PUBLIC VERSION

*"** [redacted] **" Designates Confidential Information Has Been removed.*
Certain Schedules Attached to this Testimony Also
Contain Confidential Information And Have Been Removed.

BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

REBUTTAL TESTIMONY OF

KRIS R. NIELSEN

ON BEHALF OF
KANSAS CITY POWER & LIGHT COMPANY

IN THE MATTER OF THE APPLICATION OF
KANSAS CITY POWER & LIGHT COMPANY
TO MODIFY ITS TARIFFS TO CONTINUE THE
IMPLEMENTATION OF ITS REGULATORY PLAN

DOCKET NO. 10-KCPE-415-RTS

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Q: Are you the same Kris R. Nielsen who submitted Direct Testimony in this proceeding?

A: Yes, I am.

Q: What is the purpose of your Rebuttal Testimony?

A: Kansas City Power & Light (KCP&L) asked Pegasus Global Holdings, Inc. (Pegasus-Global) to perform an independent review to determine whether KCP&L made reasonable and prudent decisions regarding Iatan Unit 2. In conducting the evaluation, Pegasus-Global focused on the management processes employed by KCP&L to make decisions and applied generally accepted prudence standards to KCP&L's decision making processes. This evaluation considered whether management followed a rational and deliberate process in making those decisions, including whether there was an appropriate management structure in place to make such decisions and an appropriate process in place to ensure that management makes an informed decision. The evaluation also considered whether management reasonably and prudently implemented the decision. This evaluation involved:

- Assessment of the management processes used by KCP&L to plan, execute and control engineering, procurement, and construction activities.
- Identification of management strengths and positive actions which may have had an impact on cost and/or schedule.
- Identification of any management shortcomings which may have impacted cost and/or schedule.

- Determination of the reasonableness of overall design, procurement and construction management practices and the extent to which these management practices avoided, mitigated or resulted in cost and/or schedule impacts.

In addition, Pegasus-Global was requested to read, analyze, evaluate, and compare the Vantage findings with our own and, if appropriate, critique the testimony of Walter Drabinski of Vantage Consulting, the consultant that was engaged by the Kansas Corporation Commission (KCC) Staff. I, Dr. Kris Nielsen, am the "sponsor" of the Pegasus-Global analysis. I directed and actively participated in our evaluation and I prepared this testimony.

Q: What is your occupation?

A: I am the President and Chairman of Pegasus-Global, a management consulting firm that provides services to the utility industry and other industries. I am the Director of this engagement for Pegasus-Global.

Q: Dr. Nielsen, have you provided prior testimony before the Kansas Corporation Commission on behalf of Kansas City Power & Light?

A: Yes I have. I provided testimony in the Iatan Unit 1 proceeding on behalf of KCP&L, Docket No. 09-KCPE-246-RTS, on the independent prudence audit of Iatan Unit 1 Pegasus-Global performed. (Direct Testimony of Dr. Kris R. Nielsen in KCC Docket No. 09-KCPE-246-RTS, hereafter "Nielsen Unit 1 testimony").

Q: Can you compare the scope of your review of Unit 1 prudence with your review of Unit 2?

A: Yes. Pegasus-Global's approach is the same as was used for the review for prudence of KCP&L's management decision processes and decisions as described in my testimony in

the Iatan Unit 1 proceeding, noted above. Pegasus-Global was requested to independently read, evaluate and analyze the applicable records relative to the Iatan Unit 1 and Unit 2 project records; conduct interviews of any KCP&L management and project personnel Pegasus-Global identified; and gather and review information that was reasonably available to utility executives at the time decisions were made. Using the above described sources, Pegasus-Global made findings relative to the prudence of KCP&L's decision making processes and decisions. Pegasus-Global was then asked to prepare this testimony regarding its findings as well as its observations regarding the testimony of Staff's prudence consultant, Mr. Drabinski of Vantage Consulting.

EXECUTIVE SUMMARY

Q: PLEASE PROVIDE A HIGH LEVEL EXECUTIVE SUMMARY OF PEGASUS-GLOBAL'S TESTIMONY.

