



## GLENN R. GEORGE, Ph.D.

### Education, Licences & Certifications

- PhD, Public Policy, Harvard University, with a concentration in energy economics and regulation; thesis advisor Prof. F. M. Scherer; Academic Advisor Ashton B. Carter (U.S. Secretary of Defense); coursework under Stephen Breyer (U.S. Supreme Court Justice)
- Certificate in Nuclear Engineering, Bettis Reactor Engineering School, U.S. DOE
- MBA, *with Distinction*, Cornell University
- BS, *with Distinction*, Mechanical Engineering, Cornell University
- Registered professional mechanical engineer in the District of Columbia (PE license number 9803)
- U.S. DOE "Q-Sensitive" clearance (inactive) and U.S. DOD Secret clearance (active)

### Professional Associations

- American Economic Association
- American Bar Association (Associate)
- International Bar Association
- Energy Bar Association
- American Nuclear Society
- American Political Science Association
- American Society of Mechanical Engineers
- American Society of Naval Engineers
- Naval Submarine League
- Navy League of the U.S.

### Languages

- English (native speaker)
- German (professional proficiency)

### Summary of Experience

Dr. Glenn R. George is a Senior Vice President in NERA's Global Energy, Environment, and Network Industries Practice, where he advises clients on the economics of electric power, natural gas, and related markets as they evolve in response to political, regulatory, and technological change. Drawing on his background as an engineer and an economist, he applies deep expertise in energy policy, regulation, and technologies-generation, storage, efficiency and demand response, reliability, and resource and transmission planning-to the emerging issues facing utility companies, their regulators, and investors.

He has three decades of experience in the global energy sector as an engineer, policymaker, entrepreneur, investment banker, economic consultant, regulatory expert, and strategist. His areas of specialization include rate design, regulatory strategy, valuation, asset securitization, risk assessment, energy efficiency, renewables, nuclear power, power market design and monitoring, and damage calculation. His consulting work addresses strategy, transactions, business transformation, regulatory issues, and complex commercial disputes, especially involving construction, sale, valuation, licensing, and operation of power plants, transmission and distribution systems, oil and gas facilities (including LNG), and other infrastructure. He is a sought-after analyst, speaker, expert witness, and consultant.

Dr. George applies interdisciplinary approaches to formulating and implementing public policy, managing and consulting to organizations, developing deep industry insight, and helping transform organizations. He has consulted in a variety of industries, including financial services, natural gas and LNG, petroleum, chemicals, transportation, nuclear vendors, renewable resources, and power generation, transmission, and distribution. He has worked extensively in the U.S.A., Canada, the EU, and East Asia. His client and other relationships include corporations, government agencies, regulators, nonprofit organizations, and especially investor-owned utilities.

Prior to rejoining NERA, Dr. George held senior positions with several global management consulting and economic consulting firms. Earlier, he served as co-head of the global energy group at Nomura Securities, at the time the largest investment bank in the world. Prior to entering consulting, Dr. George served in leadership, policymaking, and program management positions in the US government, in the areas of nuclear facility operations, health and safety regulation, congressional liaison, export controls, and warship design, procurement, regulation, and operation. He served as an officer in the U.S. Navy (Office of Naval Reactors).

He holds a bachelor's degree and an MBA from Cornell, a PhD from Harvard, and is a registered professional engineer. In 2011, he was awarded the American Nuclear Society Presidential Citation for his response to events in Fukushima, Japan.

### **Areas of Expertise**

- Regulated utility strategy and business transformation
- Expert testimony and non-testifying consulting
- Complex commercial litigation
- International arbitrations
- Utility rate design
- Contracts and contract disputes
- Asset valuation and due diligence
- Damage calculation
- Infrastructure finance
- Transportation congestion pricing
- Operating-asset and whole-business securitization
- Securitization of utility storm damage
- Financial risk assessment and mitigation
- Cross-border energy and infrastructure investment
- Energy efficiency and “smart grid” infrastructure
- Power procurement support and independent evaluation
- Regulatory policy (energy, environmental, health and safety)
- Environmental economics
- Cost-benefit analysis
- Macroeconomic modeling and economic impact assessment
- Renewable energy, especially solar photovoltaic, wind, and biomass
- Renewable Energy Credits and associated market dynamics
- Market design and restructuring
- Supply and demand assessment
- Utility rate regulation, decoupling, and alternative ratemaking
- FERC formula rates
- Economics of commercial nuclear power and the nuclear value chain, including uranium and enrichment services
- Federal procurement and project (including construction) management
- Volumetric Production Payment (VPP) pricing
- Export controls
- Anti-dumping regulations

