2008, following nearly a decade with the Massachusetts Department of Energy Resources as the head of a group responsible for economic and technical analyses of policies, programs, and regulatory filings. At La Capra Associates, he works in a variety of areas including procurement, renewable energy project analysis and pro forma development, and analyses of energy and capacity market rules, prices, and performance. Dr. Pereira is an experienced expert witness, having testified on various occasions before regulatory commissions, and he has provided expert-witness research and testimony in cases involving costs and benefits and environmental quality. Dr. Pereira also has expertise in rate design and analysis, demand resources, and economic impact modeling and forecasting. He has an M.S. in Transportation and a Ph.D. in Urban and Regional Economics and Studies, both from M.I.T., and two bachelor degrees in Economics and Finance from UMass Amherst.

## **SELECTED PROFESSIONAL EXPERIENCE**

### *Renewables/RGGI*

- Co-authored study of economic costs and benefits of solar (SREC-II program) in Massachusetts. Applied modeling framework that analyzed wholesale market, avoided transmission and distribution, and avoided generation benefits.
- Co-authored separate analyses of RPS investments, large offshore wind, and solar expansion scenarios in New York. Led team that analyzed rate, environmental, and cost-benefit impacts of different solar buildouts. Developed modeling interface among pro forma, energy, and economic impact models.
- Co-authored report on the hedge value of offshore wind resources in Maryland. Work applied portfolio theory by examining offshore wind's price variability compared to non-renewable generation options and considering wind's price covariance with fossil-fueled generators to document price-related benefits.
- Provided analytical support for rate impact calculation of offshore wind legislation for the Maryland Energy Administration.
- Provided advice regarding market price/modeling and economic cost/benefit analysis to the New Jersey Board of Public Utilities in support of development of rules and regulations for the Offshore Wind Renewable Energy Credit (REC) program.
- Co-authored report on Delmarva Power's request for approval of solar REC contracts for the Delaware Public Service Commission Staff. Examined financial feasibility and underlying

- revenue/cost data of a 10 MW solar farm for reasonableness and public interest.
- Currently providing NEPOOL-GIS third-party verification services for NEPOOL-GIS for hydroelectric, landfill gas, solar, and wind facilities.
- Provided technical and market advice and wrote portions of the proposal for a 220-MW Maine-based wind farm submitted to the Massachusetts' utilities request for proposals for long-terms supply and RECs. Played a similar role in support of registration of an 80-MW Vermont-based wind farm for qualification in the ISO-NE forward capacity market.
- Evaluated the financial feasibility of a proposed offshore wind installation and shrouded turbine wind facility in Hull, Massachusetts, as well as for solar installations for a number of clients. Forecasted and analyzed different revenue streams (energy, renewable energy certificates, and capacity) and examined financing options, while incorporating new federal and state incentive programs and policies.
- Researched forward capacity market rules in New England regarding qualification requirements, auction administration, financial assurance, and resource availability adjustments as regards to renewable resources and other intermittent generators. Co-authored study that examined the feasibility and impacts of restricting imports of renewable generation into New England and for participation in the Massachusetts RPS.
- Co-authored Massachusetts regulations for state auction of Regional Greenhouse Gas Initiative (RGGI) CO<sub>2</sub> allowances. *Note:* Massachusetts was the first state to draft regulations related to auctioning of carbon allowances.
- Supervised the economic modeling and impact analysis of changes in regional energy systems, including the expansion of renewable and DSM activities, due to the establishment of a regional cap and trade system for carbon emissions through the RGGI program. This work led to ratification and approval of the cap and trade system by a majority of the Northeastern states.

### ***Procurement/Market Analysis***

- Providing ongoing procurement support (buy and sell sides) to a number of clients throughout the Northeast, including Amtrak, the Massachusetts Water Resources Authority, and the Massachusetts Port Authority. Supported and conducted numerous electricity solicitations, ranging from 5 MW to 100 MW. Also providing expert advice regarding participation (load and generation assets) in wholesale energy, capacity, REC, and reserve markets.
- Forecasted capacity market prices (in New England, New York, and PJM) for use in project evaluation and impacts on retail rates. Included discussion of bidding strategies for generators given different projections for auction clearing prices. Forecast work included determination of future implementation levels of energy efficiency and other demand-side resources as capacity resources.
- Participated in statewide procurement of electric, gas, and petroleum products for Commonwealth of Massachusetts agencies and facilities. Forecasted gas and electric prices for use in procurement decisions.
- Managed procurement of long-term renewable electricity for use by Massachusetts agencies and facilities. Calculated and compared costs of long-term renewable power versus short-term brown power procurements to inform state agency budgets.