A: Based upon the independent audit performed by Pegasus-Global of KCP&L's management decisions and decision making regarding the Iatan Unit 2 Project, Pegasus-Global has concluded the following, which is addressed in detail in this testimony:

I. KCP&L made reasonable and prudent decisions regarding Iatan Unit 2 with two exceptions:

1) KCP&L's decision to reimburse Alstom for the premium cost to engage Welding Services Inc. as a welding subcontractor was imprudent, and the related foreseeable costs of $12,714,596.40 should be disallowed for recovery; and

2) KCP&L's decisions and subsequent actions relative to the removal and re-addition of an auxiliary boiler to the Iatan Unit 2 Project were imprudent

and the foreseeable additional costs of $7,754,454.00 caused by those decisions and actions should be disallowed for recovery.

II. The review of the Iatan Unit 2 Project conducted by Staff Consultant, Mr. Walt Drabinski of Vantage Consulting, was inappropriate, improper and flawed for the reasons set forth below, and therefore, Vantage's recommended disallowance should be rejected in its entirety:

1) Vantage applied an erroneous standard for prudence reviews.

2) Vantage finds imprudence as a consequence of the results attained rather than evaluating decisions and the decision making process, causally connecting the allegations and then properly quantifying the impact.

3) Vantage improperly asserts that Vantage's opinion is preferable to KCP&L's management decisions and improperly employs hindsight in doing so rather than evaluating management decisions at the time.

4) Vantage did not perform a prudence audit, but rather, engaged in what is essentially an inappropriate mixing of construction claims approaches and construction / financial audit approaches.

5) Vantage failed to recognize Iatan Unit 2 as a Mega-Project and thus, failed to evaluate Iatan Unit 2 within the proper context of that definition.

6) Vantage used selected "sound bites" drawn from internal audits and consultant reports performed by or at the request of KCP&L to support Vantage assertion of imprudence, ignoring information in those audits which runs contrary to Vantage's position and not presenting these selections in context, including the proper time context.

7) Vantage inappropriately uses KCP&L's internal audits as evidence against the Company, when, in fact, the conducting of on-going internal audits during a complex construction project is considered part of the prudent management decision making process.

8) Vantage's opinion relies upon an incorrect understanding of facts, and often directly conflicts with documented evidence regarding events on Iatan Unit 2, and conditions and circumstances that were known and / or reasonably known by KCP&L management.

9) Vantage's analyses and conclusions often ignore the information contained in the direct testimony filed in this docket by KCP&L witnesses, and in testimony filed in the Iatan Unit 1 case, Docket No. 09-KCPE-246-RTS.

10) Vantage submits conclusions of imprudence without providing supporting explanation or documentation other than the selected "sound bites".

11) Vantage fails to provide a connection between Vantage's allegations of imprudence and any actual costs incurred as a result of the alleged imprudence.

12) Vantage's analyses and conclusions display a lack of experience and understanding of construction industry practices, procedures and standards on a project like Iatan Unit 2. For instance, Vantage's analyses and conclusions display a misunderstanding of the cost estimating process and the proper use of various levels of cost estimates created for a construction project like Iatan Unit 2.

Q: In that Iatan Unit 1 Testimony, did you provide information concerning your background and experience and identify the members of your team and provide information concerning their background and experience?

A: I did. That testimony was as follows (Nielsen Unit 1 testimony, page 2, line 14 – page 13, line 29):

"**Q: Please summarize your educational background and professional experience.**

A: I have earned a doctorate in Infrastructure Systems (Civil) Engineering from Kochi University of Technology in Kochi, Japan in 2005, a Doctorate of Jurisprudence from George Washington University Law School in Washington D.C. in 1970, and a Bachelor of Mechanical Engineering degree from Princeton University in 1967. I have over 40 years of experience, including 27 as a management consultant in utility prudence and management reviews, evaluations and audits. I have authored over 100 papers and publications including the area of prudence and utility management. My power plant experience includes nearly 90 power plants. I have testified 90 times of which over 40 of those testimonies involved power plant projects.