### **Employment History**

- Senior Vice President, NERA Economic Consulting, August 2015-present
- Principal (partner), KPMG LLP, 2012-August 2015
- Partner, Bates White Economic Consulting, 2010–2012
- Vice President, NERA Economic Consulting, 2006–2010
- Co-Head, International Energy Capital Markets Group, Nomura Securities International, 2004–2006 (responsible for all energy-sector advisory and transactional work)

- Managing Consultant; Senior Engagement Manager; and Senior Vice President, PA Consulting Group, 1995–1998; 2001–2004
- Senior Vice President, energyLeader, 2000–2001
- Principal Consultant and Engagement Manager, PricewaterhouseCoopers, 1998–2000 (in the Utility Strategy practice)
- Project Officer; Program Manager, Defense Nuclear Facilities Safety Board, 1991–1995
- Naval Officer; Nuclear Engineer; and Special Assistant to the Deputy Director, Office of Naval Reactors, 1986–1991

### **Consulting Experience**

- In an ongoing engagement, advising the developer of an LNG export terminal on the U.S. Gulf Coast regarding regulatory and financial matters.
- Advised a major investor-owned electric utility company in the Midwest on a strategy for new nuclear generation capacity, with an emphasis on the real-option value of the Combined Construction Operating License (COL) that the utility possesses.
- Advised Tokyo Electric Power Co. and the Government of Japan (METI), in multiple projects, on electric power market reform in Japan, to create regulatory mechanisms for recovery of Fukushima-accident-related clean-up and nuclear compensation costs, and to determine the contours of competitive electric retailers in the future market and the role of nuclear power in that market.
- Advised the Government of the Commonwealth of Puerto Rico on creation of natural gas infrastructure on the north coast of Puerto Rico and options for improving PREPA's electric power generation mix.
- Advised the Government of the Bahamas on electric power market reform in the Bahamas, including a new regulatory regime, enhanced utilization of renewable resources, and options for use of natural gas on the islands.
- Provided due diligence support to a major Spanish natural gas company related to a potential equity investment in a proposed Liquefied Natural Gas project on the Gulf Coast of the U.S.A.
- Assessed FERC formula ratemaking processes at a major northeastern utility company and for a Regional Transmission Organization.
- Assisted a major Midwestern utility in assessing risk associated with its statutorily required investments in SmartGrid and associated infrastructure.
- Advised a major Korean investor regarding its proposed investment in a solar power facility in the Western region of the U.S.
- Served as advisor to the U.S. DOE on the proposed loan guarantee to support construction of the United States Enrichment Corporation's American Centrifuge Plant, providing due-diligence support to the DOE Office of Loan Guarantee Programs.
- Served as volunteer spokesman for the American Nuclear Society in matters related to the Fukushima Daiichi nuclear accident. Made print or broadcast media appearances on CNN International, Maryland Public Television, Bloomberg News, Bloomberg Government, Texas Public Radio, Fox Radio, Reuters Thomson, and others.
- Served as long-term advisor to the Japan Electric Power Information Center,

providing quarterly assessments of current events and trends in the U.S. power sector and assessing the potential impact on regional and global markets and investments in the sector.

