



**Edward Kee**

+1 202 370 7713

[edk@nuclear-economics.com](mailto:edk@nuclear-economics.com)

[www.nuclear-economics.com](http://www.nuclear-economics.com)

## **Edward Kee**

Mr. Kee is an expert on nuclear power economics. He is CEO and founder of Nuclear Economics Consulting Group (NECG) and is an Affiliated Expert at NERA Economic Consulting.

Mr. Kee provides strategic and economic advice to companies and governments on nuclear power and electricity industry issues. He has testified as an expert witness in US and international legal and arbitration cases.

Mr. Kee is on the Advisory Board of Elysium, a U.S. start-up company focused on developing a new molten salt fast reactor technology.

Prior to starting NECG, Mr. Kee held senior consulting positions at NERA Economic Consulting, CRA International, PA Consulting Group, Putnam, Hayes & Bartlett, and McKinsey & Company. He was a merchant power plant developer and a nuclear power plant engineer (qualified as chief engineering officer on Nimitz-class nuclear aircraft carriers) before becoming a consultant.

Mr. Kee has authored numerous articles on nuclear power and the electricity industry in publications including *World Nuclear News*, *Nuclear Engineering International*, *ANS Nuclear News*, *Nuclear Power International*, *The Electricity Journal*, and *Public Utilities Fortnightly*.

Mr. Kee holds an MBA from Harvard University and a BS in Systems Engineering (Distinction; Trident Scholar; Colt's Award) from the US Naval Academy.

## Education

**Harvard University**

MBA, focus on finance, 1985

**US Naval Academy**

BS, Systems Engineering, 1978 (Distinction; Trident Scholar)

## Professional Experience

**Nuclear Economics Consulting Group (NECG)**

2014-present CEO

**NERA Economic Consulting**

2014-present Affiliated Expert

**NERA Economic Consulting**

2009-2014 Vice President

**CRA International**

2006-2009 Vice President

**PA Consulting Group**

2001-2006 Member of Management Group

**PHB Hagler Bailly Pty Ltd**

1998-2000 Senior Vice President and Managing Director of Australian subsidiary

**Putnam, Hayes & Bartlett**

1993-1998 Vice President

**Charles River Associates**

1990-1993 Senior Consultant

**McKinsey & Co.**

1987-1989 Associate

**Catalyst Energy Corporation**

1985-1987 Development Principal and CEO of merchant power plant subsidiary

**US Navy**

1978-1983 Nuclear Engineering Officer

## **Nuclear power**

### **Client engagements**

Nuclear Energy Institute – retained to conduct a study of SMR economics and real options.

G20/B20 2016 – retained to provide research and draft recommendations for 2016 B20 Infrastructure Working Group on the nuclear power industry.

IFNEC (Reliable Nuclear Fuel Services Working Group) – retained by U.S. DOE to develop initial draft interview guide questions for countries considering a dual track (i.e., national repository and multinational repository) approach for future high-level nuclear waste and spent nuclear fuel disposition.

American Nuclear Society – member of Special Committee on Nuclear in the States, a committee focused on how to address economic issues and early retirement of U.S. nuclear power plants; principal author of the ANS Toolkit (see <http://www.ans.org/pi/news/article-514/> and <http://nuclearconnect.org/wp-content/uploads/2016/02/ANS-NIS-Toolkit-download.pdf>).

[Confidential client] - conducted a detailed study of global nuclear power plant projects for major financial institution; study was focused on new nuclear project cost increases and schedule delays, existing nuclear plant performance and operating costs, and future trends for nuclear project business models

[Confidential client] – conducted a detailed study of recent nuclear power plant projects in global market; study was focused on causes of project cost increases and schedule delays

[Confidential client] – provided advice on nuclear industry risks to a major financial institution in connection with its current and planned participation in financing activity for nuclear industry clients and projects.

[Confidential client] – provided advice on nuclear project risks, including business risks linked to innovative nuclear project business models, to a company that is preparing to develop, own, and operate a new nuclear power plant.

Centrus Energy (formerly USEC or U.S. Enrichment Corporation) – provided analysis of market impact of placing new Advanced Centrifuge Project into commercial operation with focus on competition in the global uranium enrichment industry; NERA report released to public.

King Abdullah City for Atomic and Renewable Energy (K.A.CARE) – part of Oliver Wyman team providing advice on Saudi Arabia’s planned nuclear power fleet investment and on the K.A.CARE strategy.

US Department of Energy – provided analysis of regulatory and market risks of proposed new US nuclear power plants in support of the US DOE nuclear loan guarantee program.

Singapore – assisted the Singapore Ministry of Trade and Industry in a pre-feasibility study on nuclear energy. NERA's role focused on examining the viability of nuclear energy as a potential long-term fuel source, in the context of Singapore's electricity market structure, projected electricity demand, and lack of indigenous generation fuel resources.

TNB (Tenaga Nasional Berhad) – assisted Malaysian electric utility TNB develop a long-term strategy and roadmap for Malaysian nuclear power.

CPS Energy – assisted CPS Energy on due diligence, Board review, and Public Consultation process related to participation in South Texas Project Unit 3 & 4 merchant nuclear power plant.

J.P. Morgan – prepared valuation and appraisal of leasehold interests in US nuclear power plant.

Eskom – provided business due diligence advice to Eskom related to the 2008 Nuclear One procurement process; provided an independent report to Management Committee and Board.

City of San Antonio – provided advice to the Mayor, City Council, and City staff on issues related to CPS Energy's participation in the South Texas Project nuclear plant expansion.