I have performed extensive work on behalf of both public and private sector clients, on a wide-range of complex, global engagements involving the construction, engineering, and procurement of large projects with long-lead times. I have an extensive background in engineering, construction and project management, including controls and scheduling. I have also presented expert witness testimony in legal proceedings around the world including numerous Commission dockets regarding the prudence of multiple power plants. As a senior Pegasus-Global leader or member on risk management or strategic consulting engagements and I have undertaken and led performance and prudence audits, evaluations and assessments of project-specific and corporate risk.

I have been involved with pre-design, engineering, procurement, construction, and commissioning work for mega and large projects like the development of Iatan Unit 1, which includes significant experience in bidding and bid solicitation for such projects, procurement, constructability reviews, schedule resource loading and activity evaluation, code and permitting processes, due diligence studies, overhead calculations, quality assurance and control, startup and operations, commissioning, testing and maintenance. I have worked on engineering and construction projects in over 60 countries.

I have performed prudence audits, management and performance audits, and technical analyses and provided expert testimony before regulatory bodies, in court and in arbitration hearings in the following areas:

- Utility Management Prudence
- Corporate/Utility Management
- Economics of the Construction and Utility Industries
- Project Controls
- Engineering/Procurement Management
- Project/Construction Management
- Nuclear/Fossil Licensing/QA/QC

- Cost Engineering/CPM Scheduling
- Construction Law/Disputes Analysis

My work experience and publications, including management and prudence audits is described in my curriculum vita, which I have attached as Exhibit 1 (KRN-1). My nuclear power plant experience is attached as Exhibit 2 (KRN-2). My non-nuclear power plant experience is attached as Exhibit 3 (KRN-3). My prior testimony is attached as Exhibit 4 (KRN-4).

Q: Have you previously testified in any regulatory proceedings regarding Utility Prudence prior to this KCP&L Case?

A: Yes, I have testified on the following utility power projects for the party indicated:

- [Iatan Unit 1, Kansas Corporation Commission for Kansas City Power & Light]
- [Iatan Unit 1, Missouri Public Service Commission for Kansas City Power & Light]
- Vogtle Nuclear Power Plant, Units 3 &4, Georgia Public Service Commission, for the Georgia Power Company
- Connecticut Yankee Nuclear Power Plant, Federal Energy Regulatory Commission, for the Northeast Utilities Company
- South Texas Nuclear Plant, Public Utility Commission of Texas, for Central Power & Light Company
- Trojan Nuclear Power Project, Oregon Public Utility Commission, for the Portland General Electric Company
- Comanche Peak Nuclear Power Plant, Public Utility Commission of Texas, for the staff of the Texas Public Utilities Commission
- Pilgrim Nuclear Power Plant, Massachusetts Department of Utilities, for the Boston Edison Company
- Waterford 3 Nuclear Power Plant, City of New Orleans, for the staff of the City of New Orleans City Council, the utility regulatory body within the corporate limits of the City of New Orleans.
- Vogtle Nuclear Power Plant, Units 1 & 2, Georgia Public Utility Commission, for the Georgia Power Company
- Perry Nuclear Power Plant, Public Utilities Commission of Ohio, for the staff of the Public Utilities Commission of Ohio
- Perry Nuclear Power Plant, Pennsylvania Public Utility Commission, for the staff of the Pennsylvania Public Utility Commission
- Scherer Fossil Power Plant, Georgia Public Utilities Commission, for the Georgia Power Company
- Millstone Nuclear Power Plant, Unit 3, Connecticut Department of Public Utilities Control, as the management prudence auditor for the Department of Public Utility Control.
- Millstone Nuclear Power Plant, Unit 3, Vermont Public Service Board, for Central Vermont Public Service Company
- Clinton Nuclear Power Station, Illinois Commerce Commission, for the staff of the Illinois Commerce Commission
- Seabrook Nuclear Station Unit 2, Massachusetts Department of Utilities, for the Massachusetts Attorney General

- Seabrook Nuclear Station Unit 1, New Hampshire Public Utilities Commission, for the staff of the New Hampshire Public Utilities Commission

Q: Have you been involved in other utility power projects that involved the review of prudence?