- Served as advisor to the U.S. DOE on all four loan guarantees under consideration to support construction of new nuclear power plants, as well as a number of loan guarantees for renewable energy projects. Provided due-diligence support to the DOE Office of Loan Guarantee Programs, addressing the need for power, construction cost recovery, other regulatory matters, and the projected supply, demand, and price of electric power in the relevant market.
- Served as advisor to the Government of Lithuania on the acquisition of new nuclear power plants to replace the Ignalina nuclear station, shut down as part of the EU accession process. The analysis addressed the regional power market; regulatory and transmission issues; and the relative cost (both up-front capital and levelized over the lifetime of the generation asset) of nuclear and various competing non-nuclear generation technologies. A strategic investor is currently being sought in a competitive process.
- Served as a consulting expert in an international arbitration concerning significant schedule delays and cost overruns in construction of a new nuclear power plant in the EU. Analysis focused on the motive the reactor vendor might have had to enter into a fixed-price, turnkey contract as a means to secure first-mover advantage, learning-curve effects, and market share.
- In an engagement with Exelon Corporation, provided strategic advice and analysis regarding Exelon's EPC contracting strategy for a new nuclear power plant in Texas. Analysis focused on the economic risk associated with potential variation in the price of key construction-related commodities (e.g., copper, steel rebar, concrete) and ways that exposure can be mitigated.
- Served as advisor to the Edison Electric Institute on energy efficiency and related regulatory models, including various decoupling mechanisms, *inter alia*.
- Provided strategic advice and regulatory support to ScottishPower in its 1999 acquisition of PacifiCorp and Iberdrola in its 2008 acquisition of Energy East – two of the largest cross-border transactions in the history of the U.S. utility sector. Managed the regulatory approval process as well as elements of the merger integration process.
- In a series of engagements with Atomic Energy of Canada, Ltd., provided strategic advice to senior management regarding AECL's product line, global sales initiative, U.S. market entry and licensing strategy, refurbishment business, and other matters.
- Assisted the Ontario IESO in its establishment, creation of market rules, and implementation of underlying policies, procedures, and systems to enable Ontario's transition to a competitive wholesale market.
- Served as a consulting expert in a lawsuit concerning significant schedule delays and cost overruns in construction of the South Texas Project.
- Advisor to major U.S. and Japanese utilities; Japanese trading companies; large nuclear vendors in the U.S.A., Canada, France, and Asia; and financial institutions globally.
- Reviewed U.S. DOD and U.S. DOE facilities and activities for compliance with various health, safety, and environmental statutes, including RCRA, CERCLA, SARA and TSCA.

- Managed contractor teams in the design, specification, fabrication, shipping, installation, operation, maintenance, and disposition of nuclear reactor parts, components, and systems, as well as compliance with nuclear export controls.

### **Regulatory and Dispute-Related Experience**

- In an ongoing matter, expert witness on behalf of applicant before the Regulatory Commission of Alaska. At issue in the rate case is the applicability of the Operating Ratio method of rate regulation as an alternative, for utilities possessing a high capital turnover ratio, to the Rate Base / Rate of Return methodology.
- Expert witness on behalf of defense, *HEAL Utah, et al. v. Kane County Water Conservancy District, et al.*, in Utah District Court for the 7<sup>th</sup> District of Utah (Case No. 120700009). In a decision dated November 27, 2013, the court rejected the claim *in toto* and accepted the testimony of Dr. George and other experts on behalf of the defendant.
- Expert witness on behalf of defense, *DOCA Company, as Successor to Caldon Company Limited Partnership, v. Advanced Measurement and Analysis Group Inc. and Westinghouse Electric Company, LLC*, in the U.S. District Court for the Western District of Pennsylvania (Civil Action No. 04-1951).
- Expert witness on behalf of defense, *ARRA Energy Company I, ARRA Energy Company II, and ARRA Energy Company v. United States*, in the U.S. Court of Federal Claims (COFC No. 10-84C). Case involves federal stimulus funding for a renewable energy project.
- Expert witness on behalf of defense, *In the Matter of an Arbitration Under the International Commercial Arbitration Act (Ontario), Between Cameco Bruce Holdings II Inc. (as successor to 2020857 Ontario Inc.), Cameco Corporation, Transcanada Pipelines Limited, Transcanada Energy Investments Ltd. and Borealis Infrastructure Trust Management Inc. in its capacity as sole trustee of BPC Generation Infrastructure Trust, Claimants, and British Energy Limited and British Energy International Holdings Limited, Respondents*. Case involves sale of a nuclear power plant in Canada. Testimony addressed the condition of certain key nuclear components and systems at the time of sale, the adequacy of disclosure of those conditions, the appropriateness of the operator's corrective actions, and the potential impact on plant operation, projected life, and value.
- Expert witness on behalf of defense, *Consolidated Edison Company of New York, Inc., v. United States*, in the U.S. Court of Federal Claims (COFC No. 04-0033C). Testimony addressed claims of diminished plant value reflecting the U.S. DOE's nonperformance under the standard contract for disposal of spent nuclear fuel from nuclear power stations. Expert testimony addressed the issue of whether the presence of spent nuclear fuel on plant site reduced the price at which the plant was sold by Con Edison to Entergy. The decision in the case cites Dr. George's analysis 17 times, explicitly concurring with Dr. George's analysis and rejecting the analysis offered by the opposing expert.
- Various cases involving thermal power plants, non-testifying expert on equipment supply contracts, long-term service agreements, asset management agreements, energy management agreements, purchase and sale agreements, power purchase agreements, spent nuclear fuel, and EPC contracts.