Constellation Energy Group – assisted Constellation in Calvert Cliffs 3 nuclear power plant development, compared projected power costs across technologies, and analyzed projected economic impact of new nuclear plant on existing non-nuclear generation portfolio.

Illinois Power – provided advice related to the status of the Clinton nuclear power plant and whether to restart, retire, or sell the plant; assisted in the sale process.

US Department of Energy – provided strategic advice on US government tritium production options including linear accelerators, existing commercial reactors, and a new DOE reactor that would burn MOX fuel derived from surplus weapons program plutonium.

Westinghouse Electric – consulting expert and case manager for extensive litigation engagement during which expert witness testimony on damages and related issues was developed and presented in a series of lawsuits brought by electric utilities seeking damages from Westinghouse related to nuclear power plant steam generator tube degradation.

Pacific Gas & Electric – provided analysis and advice in the settlement of the Diablo Canyon nuclear plant rate case and the potential acquisition of the Sacramento Municipal Utility District, owner of the Rancho Seco nuclear power plant.

### **Testimony in regulatory, judicial, and other proceedings**

[Confidential clients] – retained as consulting/testifying expert in multiple active international arbitration and litigation cases involving nuclear power.

Before the Tax Court of Canada as expert on uranium industry and markets in *Cameco Corporation v HMQ*; case involves transfer pricing, international corporate structure, uranium

markets, and related issues for a uranium producer with involvement in the Megatons to Megawatts HEU deal; case is active. (Retained by Canadian Department of Justice)

Before US District Court for the District of Vermont in the matter of *Entergy Vermont Yankee, et al, v. Peter Shumlin, in his official capacity as Governor of the State of Vermont, et al*, Civil Action No. 11-CV-99; filed declaration in support of preliminary injunction motion in April 2011, filed reply declarations in May 2011, testified at preliminary injunction hearing in June 2011 and at main trial in Sep 2011. Testified as expert on economic benefits of continued operation, electricity market impacts, and related matters in preliminary injunction hearing and trial related to state laws prohibiting Vermont Yankee Nuclear Power Station from operating past original NRC license expiration despite an approved 20-year NRC license renewal (retained by Entergy)

Before the European Commission Merger Registry, analysis of whether a UK nuclear industry transaction might constitute a potential abuse of market power; filed expert report with the European Commission merger office on competition issues related to a proposed major transaction in the UK nuclear industry, October 2008. (Retained by Confidential client)

Before the International Court for Settlement of Investment Disputes (ICSID), Mr. Kee testified on ownership, nuclear operation, nuclear safety and related issues at the Krško nuclear plant. Testified in ICSID arbitration proceeding between the Croatian utility HEP and the Government of Slovenia related to ownership and operation of the Krško nuclear power plant. ICSID Case No. ARB/05/24, December 2007. (Retained by Hrvatska Elektroprivreda)

Before the State of Rhode Island, Division of Public Utilities and Carriers, on the extent to which payment obligations under an unconditional take-or-pay power purchase agreement with a nuclear power plant were the financial equivalent of debt obligations; Pascoag Fire District (Rhode Island municipal utility), Docket No. D-91-10, May 1992. (Retained by Pascoag Fire District)

## **Publications and media coverage**

“Merchant Nuclear Power;” NECG Knowledge Partner Paper; Middle East Nuclear Power Briefing 2015; Abu Dhabi, 13-14 October 2015.

“Merchant Nuclear Power;” NECG Knowledge Partner Paper; 4<sup>th</sup> Annual Nuclear Energy Development Summit; Istanbul, 4 October 2015.

“Saudi Arabia’s Nuclear Plans May Be Hobbled by U.S. Law;” Mr. Kee is quoted in this article in Fuel Cycle Week, 20 August 2015.

“Decision Time looms for Saudi Arabia on nuclear power;” Mr. Kee is quoted in this article on the Saudi Arabian nuclear power programme, Arabian Business, 18 August 2015.

“Cheap natural gas might doom new FERMI nuke plant;” Mr. Kee is quoted in this article in the Detroit Free Press, 23 February 2015.

“Can nuclear succeed in liberalized power markets?” World Nuclear News, 4 February 2015.

“US nuclear industry in decline” Nuclear Engineering International, 28 January 2015.

“Project by project update [for US nuclear]: COL licenses under review” Nuclear Engineering International, 28 January 2015.

“IEA U.S. Energy Policy Review – Lessons for nuclear power” Knowledge Partner for 3rd Asian Nuclear Power Briefing 2015, Hanoi, 22-23 January 2015.

“Role of Government in Nuclear” Knowledge Partner for 3rd Annual Nuclear Energy Development Summit, Budapest, Hungary, 2-4 October 2014.

“Rescuing U.S. Merchant Nuclear Power: Advancing National Security, Economic, Energy, and Environmental Imperatives;” with Elise Zoli; *The Electricity Journal*, (Apr 2014)

“2014 – Asian Nuclear Power Outlook;” Knowledge Partner paper for The Future of Nuclear Power in Asia conference; Tokyo, Japan; 17-18 February 2014

“Natural gas glut crimps nuclear power;” Mr. Kee is quoted in this article on electricity market issues related to the early retirement of the Kewaunee merchant nuclear power plant for economic reasons; *The Christian Science Monitor - CSMonitor.com*; (8 May 2013).

“Rush to Natural Gas Has Coal-Fired Utilities Seeing Red;” Mr. Kee is quoted in this article on the impact of unconventional (shale) natural gas supplies on the US electricity industry; *Wall Street Journal*; (24 Jan 2013).