A: Yes, with respect to power projects involving prudence investigations in which I have either provided testimony in a forum other than regulatory hearings and/or the parties involved entered into a settlement agreement, thus eliminating the need for a public hearing include the following along with the respective client:

- 2003 Energy Black-Out in the Northeastern U.S. and Canada, U.S Federal District Court, Ohio, for First Energy
- Indian Point Nuclear Power Plant, Unit 3, State Court, New York, for Consolidated Edison
- Peach Bottom Atomic Generating Station, U.S Federal District Court, for Public Service Electric & Gas
- Cooper Nuclear Station, State Court of Nebraska, for the Nebraska Public Power District
- Millstone Nuclear Power Plant, Unit 3, American Arbitration Association, for Northeast Utilities
- Salem Nuclear Power Plant, U.S. Federal District Court, Philadelphia, for the Public Service Electric & Gas
- Diablo Canyon Nuclear Plant, Units 1 & 2, California Public Utilities Commission, for the Attorney General of California
- Comanche Peak Nuclear Power Plant, U.S Federal District Court, Texas, for Texas Utilities
- Maine Yankee Nuclear Plant, for Stone & Webster regarding prudent management of the decommissioning for utility report to the Maine Public Utilities Commission
- Shoreham Nuclear Power Plant, U.S. Federal Court, New York, for the Counsel for Suffolk County, the primary intervener before the New York Public Service Commission
- Wolf Creek Nuclear Power Plant, State Court, for Bechtel Corporation
- Calvert Cliffs Nuclear Plant, Maryland Public Service Commission, for Baltimore Gas & Electric
- Turkey Point Nuclear Power Station, Unites 3 & 4, for Florida Power & Light
- Palo Verde Nuclear Power Plant, State Court, Arizona, for Combustion Engineering, the Nuclear Steam Supply System vendor
- Palo Verde Nuclear Power Plant, State Court, Colorado, for Ernst & Young, the Prudence Auditor for the Arizona Corporation Commission
- Pleasant Prairie Nuclear Generating Station Unit 2, U.S Federal District Court, Wisconsin, General Contractor for the plant
- Reid Gardner Coal-Fired Generating Station, Unit 4, for the California Department of Water Resources

Q: Who were the other Pegasus-Global Team members who assisted you in your review of the Vantage report and evaluation of prudence on the Iatan Unit 1 Project?

A: Under my direction, the following Pegasus-Global principal consultants assisted me in the prudence evaluation on the Iatan Unit 1 Project and review of the Vantage Consulting report:

- Dr. Patricia D. Galloway, Chief Executive Officer, Pegasus-Global
- John L. Owen, Specialist Consultant, Pegasus-Global
- Gerald W. Tucker, Specialist Consultant, Pegasus-Global

Q: Dr. Nielsen, will you describe the general qualifications of these principal consultants?

A: Yes. In Exhibit 5 (KRN 5) are the detailed resumes of Dr. Galloway, Mr. Owen and Mr. Tucker. In a summary manner, however, the following information is provided regarding their broad and applicable experience:

A. *Dr. Patricia D. Galloway* is a licensed professional engineer in fourteen U.S. States (Including Kansas), Canada and Australia, a certified project management professional, and a certified forensic claims consultant. Dr. Galloway is known for her experience and expertise in global engineering and construction. Her industry experience spans over 30 years and includes power, oil and gas, transportation, infrastructure, process and specialty structures. She is a globally recognized expert in risk management, project management, project controls, and management issues. She has conducted prudence audits on over 25 different power plants and has testified extensively in public rate hearings on her work, on behalf of both public utility commissions and regulated public utilities. She has served as an arbitrator and is a prolific author and presenter of technical papers on prudence, project management, project controls, and related topics. She is an elected member of the National Academy of Construction and the Pan American Academy of Engineering. She is currently the Vice Chair of the National Science Foundation [SIC: The National Science Board, which oversees the National Science Foundation, and Dr. Galloway's term as Vice Chair ended in May 2010] and Past President of the American Society of Civil Engineers. She holds a PhD in Infrastructure Systems Engineering from the Kochi University of Technology in Japan, an MBA from the NY Institute of Technology and a B.S. in Civil Engineering, specializing in structural design and construction managements from Purdue University.