Managed technical assistance to municipalities seeking to aggregate their customers for purposes of procuring electricity.

### *Demand Resources*

Reviewed the energy efficiency plans and underlying testimonies of PPL and PECO in proceedings before the Pennsylvania Public Utility Commission in support of testimony evaluating the costs and benefits of plan components.

Designed time-of-use rates for municipal utilities in order to provide incentives for reductions during summer peak. Calculated potential impacts of dynamic rates on both capacity payments by the utilities and bill savings to customers.

Enrolled demand-side resources (energy efficiency and distributed generation) of various Massachusetts agencies into the New England Forward Capacity Market. Wrote monitoring and verification plans for a variety of demand-side resources.

Lead author on annual report for Massachusetts that chronicled the cost-effectiveness, customer allocation of funds, short and long-term savings goals and the development of a competitive market for energy efficiency services.

Developed modeling approach and methodology to estimating the energy system and economic impacts of DSM activities conducted in the Commonwealth.

### *Rates and Regulation*

Reviewed demand forecasts underlying Columbia Gas of Massachusetts' 2013 Demand and Supply Forecast filing.

Conducted load forecast for Blackstone Gas Company in support of their 2012 Long Range Supply (or Integrated Resource) Plan. Submitted written testimony in support of forecasts of customer counts, sendouts (design day and normal monthly), and usage per customer. Conducted forecasts under a variety of weather and design day criteria.

Reviewed load forecasts underlying Rocky Mountain Power's request to increase electric service rates. Analyzed methods, data sources, and assumptions. Conducted alternative forecasts of customer counts, sales per customer, and overall sales.

Provided research and wrote portions of the Maryland Energy Administration's comments to the Maryland Public Service Commission proceeding on RFPs for generation capacity resources under long-term contracts (Case No. 9214).

Assisted in writing expert testimony assessing the impacts of wholesale congestion costs on Pennsylvania default service customers. Investigated market mechanisms for financial transmission rights and made recommendations concerning procurement of relevant hedging products.

Reviewed Vermont state load forecasts for impacts of energy efficiency. Analyzed alternative functional forms and modeling assumptions regarding the role of energy efficiency in peak shaving.

### *Policy and Planning Analysis*

Co-authored evaluative study of electric industry restructuring efforts in Massachusetts and New England. Examined the impacts of restructuring on market manipulation and

consolidation and its effects on electricity costs. Reviewed the status of competition of generation and retail electric supply and discussed the prognosis for residential customer participation in retail markets.

Authored study of strategies to reduce Maine's dependence on oil. Reviewed current and forecasted oil usage across all energy sectors and uses and the costs of different strategy choices. Study findings were used to inform legislative and policy recommendations.

Analyzed and computed national and regional generation, transmission, and distribution infrastructure capital investment needs. Advised on the modeling and impacts of failure to meet these investment needs on the economy.

Authored study for the Massachusetts Department of Energy Resources regarding the costs and benefits of municipalization of utility-owned distribution and non-PTF transmission assets. Examined potential impacts on reliability, utility operations and revenues, municipal taxes, electricity rates, financing, energy efficiency programs, and low-income customers.

Conducted analysis of state energy entities in Connecticut in terms of structure and functional roles. Performed survey of other states and compared and contrasted alternative structures with existing state structure. Wrote sections of Phase I report describing results of this work. Contributed to Phase II report that recommended changes to agency structure and roles, including analysis of a power authority option.

Contributed to all phases of proceeding before Connecticut Siting Council regarding the 2008 Forecasts of Load and Resources. Prepared discovery and wrote comments to draft report. Recommended changes to promote consistency between forecast and 2008 Integrated Resource Plan that was in review and to clarify assumptions underlying different utilities' forecast for conservation and load management programs

Wrote appendix detailing existing procurement processes and programs available to Connecticut policymakers. Appendix served as component of La Capra Associates' review of the 2008 Integrated Resource Plan submitted by the utilities.