“US NRC order could delay decision on new nuclear reactor licensing;” Mr. Kee is quoted on the likely impact on US nuclear industry as a result of NRC decision to defer COL and License renewal decisions while addressing issues raised by Appeals Court decision striking down the NRC Waste Confidence Rule; *Platt’s* (20 Aug 2012).

“US Nuclear Industry's Fate Rests with Southern Company;” Mr. Kee is quoted on the importance to the nuclear power industry of the Vogtle expansion nuclear power project, *Moneynews*, Thompson/Reuters (15 Feb 2012).

“Miners See Mixed Effects in Frail Economy, Falling Dollar;” Mr. Kee is quoted on global uranium markets and prices; *Fuel Cycle Week*, Vol. 10, No. 437 (11 Aug 2011).

“If Indian Point Closes, Plenty of Challenges;” Mr. Kee is quoted on the impact on regional electricity markets if the Indian Point nuclear power plant were to be closed; *New York Times* (13 Jul 2011).

“U.S. May Build Five New Nuclear Reactors by 2020, New Energy Finance Says;” Mr. Kee is quoted on the impact of natural gas prices on nuclear power and renewable energy projects; report on Bloomberg New Energy Finance Summit; Bloomberg; (4 April 2011).

“Asia’s Nuclear Energy Boom has Potential to be America’s First Wave;” Nuclear Town Hall Newsmakers; Mr. Kee is interviewed by William Tucker (13 Jan 2011).

“Duke to Buy Progress Energy for \$13.7 Billion;” Mr. Kee is quoted on the merger’s potential impact on new nuclear build projects; *New York Times – Deal Book* (10 Jan 2011).

“Asia to lead the shift to Nuclear Power;” IQPC interview of Mr. Kee in advance of the Nuclear Energy Asia conference scheduled for Hong Kong in Dec (Sep 2010).

“Why new build won’t happen here;” Mr. Kee is quoted on electricity market and other hurdles facing US merchant nuclear projects; *Fuel Cycle Week*, Vol. 9, No. 393 (8 Sep 2010).

“A look ahead at some fuel issues for 2010;” Mr. Kee is interviewed on nuclear fuel markets and related issues; *ANS Nuclear News*, (Feb 2010).

“Korean Group's UAE Victory Surprises Few Nuke Insiders;” Mr. Kee is quoted on nuclear industrial development, nuclear industrial capacity, and nuclear build experience in South Korea; *Fuel Cycle Week*, Vol. 9, No. 358 (6 Jan 2010).

“Timing Uncertain for Federal Nuclear Loan Guarantees;” Mr. Kee is interviewed on DOE loan guarantee process, *Power Engineering International* (Jan 2010).

“Nuclear Development Snapshots” summary of Eastern European nuclear activities, with Glenn George, in Platt’s *Energy in East Europe*, Issue 177 (20 Nov 2009).

“DOE Loan [Guarantees]: chicken or egg?” in *Nuclear Engineering International* (Sep 2009).

“First Wave or Second Wave?” article on first-mover strategy for new nuclear power projects in the US in *Nuclear Power International* (Jun 2009).

“State Support is Key: New nuclear power plants may need significant government support” in *Nuclear Engineering International* (Jan 2009).

“Nuclear Fuel Future” in *Public Utilities Fortnightly* (Feb 2008).

“Nuclear Fuel: A New Market Dynamic” in *The Electricity Journal* (Dec 2007).

“[Nuclear] Loan Guarantees under EPAct” with Robert Mudge, in *Energy Law Journal*, Vol.28: 2 (Fall 2007).

“Nuclear Fuel Market Faces Challenges” three-part article in *The Desk* (19 Oct, 26 Oct, and 9 Nov 2007).

“New Nukes;” Mr. Kee is quoted on the likely cost of new nuclear power plants in this article on new nuclear power projects in Florida; *Florida Trend*; (1 Mar 2006)

“[Nuclear] Plant Extinction Exaggerated” in *Public Utilities Fortnightly* (1 Jan 1993).



## Speeches and presentations

“World experience with nuclear power and electricity reform;” 49<sup>th</sup> Annual Japan Atomic Industrial Forum Conference, Tokyo, 12 April 2016.

“Part 1: Why nuclear power plants are closing,” and “Part 2: How to prevent nuclear power plant closings;” *To close or not to close* Mega Session, Nuclear Power International, Las Vegas, NV, 8 Dec 2015.

“The economic consequences of new models;” Mr. Kee was a panelist in this session at the Utilities in a Time of Change conference sponsored by the Public Utilities Fortnightly; Scottsdale, AZ, 18 November 2015.

“Nuclear Energy: The Federal and State Approach to Compliance with the Clean Power Plan (CPP);” Mr. Kee participated as a panelist in the General Chair’s Special Session, American Nuclear Society 2015 Winter Meeting, Washington, DC 10 November 2015.

“Disrupting the Nuclear Industry;” Mr. Kee participated in a panel during the Harvard Business School 2015 Energy Symposium; Boston, MA, 17 October 2015

“Nuclear Revenue Certainty;” presentation at Middle East Nuclear Power Briefing 2015; Abu Dhabi, 13-14 October 2015.

“Nuclear Power and the electricity industry;” Presentation for the opening session of the NEI International Uranium Fuel Seminar; Beaver Creek, CO; 5 October 2015.

“Nuclear Power Economics and Markets;” Opening address at the IBC Decommissioning of Nuclear Reactors & Materials conference on Miami, Florida, 29 September 2014.

“Rescuing U.S. Merchant Nuclear Power;” Panelist at American Nuclear Society Utility Working Conference 2014 on Amelia Island, Florida, 11 August 2014.