<u>Patricia Galloway Testimony List:</u>

- Sound Transit Light Rail System, Washington
- Sacramento Municipal Utility District Cosumnes, Combined Cycle Power Plant, California
- BHPB Minerva Project, Australia
- New Jersey Transit - Light Rail System, New Jersey
- Covert Combined Cycle Power Plant, Michigan
- Fresno Airport, California
- Grizzly Stadium, California
- Alameda Hospital, California
- Sludge Drying Facility, New Jersey
- Alameda Hospital, California
- POSVEN Hot Briquette Iron Project, Puerto Ordaz, Venezuela
- PET Production Plants - Argentina, Holland, Spain

- Anaconda Nickel Cobalt Mine, Western Australia
- Regents Resort Hotel & Spa, Las Vegas, Nevada
- Cooper Nuclear Plant, Lincoln, Nebraska
- Casecnan Multi-Purpose Project, Philippines
- Upgrade of Telecommunications - Black & Veatch v. AT&T / Motorola, Midwest Pharmaceutical Plant, Singapore
- Demineralization Plant, Mexico
- Idaho National Laboratory TSA Retrieval Project Atlas Construction (LMITCO)
- Millstone Nuclear Plant 3, Connecticut
- Tsing Ma Bridge, Hong Kong
- Process Plant, New Jersey
- Baytown Bridge, Houston, Texas
- Power Plant Demolition, Marshall Islands
- US Route 290, Texas
- Republic Engineered Steel Caster Building Project, Canton, Ohio
- IPSCO Steel Mill, Iowa
- INCO Recompression Platforms
- Highway, West Virginia
- Big Timber Creek Interceptor, New Jersey
- Interchange of I-635 and I-35 Overland Park, Kansas
- South Texas Nuclear Plant, Texas
- Blue Route, Pennsylvania
- Kuwait Oil Depot, Kuwait
- Shoreham Nuclear Power Plant, New York
- New Smyrna Beach Bridge, Florida
- Veteran's Expressway, Tampa, Florida
- Nairn Avenue Bridge, Winnipeg, Canada
- State Route 21, Florida
- Seabrook Nuclear Plant, New Hampshire
- South Texas Nuclear Plant, Texas
- Vogtle Nuclear Power Plant
- Perry Nuclear Power Plant, Ohio
- Millstone Point III, Nuclear Power Plant, Connecticut
- Clinton Nuclear Power Station, Illinois
- University Medical Center, Louisiana
- American Standard Insurance Headquarters, Oklahoma
- Worcester Civic Center, Massachusetts

B. *Mr. John Owen* is a recognized expert in project and operations management, forensic engineering and operational facility performance. As an electrical engineer, he has led the engineering and design efforts on more than 10 power plant prudence audits in the United States as well as conducting performance audit reviews in the UK and Canada. Mr. Owen has presented testimony before public utility commissions regarding all types of management (project, engineering, commissioning, and operations), scheduling (delay, disruption, etc.), cost damages and other issues. He

holds a H.N.C in Electrical Engineering, Salford Technical College, Salford, England. Prior to joining Pegasus-Global, Mr. Owen had 30 years of experience in the engineering, procurement and construction of electrical power facilities. This experience includes five nuclear power plants in North America, South America, Asia and the United Kingdom. His experience also includes coal, oil and hydroelectric power plants and transmission facilities. Other experience includes power system planning and feasibility studies.