### **Distinctions and Honors**

- Recipient, American Nuclear Society Presidential Citation, Fukushima Rapid Response, “In recognition of his contributions to the response to events in Fukushima, Japan,” June 2011.
- Pre-doctoral and PhD fellowships, Harvard University
- NATO exchange officer, Federal German Navy
- Francis S. Viele Scholarship (five consecutive years)
- Rhodes Scholarship semi-finalist
- Member of the following honor societies: Phi Kappa Phi, Tau Beta Pi, Pi Tau Sigma, and Scabbard and Blade
- U.S. Naval ROTC Scholarship
- Cornell National Scholarship

### **Recent Speaking engagements**

- Organizer and discussion leader, Japan Energy Forum, sponsored jointly by KPMG and Bracewell & Giuliani, New York, NY, June 2, 2014.
- Chair, regulatory panel, KPMG Global Energy Conference, Houston, TX, May 23, 2013 and May 22, 2014.
- Discussant, electric power capacity market issues, Center for Research in Regulated Industries, Eastern Conference, Shawnee, PA, May 15, 2014.
- Invited panelist, “Can Nuclear Compete,” Nuclear Infrastructure Council, Special Summit on New Nuclear Energy, Washington, DC, June 19, 2012.
- “Smartgrid Ratemaking: One Approach.” Conference presentation, Center for Research in Regulated Industries, Advanced Workshop in Regulation and Competition, Rutgers Business School, Newark, NJ, January 13, 2012; and Eastern Conference, Shawnee, PA, May 17, 2012.
- Invited panellist, “View from the Financial Community, U.S. Department of Commerce, International Trade Administration, Civil Nuclear Finance Forum, Washington, DC, April 26, 2012.
- “Nuconomics: SMRs to the Rescue? Impact on New Nuclear of Cheap Natural Gas and Carbon, Renewables, Fukushima, and the End of U.S. DOE Loan Guarantees.” Conference presentation at the American Nuclear Society Small Modular Reactor Conference, Washington, DC, November 1, 2011.
- Invited Lecturer, “Topics in Energy Economics and Policy,” Business and Public Policy 210/710, The Wharton School, University of Pennsylvania, Philadelphia, PA, October 26, 2011.
- “Financing Alternatives for New Nuclear in OECD Countries.” Conference presentation at the Lower Carbon Earth Summit, Dalian, China, October 22, 2011.
- “Beyond Loan Guarantees: Fostering U.S. Nuclear Investment in a Post-Fukushima World.” Conference presentation, Center for Research in Regulated Industries 30<sup>th</sup> Annual Eastern Conference, Skytop Lodge, Skytop, PA, May 19, 2011.
- Panel moderator, “Commercial Financeability of SMR Plants,” Building the Value Chain for Commercializing Small Modular Reactors, Washington, DC, March 30, 2011.
- “Financing New Nuclear Generation,” workshop and panel presentation, *Energy Insider* Nuclear Investment and Project Finance conference, Washington, DC,

November 16, 2010.