“Nuclear Energy Around the Globe: Strengths, Weaknesses, Opportunities, Threats;” Panelist on nuclear power business models; Panel Discussion at the Nuclear Energy Assembly (NEI Annual Conference); Scottsdale, Arizona; 21 May 2014.

“Economic Impact of Japanese nuclear shutdown;” with Hiroaki Ishigaki; The Future of Nuclear Power in Asia conference; Tokyo, Japan; 17-18 February 2014

“Role of Nuclear Energy in Global Energy Markets;” Nuclear Energy Development Summit 2013, Eastern Europe, Turkey and Middle East; Istanbul, Turkey; 21 November 2013.

“Financing Issues Associated with the Development of an Embarking Nuclear Power Program;” Economics and electricity market expert panelist; IFNEC Finance, Regulatory, Energy Planning Authority Workshop, Abu Dhabi, UAE, 22 October 2013.



“Global perspective on nuclear energy and the implications for Europe;” presentation at 2<sup>nd</sup> European Nuclear Power Briefing 2013, Budapest, Hungary, 22-25 September 2013.

K.A.CARE Saudi Sustainable Energy Symposium moderator; presented introductory session on nuclear power plant localization and moderated 3 panels on nuclear power topics, Riyadh, Saudi Arabia, 24 April 2013.

“Emerging Nuclear Power Programs,” Panel Chairman, Mega-Session IV, Nuclear Power International, Orlando, FL, 11 Dec 2012.

“Global Nuclear Power,” panelist in the Infocast “Reshaping of the Nuclear Industry Post-Fukushima” webinar; 8 Nov 2012.

“Global Nuclear Power,” presentation on drivers of future nuclear power plant development at the *World Energy in 2040* conference sponsored by Capital Alliance, M&A International, and Fulbright & Jaworski; Dallas, TX; 25 Oct 2012.

“Issues and Challenges for Merchant Nuclear Projects,” presentation at US NRC Public Meeting on *Financial Qualifications for Merchant Nuclear Plant Combined License Applicants*; Rockville, MD; 11 Oct 2012.

“Economics of Nuclear Projects,” Marsh Nuclear Insurance, US Nuclear Energy Center of Excellence, Annual Risk Management Seminar; Ponte Vedra Beach, FL; 19 Sep 2012.

“Issues and Challenges for Merchant Nuclear Projects,” Presentation at the World Nuclear Association 37<sup>th</sup> Annual Symposium; London; 13-14 Sep 2012.

“Utility Perspectives on Drivers for Adoption of SMR Technology,” and “Financeability of SMR Technology,” led panel discussions at the Commercializing Small Modular Reactors for Domestic and International Markets 2012 conference; Washington, DC; 18-19 Jul 2012.

“International SMR Programs and Markets,” presentation at the Small Modular Reactors and International Markets Executive Forum 2012; Washington, DC; 17 Jul 2012

“Economic implications of a major event on global nuclear power industry;” Utilities Service Alliance (USA) Executive Summit 2012; Colorado Springs; 13 Jun 2012.

“A View of Nuclear Growth at Home and Abroad,” speaker in this session at the US Nuclear Energy Institute - Nuclear Energy Assembly 2012; Charlotte, North Carolina; 21-23 May 2012.

International Framework for Nuclear Energy Cooperation (IFNEC) Finance Workshop; expert panelist for nuclear plant financing scenarios; Lancaster House, London, 9-10 May 2012

“Future of Nuclear Energy,” participant in panel discussion on Aftermath of Fukushima Dai-ichi Accident, George Washington University, 16 Mar 2012.

“Nuclear Energy – Is there a Future?” 39th Annual Public Utilities Research Center Conference; University of Florida, 15 Feb 2012.

“Alternatives for Spent/Used Fuel,” Nuclear Safety Post-Fukushima conference, Washington, DC, 6 Dec 2011.

“Small Modular Reactors – Financial Perspectives,” American Nuclear Society (ANS) Winter Meeting 2011, SMR Business Case session, Washington, DC, 1 Nov 2011.

“New Nuclear Build Strategy - where do we go from here?” Panel Chairman, Nuclear Energy Insider, 3rd Annual Nuclear Construction Summit, Charlotte, NC, 26 Oct 2011.

“Global Nuclear Power Developments after Fukushima;” Australian Energy User Association, EUAA Annual Conference (by video conference), Melbourne, Australia, 19 Oct 2011.

“Global Nuclear Power Developments after Fukushima,” Goldman Sachs utility sector institutional investors, New York City, NY, 17 Oct 2011.

Bloomberg TV, Street Smart, Mr. Kee was interviewed on a segment focused on small reactors, 23 Sep 2011.

“Economics of nuclear power in Utah;” panelist in a forum on the proposed Blue Castle nuclear power project at the Sutherland Institute, Salt Lake City, UT, 19 Jul 2011.

“Fukushima and Nuclear Power: Can we live without it?” panelist in webinar sponsored by the Energy Collective, 29 Jun 2011.

“Small Reactor Economics,” Nuclear Power Europe conference (presented by NERA colleague due to schedule conflicts); Milan, 8 Jun 2011.

“Nuclear: Fukushima - the Aftermath;” Thought Leader at 2011 Bloomberg New Energy Finance Summit; participated in opening panel discussing the impact of Fukushima on the nuclear power markets; New York, 4 April 2011.

“International Small Modular Reactor Programs and Markets;” Panel Chairman at the Building the Value Chain for Commercializing Small Modular Reactors 2011 conference; Washington, DC, 28 Mar 2011.

“Global nuclear power – China leads the way,” presented at American Nuclear Society meeting; Washington, DC, 15 Feb 2011.