### *Expert Witness*

Testified before the Rhode Island Public Utilities Commission on behalf of the Rhode Island Division of Public Utilities and Carriers regarding Recommendations for 2014 Distributed Generation Classes, Ceiling Prices, Targets, and Standard Contracts. (*Dockets No. 4277 and 4288, February 26, 2014.*)

Testified (direct and surrebuttal) before the Massachusetts Department of Public Utilities on behalf of the Massachusetts Attorney General regarding the petition and revised petition for approval of the sale of New England Gas Company's assets. (*D.P.U. 13-07, May 31, 2013.*)

Testified (direct) before the Pennsylvania Public Utilities Commission on behalf of the Pennsylvania Office of Consumer Advocate regarding the petition submitted by People's TWP LLC for approval of their 2013 Purchased Gas Cost Filing. (*Docket No.R-2013-2341604, March 6, 2013.*)

Testified before the Rhode Island Public Utilities Commission on behalf of the Rhode Island Division of Public Utilities and Carriers regarding Recommendations for 2013 Distributed

Generation Classes, Ceiling Prices, and Targets submitted by the Rhode Island Office of Energy Resources. (*Docket No. 4288, January 11, 2013.*)

Testified (direct) before the Pennsylvania Public Utilities Commission on behalf of the Pennsylvania Office of Consumer Advocate regarding the petition submitted by Citizens' Electric Company and Wellsboro Electric Company for approval of their proposed joint default supply service plan. (*Docket No. P-2011-2307827, 2307931, August 21, 2012.*)

Testified (direct and surrebuttal) before the Pennsylvania Public Utilities Commission on behalf of the Pennsylvania Office of Consumer Advocate regarding the petition submitted by PPL Electric Utilities for approval of its proposed reconciliation and competitive transition riders for default supply service. (*Docket No. P-2011-2256365, November 2, 2011.*)

Testified (direct) before the Delaware Public Service Commission on behalf of the Delaware Public Service Commission Staff regarding the application of Delmarva Power and Light Company for approval of qualified fuel cell provider project tariffs. (*PSC Docket No. 11-362, October 18, 2011.*)

Testified (direct) before the Massachusetts Department of Public Utilities on behalf of the Massachusetts Attorney General regarding the joint petition for approval of a merger between NSTAR and Northeast Utilities (*D.P.U. 10-170, May 20, 2011.*)

Testified before the Maryland Public Service Commission on behalf of the Maryland Energy Administration regarding reliability pricing model and the 2013/14 delivery year base residual auction results (*Administrative Docket PC22, October 15, 2010.*)

Testified (direct) before the Massachusetts Department of Public Utilities on behalf of the Massachusetts Attorney General regarding the request for a change in distribution rates by National Grid (*D.P.U. 10-55, June 28, 2010.*)

Testified (direct) before the Massachusetts Department of Public Utilities on behalf of the Massachusetts Attorney General regarding the proposed solar program filed under the Green Communities Act by National Grid (*D.P.U. 09-38, August 2009.*)

Testified (direct) before the Massachusetts Department of Public Utilities on behalf of the Massachusetts Attorney General regarding the proposed solar program filed under the Green Communities Act by Western Massachusetts Electric Company (*D.P.U. 09-05, July 2009.*)

Testified before the Massachusetts Department of Public Utilities on behalf of the Massachusetts DOER regarding rate structures that will promote efficient deployment of demand resources. (*D.P.U. 07-50, October 2007.*)

Testified (direct and surrebuttal) before the Massachusetts Department of Telecommunications and Energy on behalf of the Massachusetts DOER regarding the performance-based rates and earnings sharing mechanism proposed by Bay State Gas Company. (*D.T.E. 05-27, July 2005.*)

Testified (direct) before the Massachusetts Department of Telecommunications and Energy on behalf of the Massachusetts DOER regarding the appropriateness of standby distribution rates proposed by NSTAR Electric. (*D.T.E. 03-121, March 2004.*)

## **EMPLOYMENT HISTORY**

**La Capra Associates, Inc.**

Boston, MA

<i>Managing Consultant</i>	June 2011 – Present
<i>Senior Consultant/Consultant</i>	2008 – May 2011
<b>Massachusetts Division of Energy Resources</b>	Boston, MA
<i>Manager, Energy Supply &amp; Pricing Group (December 1999 – 2008)</i>	1999 – 2008
<i>Senior Economist (March 1999 – November 1999)</i>	
<b>Massachusetts Institute of Technology</b>	Cambridge, MA
<i>Lecturer in the Department of Civil &amp; Environmental Engineering</i>	1998 – 1999
<b>Independent Consultant</b>	Somerset, MA
<i>Economist and Data Modeler</i>	1998
<b>Massachusetts Institute of Technology</b>	Cambridge, MA
<i>Visiting Lecturer in the Department of Urban Studies and Planning</i>	1997 – 1998
<i>Research Associate, Department of Urban Studies and Planning (September 1991 – August 1997)</i>	
<i>Research Assistant, Department of Civil Engineering (September 1989 – August 1991)</i>	

## EDUCATION

<b>Massachusetts Institute of Technology</b>	Cambridge, MA
<i>Ph.D., Urban and Regional Economics and Studies</i>	1997
<i>M.S., Transportation</i>	1991
<b>University of Massachusetts</b>	Amherst, MA
<i>B.B.A., Finance (Summa Cum Laude)</i>	1989
<i>A.B., Economics (Summa Cum Laude)</i>	1989

## PROFESSIONAL TRAINING & SKILLS

Proficient in STATISTICA, Forecast Pro, and comparable statistical analysis programs, tsMetrix and comparable neural network programs, REMI and comparable economic-modeling packages, ENERGY2020 and comparable energy market simulation modeling programs. Familiar with C programming language and Visual Basic. Fluent in Portuguese. Working knowledge of Spanish.