- “Life After the U.S. DOE Loan Guarantee Program.” Conference presentation at the ACI Nuclear Power Summit, Atlanta, GA, October 28-29, 2010.
- “Economics and Financeability of Small and Modular Reactors.” Workshop and panel presentations, Infocast Small Modular Reactor conference, Washington, DC, October 18-20, 2010.
- “Small Modular Reactors: Economics and Financial Risk.” Conference presentation, President’s Special Session, American Nuclear Society Annual Convention, San Diego, CA, June 14, 2010.
- “Evaluating Risk for DOE Federal Loan Guarantees.” Conference presentation, U.S.-Japan Roundtable on Nuclear Energy Cooperation, hosted by the Howard Baker Forum, Washington, DC, May 5, 2010.
- “DOE Loan Guarantee Program.” Conference presentation, Clean Energy Forum – Financing and Regulatory Compliance, Rutgers University School of Law, Camden, NJ, March 26, 2010.
- Invited Lecturer, “Introduction to Operations Management and Decision Science,” Temple University, Philadelphia, PA, September 2009.
- Invited Lecturer, “Deregulation in the U.S. Electric Power Sector,” Hunter College, New York, NY, March 2009.
- “From Streams to Lumps: Transforming Long-Term Incentives into Up-Front Financing for New Nuclear Construction.” Technical paper and conference presentation, American Nuclear Society Annual Meeting, Reno, NV, June 6, 2006.
- “What Will It Take to Get a New Nuclear Power Plant Financed?” Conference presentation, American Nuclear Society Annual Meeting, Pittsburgh, PA, June 16, 2004.
- “Deregulation Revisited.” Conference presentation, J.P. Morgan Municipal Utilities Conference, New York, NY, October 3, 2002.
- “Regulatory Risk Management of Advanced Nuclear Power Plants.” Technical paper and conference presentation, American Nuclear Society Annual Meeting, Hollywood, FL, June 11, 2002.
- Invited Lecturer, courses in Private Enterprise and Public Policy and Business Policy and Strategic Management, Michigan State University, East Lansing, MI, June 2002, April 2002, February 2002, and October 2001.
- “Powering the Next Century.” Workshop sponsored by Primen Energy Research and the Global Business Network, Emeryville, CA, February 26-7, 2001.

### **Publications**

- George, Glenn R. and Arwen Kandt, “Smartgrid Ratemaking: One Approach,” conference paper Center for Research in Regulated Industries, Rutgers University, Newark, NJ, May 2012.
- George, Glenn R. and Collin Cain, “Beyond Loan Guarantees: Fostering U.S. Nuclear Investment in a Post-Fukushima World,” conference paper, Center for Research in Regulated Industries, Rutgers University, Newark, NJ, May 2011.
- George, Glenn R. and Edward Kee, “Nuclear Development Snapshots,” *Energy in East Europe*, no. 177 (2009): 7–9.
- George, Glenn R., *et al.*, “Making a Business of Energy Efficiency: Sustainable Business Models for Utilities,” *Edison Electric Institute*, August 2007.

- George, Glenn R. “Financing New Nuclear Capacity: Will the ‘Nuclear Renaissance’ be a Self-Sustaining Reaction?” *The Electricity Journal* 20, no. 3 (2007): 12–20.
- George, Glenn R., and Steven Mitnick, “The ‘Solutions’ Business is Now the Problem,” *Public Utilities Fortnightly* 139, no. 6 (2001): 44-47.
- George, Glenn R. “Advantages of the RHPH Model for Internet-Based Electronic Procurement.” In *The Impact of Competition*, edited by Nick Smith. San Francisco: Montgomery Research, 2000.
- George, Glenn R., and Lisa Megargle George. “The Naval Reactors Program: From *Nautilus* to the Millennium.” *Nuclear News*, October 1998, 26-33.
- George, Glenn R. “Negotiated Safety: Intragovernmental Risk Regulation in the U.S. Nuclear Weapons Complex.” (PhD dissertation, Harvard University, 1995).
- George, Glenn R. “Naval Nuclear Aspects of Cooperative Denuclearization.” In *Cooperative Denuclearization: From Pledges to Deeds*, Graham T. Allison, Ashton B. Carter, Steven E. Miller, and Philip Zelikow, eds. Cambridge: Harvard University, 1993.
- George, Glenn R., ed. *A Review of the U.S. Naval Nuclear Propulsion Program*. Washington, DC: U.S. Department of the Navy and U.S. Department of Energy, 1988–1991.