“Deploying Small Modular Reactors in the US,” chair and organizer of this Mega-Session panel at Nuclear Power International, Orlando FL; 14 Dec 2010.

“Global nuclear power developments – Asia leads the way,” presented at Nuclear Energy Asia conference, Hong Kong, 7 Dec 2010

“Global Demand for Nuclear Energy and Risk Management Issues;” led a seminar on: (1) Global nuclear power markets, (2) Strategic issues for the nuclear power industry, (3) the role of government in the nuclear power industry, and (4) small reactor market assessment; seminar was sponsored by JOI and JBIC, Tokyo, 24 Nov 2010.

"DOE Nuclear Power Plant Loan Guarantees: Evaluating Regulatory & Market Risk," presented at the Marsh US Nuclear Energy Center of Excellence Annual Risk Management Seminar, Palm Beach, FL, 22 Sep 2010.

“2010 Nuclear Power Briefing,” presented to Goldman Sachs, Morgan Stanley, and institutional investors groups, New York City, 23 Mar 2010.

“Economics of Nuclear Power” Mega-Session presentation at the Nuclear Power International 2009 Conference, Las Vegas; 8 Dec 2009.

“Global Nuclear Power,” presented at the Goldman Sachs Ninth Annual Power & Utilities Investor Conference; New York City; 19 May 2009.

“Nuclear Fleet Strategies,” presented at the futurepower Conference, London, 5 Nov 2008.

“Global Nuclear Power,” presented at the Goldman Sachs Eighth Annual Power & Utilities Investor Conference; New York City; 13 May 2008.

“Nuclear Renaissance,” presented at the EUCI *Who will build generating baseload capacity?* Conference; Salt Lake City; 8 Mar 2007.

“The Energy Policy Act of 2005—Nuclear Power Incentives,” presentation to the Institute for Energy Economics of Japan, Washington, DC; 1 Dec 2005.

“The Energy Policy Act of 2005,” presentation on incentives for new nuclear power to the Virginia Industrial Energy User Group; Richmond, VA; 21 Sep 2005.

“Economic Shut-Down of Nuclear Plants: Case Studies and Industry Outlook” presented at the Power-Gen 92 Conference; Orlando, FL; 17 Nov 1992.

“Economics of Nuclear Plant License Renewal: A Framework for Decision-Making” presented at the Power-Gen 91 Conference; Tampa, FL; 5 Dec 1991.

## **Training Courses**

IAEA Nuclear Financing Course; Argonne National Laboratory; Argonne, Illinois; 5-9 October 2015; taught three topics:

- “Nuclear Power and the Electricity Industry”
- “Power Purchase Agreements”
- “How Nuclear Projects Fail”

IAEA Interregional Nuclear Energy Information Workshop; Argonne National Laboratory; Argonne, Illinois; 3-6 August 2015; taught two topics:

- “Comparative cost structure of nuclear energy”
- “Impact of alternative electricity industry structures on nuclear power”

IAEA Nuclear Financing Course; Argonne National Laboratory; Argonne, Illinois; 6-10 October 2014; taught three topics:

- “Nuclear Power and the Electricity Industry”
- “Power Purchase Agreements”
- “How Nuclear Projects Fail”

## **NECG Commentaries**

Commentary #12; “Flexible Nuclear Power;” 24 September 2015.

Commentary #11; “Nuclear power in summer / 17 things about nuclear power;” 12 August 2015.

Commentary #10; “U.S. Government Role in merchant nuclear?” 7 July 2015.

Commentary #9; “Nuclear power surrender?” 14 May 2015.

Commentary #8; “Death of nuclear power – a foolish prediction;” 1 May 2015.

Commentary #6; “U.S. state action on nuclear revenue certainty;” 2 March 2015.

Commentary #5; “Revenue certainty;” 9 February 2015.

Commentary #4; “Global Lessons from Vermont Yankee Closure;” 1 Jan 2015.

Commentary #3; “Nuclear Base Load;” 3 November 2014.

Commentary #2; “Nuclear Power & Short-Run Marginal Cost;” 1 October 2014.

Commentary #1; “Nuclear Power Plants – Long-Term Assets in a Short-Term World;” 31 August 2014

## **Private power and power purchase agreements**

### **Client Engagements**

Virginia Power – developed and implemented a major power purchase procurement auction process to evaluate offered power purchase agreements from IPPs, including assistance in procurement strategy, in soliciting and evaluating bids, and in negotiating agreements with winning bidders; provided independent assessment to state electricity regulator.

INESPAL – assisted INESPAL, the Spanish government-owned aluminum producer and manufacturer, to evaluate power supply options that included independent power producers, renewal of contracts with incumbent utilities, and other options.

### **Testimony in regulatory, judicial, and other proceedings**

Before 19<sup>th</sup> Judicial District Court, Parish of East Baton Rouge, State of Louisiana, on the shared savings power purchase agreement terms and financial outcomes in the matter of *Bernhard vs. Board of Supervisors, LSU*; Case No. 542,936; two sessions of deposition testimony completed; presented testimony before the Panel of Engineers in Dec 2009; case settled in early 2010. This case involved a contract dispute related to the shared savings power purchase agreement for a new cogeneration system installed at the main campus in Baton Rouge. (Retained by Louisiana State University)

Before the New Brunswick Energy and Utilities Board, on the state of electricity industry reform and restructuring in New Brunswick and the extent to which government-imposed power purchase/vesting contracts (including with the Point Lepreau nuclear plant) should be subject to regulatory oversight by the Energy and Utilities Board, June 2007. (Retained by NB Power)

Before the Energy and Utilities Board of New Brunswick, on the international experience with vesting contracts as electricity industry reform transition arrangements, Public Intervenor motion of 31 May 2007 on generator costs, June 2007. (Retained by NB Power)