## ADDITIONAL PUBLICATIONS, PRESENTATIONS & CONFERENCES

*“Renewable Energy Development in the Shale Era.”* Presentation to the AQPER Colloque 2014, Québec Association for the Production of Renewable Energy, February 20, 2014, Québec City, Canada.

*“Forward Capacity Market as Swiss Army Knife.”* Presentation to the 11<sup>th</sup> Annual Power Markets Conference: Strategic Planning for New England’s Power Markets, Northeast Energy and Commerce Association, October 24, 2012, Westborough, MA.

*“Shale Gas and Renewable Energy: Friends or Foes?”* Presentation to Air & Waste Management Association—New England Section Fall 2012 Conference, October 12, 2012, Framingham, MA.

*“RGGI Auction Process”* Presentation to RGGI Implementation at the State Level: Regulations, Requirements & Strategies, Northeast Energy and Commerce Association Workshop, June 19, 2008,

Boston, MA.

*"Electricity Price, Reliability and Markets Report 2005."* A Report to the Great and General Court on the Status of Restructured Electricity Markets in Massachusetts. Commonwealth of Massachusetts, December 2006 (lead author).

*"Electricity Price, Reliability and Markets Report 2002-2004."* A Report to the Great and General Court on the Status of Restructured Electricity Markets in Massachusetts. Commonwealth of Massachusetts, Spring 2006 (lead author).

*"Meeting New England's Future Natural Gas Demands: Nine Scenarios and Their Impacts."* A Report to the New England Governors, Boston, Massachusetts, March 2005 (lead author).

*"2002 Energy Efficiency Activities."* An Annual Report to the Great and General Court on the Status of Energy Efficiency Activities in Massachusetts. Commonwealth of Massachusetts, Summer 2004 (lead author).

*"2001 Energy Efficiency Activities."* An Annual Report to the Great and General Court on the Status of Energy Efficiency Activities in Massachusetts. Commonwealth of Massachusetts, Summer 2003 (lead author).

*"Economic Development of the Boston Harbor: Informing the Process."* Written for Boston Harbor Conference, May 11, 1998.

*"Regional Economic Modeling and the REMI Model Evaluation."* Commissioned Manuscript for Appalachian Regional Commission, September 4, 1998 (co-author).

*"Transportation Policy and the 1990 Clean Air Act."* In Research in Urban Economics, New Urban Strategies in Advanced Regional Economies, 1996 (co-author).

*"Regional Rail Planning in New England."* Proceedings of the Transportation Research Board, 1994 (co-author).

*"Meeting New England's Future Natural Gas Demand."* Presentation to the Center for LNG & U.S. Energy Association, LNG Conference, June 16, 2005, National Press Club, Washington, D.C.

*"The Intradependence of Natural Gas & Electricity Markets in New England."* Presentation to Northeast Energy Efficiency Council and the Association of Energy Service Professionals Annual Conference, October 25, 2004, Marlboro, Massachusetts.

*"Retail Treatment of Zonal Generation Prices in Massachusetts."* Presentation to the Massachusetts Electric Restructuring Roundtable, September 13, 2002, Boston, Massachusetts.

*"Future of Retail Competition in Massachusetts, Just the Facts, Massachusetts."* Presentation to the Massachusetts Electric Restructuring Roundtable, January 18, 2002, Boston, Massachusetts.

*"Developing an Effective Demand Response."* Presentation to the Electric Power Supply Association State Issues and Membership Meeting, July 24, 2001, Washington, D.C.

*"Emergency Prevention, Monitoring, and Communication."* Presentation to the New England Disaster Recovery eXchange Meeting, June 13, 2001, Boston, Massachusetts.

*"Logistics and Transportation Use in the Chicago Metalworking Sector: Implications for Transportation Planning."* Presentation to the 43rd North American Meeting of the Regional Science Association International, November 16, 1996, Washington, D.C.

*"A Study of STAA Truck Safety in New England."* Presentation to a Conference of the New England Transportation Infrastructure Research Programs, June 14, 1993, The New England Center, Durham, New Hampshire.