Before the South Dakota Public Utilities Commission, on PURPA implementation in South Dakota, avoided cost levels, typical contract terms, wind project impact, and potential wind energy integration costs, Montana-Dakota Utilities, Docket EL04-016; Jan 2005. (Retained by MDU)

Before the US Federal Energy Regulatory Commission, on the likely effect of the Enron trading strategies on electricity market prices and long-term PPAs signed in the western region in 2000 and 2001, *Nevada Power Company, et al v. Duke Energy Trading & Marketing et al.*, Docket EL02-28, August 2002. (Retained by Enron)

Before the Supreme Court of New South Wales Commercial Division, Sydney, Australia; expert report and testimony at trial on issues related to Power Purchase and Hedge Agreement implementation and required security, *National Power Australia v. EnergyAustralia*; July 1998. (Retained by EnergyAustralia)

Before the US District Court, Western District of Washington, expert report and testimony on issues related to PURPA implementation, project compliance with FERC QF requirements, power purchase agreement implementation, and damages, *March Point Cogeneration Company v. Puget Sound Energy*, Case No. C95-1833R, October 1997. (Retained by Puget Sound Energy)

Before the Court of Common Pleas of Lehigh County, Pennsylvania, Civil Division, on whether irreparable harm to the seller of power would result if PP&L exercised certain rights under a power purchase agreement, *Pennsylvania Power & Light Company (PP&L) v. Schuylkill Energy*

*Resources and Reading Anthracite Company*, File No. 95-C-2810; April 1996. (Retained by PP&L)

Before the Pennsylvania Public Utility Commission, on the pricing provisions in disputed power purchase agreements following a court decision that struck the use of coal proxy plant avoided costs and remanded the pricing issue to the Pennsylvania Public Utility Commission, Dockets P-870235, C-913318, P-910515, & C-913764, September 1995. (Retained by Pennsylvania Electric Company)

Before the Pennsylvania Public Utility Commission, on power purchase agreement terms related to the Harrisburg Steam Works rate case and the impact of changes to these terms; Dockets P-00950915 & R-00953346, September 1995. (Retained by PP&L)

Before the United States District Court, Southern District of New York, on the issues of non-utility generation project development and project feasibility in a dispute related to a power purchase agreement, *State Line Power Associates Limited Partnership v. Orange and Rockland Utilities*, 92 Civ. 5755, 1994. (Retained by Orange and Rockland Utilities)

Before the State of California, San Francisco Superior Court, on behalf of Pacific Gas & Electric Company on issues of non-utility project feasibility and extent of lost profit damages resulting from allegedly breached power purchase agreements; Power Producers Dispute Cases (Judicial Council Coordination Proceeding No. 2654; Contra Costa Superior Court No. C90-05398; San Francisco Superior Court No. 929-870), May 1994. (Retained by PG&E)

Before the State of California, Public Utilities Commission, on the use of regulatory-out, market-out, and termination provisions in the California Final Standard Offer 4 power purchase agreements; Final Standard Offer Number 4, Docket No. I.89-07-004, May 1992. (Retained by PG&E)

Before the State of Michigan, Circuit Court, Iron County, on the level of damages resulting from Indeck's alleged breach of a contract to develop an industrial cogeneration project, *AGA Corporation et al v. Indeck*, Case No. I-88-3985-CK, December 1990. (Retained by Indeck Energy)

## **Publications**

“Vesting Contracts: A Transition Tool;” article published in *The Electricity Journal* (Jul 2001).

“Stranded Purchases? Non-Utility Power Contracts and Utility Industry Deregulation;” article in *PHB Insight* (Nov 1995).

“Still a Lot to Learn About Power Sales;” in *Private Power Executive* (Sep/Oct 1993).

“Bid Policies Overhauled;” with P. Fox-Penner, in *Cogeneration and Resource Recovery* (Nov/Dec 1990).

## **Speeches and Presentations**

“Determination of Damages in Cogeneration Claims,” given at the IGT *Power Sales Contracts in the Industry Restructuring Environment* conference; Chicago; 28 Sept 1995.

“Risk-Shifting and Hidden Costs in Purchasing Non-Utility Power,” presented at the Power-Gen 92 Conference; Orlando; 18 Nov 1992.

“Designing Successful Bidding Programs,” faculty presentation for course on Competitive Bidding for Power Contracts; San Francisco - 7 Oct 1991 and New York City - 20 May 1991.

“Independent Power Joint Ventures,” presented to the Management Exchange conference on IPP Contracts and Agreements; Washington, DC; 20 Jun 1990.

## **Electricity industry reform and markets**

### **Client Engagements**

ECRA (Electricity & Co-generation Regulatory Authority of the Kingdom of Saudi Arabia) – part of NERA team evaluating Saudi Power Purchase Agreements (PPAs) and their potential impact on planned restructuring/reform of Saudi electricity industry.

CER (Commission for Energy Regulation), Republic of Ireland – led the PA Consulting Group team in a two-year engagement to conduct a review of interim electricity trading arrangements; to design a new Irish electricity market consistent with Irish and EU legislation; and to outline a comprehensive market power mitigation scheme.

Government of South Australia – Economic Advisor to the Government of South Australia in the reform, restructuring, and privatization of the former state-owned electricity industry. Assisted with the transition to the National Electricity Market; developed and implemented an approach to restructure the single incumbent government utility; developed and implemented a market power mitigation program involving vesting contracts; and assisted in several proceedings before the Australian Competition and Consumer Commission.

National Electricity Code Administrator, Australia – led the review of the integration of energy markets and network services that examined the extent to which full nodal spot pricing should be applied in the Australian National Electricity Market.

Edison Electric Institute – provided advice on liability assumed by transmission owners and market operators in a shift to FERC jurisdiction from state jurisdiction due to enhanced ability of end-use customers to seek compensation as a result of system outages.

National Electricity Market Management Company, Australia – developed and implemented inter-regional electricity market spot price locational hedge instruments and auctions.



Government of Queensland, Australia – provided advice to Treasury and Cabinet on reform of government-owned electricity companies, power purchase contracting, retail electricity competition, the development of the Papua New Guinea natural gas pipeline, and related energy industry issues.

Government of Victoria, Australia – provided advice to Treasury and Cabinet on security of supply, government intervention in the electricity spot market, electricity industry cross-ownership rules, and related electricity industry issues.

### **Testimony in regulatory, judicial, and other proceedings**

Before the US Federal Energy Regulatory Commission, detailed analysis of Death Star and other Enron trading strategies and market simulation modeling to estimate the impact of these Enron trading strategies on US Western power markets; proceeding related to activities in California and in western power markets in 2000 and 2001, *Enron Power Marketing, Inc.*, Docket EL03-180; May 2005. (Retained by Enron)

Before the Maharashtra State Electricity Regulatory Commission (MERC; India), on an appropriate method of allocating costs of Reliance Energy standby charges; April 2004. (Retained by Reliance Energy)

Before the US Federal Energy Regulatory Commission, a detailed analysis of Death Star and other Enron trading strategies and the impact of these Enron trading strategies on US Western power markets, *Enron Power Marketing, Inc.*, Docket EL02-114, February 2003. (Retained by Enron)

Before the US Federal Energy Regulatory Commission, detailed analysis of Death Star and other Enron trading strategies and the impact of these Enron trading strategies on US Western power markets, *Enron Power Marketing, Inc.*, Docket EL02-113, February 2003. (Retained by Enron)

Before the US District Court, Northern District of California, San Francisco, expert report on impact of FERC market price mitigation measures in California on California Power Exchange published prices, *Idaho Power Company v. Boston Properties*, Case No. C-01-1293, January 2002. (Retained by Boston Properties)

Before the Economic and Finance Committee of the South Australian Parliament, on electricity industry reform, privatization, and the use of vesting contracts as a transition mechanism, July 1998. (Retained by South Australian Treasury)

Before the Superior Court of the State of California, County of Imperial, on damages, geothermal power plant development and operational issues, and transmission agreement terms, *Red Hill Geothermal Company, et al v. Irby Construction Company, et al.*, Case No. 74359, October 1996. (Retained by Irby, Hyundai Heavy Industries, and other defendants)

Before the United States District Court for the Northern District of Alabama, Southern Division; affidavit filed on the role of power marketing companies in the electric utility industry and on related contractual arrangements between the Tennessee Valley Authority and LG&E Power

Marketing, *Alabama Power Company, et al v. Tennessee Valley Authority, et al.*, Civil Action No. CV-96-PT-0097-S, April 1996. (Retained by Alabama Power Company)

Before the New York Public Service Commission, on the fixed and variable costs of the Sithe/Independence power plant and whether retail sales by that plant constituted economic bypass, case No. 94-E-0136, July 1994. (Retained by on behalf of Niagara Mohawk Power Corporation)

## **Publications**

“Merchant Nuclear Power;” NECG Knowledge Partner Paper; 4<sup>th</sup> Annual Nuclear Energy Development Summit; Istanbul, 4 October 2015.

“Cheap natural gas might doom new FERMI nuke plant;” Mr. Kee is quoted in this article in the Detroit Free Press, 23 February 2015.

“Can nuclear succeed in liberalized power markets?” World Nuclear News, 4 February 2015.

“Competition [in Ireland] to Flow from Single Market and Restructured Electricity Supply Board” in *Platt’s European Electricity Review* (Jun 2005).

“Reaping the Benefits of Electricity Industry Reform: Defining and Limiting the Use of Price Controls” in *PA Viewpoint* (Feb 2005).

“Margadh Aibhléise na hÉireann: A New Electricity Market for Ireland” in *The Electricity Journal* (Jan/Feb 2004).

“Will Monti Pull the Plug on [Nuclear] State Aid?” in *Wall Street Journal Europe* (15 Dec 2003).

“An Emerald Market? A New Electricity Market for Ireland” in *Power Economics* (5 Dec 2003).

“Will There Be Trouble Ahead?” article assessing the future for the Australian electricity market in *Electricity International* (Jul 2002).

“An Uncertain Path—Asian Electricity Reform in the Wake of the California Market Failure” with M. Crosetti and J. George of PA Consulting Group, in *Power Engineering International* (Sep 2001).

“Vesting Contracts: A Transition Tool” in *The Electricity Journal* (Jul 2001).

“Bush’s National Energy Policy” in *Power Economics* (Jul/Aug 2001).

## Speeches and Presentations

“The economic consequences of new models;” Mr. Kee was a panelist in this session at the Utilities in a Time of Change conference sponsored by the Public Utilities Fortnightly; Scottsdale, AZ, 18 November 2015.

“Nuclear Revenue Certainty;” presentation at Middle East Nuclear Power Briefing 2015; Abu Dhabi, 13-14 October 2015.

“Nuclear Power and the electricity industry;” Presentation for the opening session of the NEI International Uranium Fuel Seminar; Beaver Creek, CO; 5 October 2015.

“Economic Impact of Japanese nuclear shutdown;” with Hiroaki Ishigaki; The Future of Nuclear Power in Asia conference; Tokyo, Japan; 17-18 February 2014

“Implementing the New Irish Electricity Market;” with C. Mannion of CER; presented at the SMi Irish Energy conference; Dublin; 28 Nov 2003.

“The Role of Retailers in the Spot Market;” presentation at the Association of Energy Service Professionals (AESP) Annual Meeting; Jacksonville, FL; 5 Dec 2001.

“Texas Electricity Market: Opportunities for Competitive Energy Markets;” presented at Power Markets 2002: Energy Policy and its Impact on Energy Markets; Washington, DC; 16-17 Oct 2001.

“Super RTOs - How will FERC Win the West?” given at the Western Power Trading Forum; Stevenson, WA; 5 Oct 2001.

“2001 US National Energy Policy;” presented at Energy Policy and the Electric Power Industry: Balancing Energy Needs and Environmental Concerns; held by the Energy & Mineral Law Foundation; Cincinnati, OH; 10-11 Sep 2001.

“Market Power or Market Structure? – UK Electricity Market Review;” presented at the Electricity Supply Association of Australia Regulation Conference; Melbourne, Australia; 23 Feb 1999.

“Electric Utility Restructuring: Long- & Short-Term Impact on the Natural Gas Industry;” presented at IGT: The Outlook for Natural Gas; Houston, TX; 11 Sep 1995.

“Independent Power, Over-Capacity and Disallowances: A New Regulatory Compact?” given at the Electricity Generation for the 21st Century Conference; Denver, CO; 25 Jun 1993.

“Carbon Taxes: Impact on the Electric Utility Industry;” presented to the Edison Electric Institute Taxation Committee; New Orleans, LA; 10 Nov 1992.

“Strategies for an Evolving Generation Industry;” presented at the EEI/AGA Financial Planning for Public Utilities Conference; Chicago, IL; 18 May 1992.

“Recovery of Indirect Costs of Transmission Services: Case Studies,” presented to the Edison Electric Institute; Washington, DC; Feb 1991.

“Electric Utility Planning: Integrating Demand-Side Options,” presented to the Edison Electric Institute; Washington, DC; Aug 1990.

### **Speeches and Presentations - Australian electricity markets (selected items only)**

“Ownership and Risk Management: The Case for Privatization,” presented at the Queensland Power & Gas Conference; Brisbane, Queensland; 24 May 2000.

“The US Experience with Nodal Pricing” & “The NZ Experience with Nodal Pricing,” presented at the National Electricity Code Administrator (NECA) Forum on the Scope for Integrating the Energy Market and Network Services; Sydney, New South Wales; 22 Nov 1999.

“International Experience in Nodal Pricing: Focus on Market Power,” given at the IBC Nodal Pricing One-Day Update; Sydney, New South Wales; 14 Mar 2000.

“Integrating Energy Markets and Network Services,” presented to the Victorian government, South Australian government, Queensland government, National Generator Forum, Australian Cogeneration Association, and Electricity Retailers Association; Australia; Dec 1999.

“Draft Regulatory Test for New Interconnectors and Network Augmentations,” presented to Commissioners and Staff of the Australian Competition and Consumer Commission (ACCC); Canberra, Australian Capital Territory; 21 Oct 1999.

“Electricity Supply Industry Reform,” seminar for NSW Democrat Members of Parliament; Sydney, New South Wales; 9 Sep 1999.

“South Australian Vesting Contracts,” presentation to Commissioners and Staff of Australian Competition and Consumer Commission; Sydney, New South Wales; 25 Jun 1999.

“Economic Purchasing and the PNG Pipeline,” presented to the Infrastructure and Economic Policy Committee, Queensland Premier and Cabinet offsite meeting; Toowoomba, Queensland; 9 May 1999.

“Competition Policy and the Electricity Supply Industry,” given at the Australian Labor Party Member of Parliament Seminar; Melbourne, Victoria; 16 Feb 1998.

## Electricity industry strategy

### Client Engagements

Consolidated Edison – retained as consulting expert in a civil litigation case arising from the failed merger between two utility companies on issues related to risk management policies and practices.

Trans-Elect – retained by Trans-Elect to assist in the acquisition of transmission companies, in the context of a wider strategy and implementation assistance for this pure-play transmission company.

National Electricity Market Management Company, Australia – provided advice related to NEMMCO’s strategic planning and risk management process.

DNIB (De Nationale Investeringsbank Asia Ltd), Australia – provided advice to DNIB about their participation in the lending consortia to newly privatized gas and electricity retail and distribution companies and generating companies.

Fuji Electric – investigated commercial feasibility of fuel cells in the US market to determine configuration and cost necessary for successful market penetration and analyzed product research and development results to identify likely long-term pricing, working in US and Japan.

Dominion Energy – conducted a strategic review of utility non-regulated power subsidiary with focus on investment decision-making process.

KP&L/KG&E merger – provided consulting advice and testimony support in connection with FERC merger approval.

Edison Electric Institute – prepared analysis of economic impact of proposed carbon taxes for EEI, with focus on electric utility industry and electricity prices.

### Publications

“Regulated Businesses: Maximizing Shareholder Value through Active Management” in *PA Viewpoint* (Jan 2003).

“Privatization and Deregulation - Moving from Monopolies to Markets” in *PA Viewpoint* (Jan 2002).

“Pumped Hydro: The Solution?” in *Cogeneration and Resource Recovery* (Nov/Dec 1990).

“Strategies for an Evolving Generation Industry” in *Public Utilities Fortnightly* (27 Sep 1990).

“Small Cogeneration Economics: A Risk Management Approach” in *Cogeneration Journal* (Mar 1987).