John Owen Testimony List:

- Nikiski Cogeneration Facility, Nikiski, Alaska
- AMOC Lube Oil Expansion
- Santa Rita Power Plant, Philippines
- Trojan Nuclear Plant, Oregon
- Green River Community College
- Duke Fluor Daniel vs. Dearborn Industrial Generation, Michigan
- Olmstead Waste-to-Energy Plant
- Imperial Valley Waste to Energy Plant, California
- Washington State Convention and Trade Center
- Power Plant, SMUD v. Campbell Soup
- Rabigh Power Plant, Saudi Arabia
- Plant Vogtle, Units 1 & 2, Georgia
- Plant Vogtle, Units 3 & 4, Georgia
- National Energy Production Corporation v. Imperial Resource Recovery Associates, L.P., et al.
- Cadereyata Refinery/Pipeline
- Comanche Peak Texas Utilities
- Pilgrim Nuclear Power Plant, Massachusetts
- Fossil Power Plant, Scherer, Georgia
- South Texas Nuclear Plant, Texas
- PP9 Power Plant, Saudi Arabia
- Clinton Nuclear Power Station, Illinois Commerce Commission

C. *Mr. Gerald Tucker* has over 40 years of utility experience and has provided assistance in the development of rate filings on behalf of electric and gas utilities for over 30 years. He previously was employed by Southwestern Electric Power Company as Manager of Accounting Services with responsibility for regulatory filings in four jurisdictions and as Controller and Chief Accounting Officer for Central Power and Light Company, co-owner of the South Texas Nuclear Project. As Controller he was responsible for all accounting functions of a major electric utility including monitoring and recording the company's investment in the South Texas Nuclear Project. The monitoring of construction controls and cost systems were part of his responsibilities as a member of the owners accounting committee and attendance at most meetings of the owners finance committee. He has also testified on behalf of municipal clients in Texas, in exercising their original jurisdiction over electric and gas rates within incorporated areas. Mr. Tucker has also been involved with numerous prudence audits.

Gerald Tucker Testimony List:

- Duke Fluor Daniel vs. Dearborn Industrial Generation, Michigan
- Shoreham Nuclear Power Plant, New York
- Power Authority vs. U.S. Navy – Served as Arbitrator
- Cooper Nuclear Power Plant, Nebraska
- Casecnan Multi-Purpose Project, Philippines
- US Route 290, Texas (Deposition)
- Public Utility Commission of Texas (PUCT) Docket No. 3716, Southwestern Electric Power Company
- Louisiana Public Service Commission (LPSC) Docket No. U-14250, Southwestern Electric Power Company
- Nairn Avenue Bridge, Winnipeg, Canada
- Arkansas Public Service Commission (APSC) Docket No. U-3136, Southwestern Electric Power Company
- PUCT Docket No. 4628, Southwestern Electric Power Company
- LPSC Docket No. U-15180, Southwestern Electric Power Company
- APSC Docket No. 83-064-U, Southwestern Electric Power Company
- PUCT Docket Nos. 5301,5369,Southwestern Electric Power Company
- Federal Energy Regulatory Commission (FERC) Docket No. ER83-609, Southwestern Electric Power Company
- LPSC Docket No. U-15753, Southwestern Electric Power Company
- APSC Docket No. 84-175-U, Southwestern Electric Power Company
- FERC Docket No. ER85-194, Southwestern Electric Power Company
- FERC Docket No. ER85-424, Southwestern Electric Power Company
- APSC Docket No. 85-231-U, Southwestern Electric Power Company
- PUCT Docket No 7560, Central Power and Light Company
- PUCT Docket No. 8646, Central Power and Light Company
- Georgia Public Service Commission Docket No. 14311-U, Atlanta Gas Light Company
- Railroad Commission of Texas (RRC) Docket No. 9400, Allied Coalition of Cities
- PUCT Docket No. 28840, Cities
- Oklahoma Corporation Commission (OCC) Docket No. 200400187, CenterPoint Energy Arkla
- PUCT Docket No. 28813, Cap Rock Electric Corporation
- RRC Docket No. 9533, CenterPoint Energy Entex – South Texas Division
- RRC Docket No. 9534, CenterPoint Energy Entex – East Texas Division
- OCC Docket No. 200400187, CenterPoint Energy Arkla Rebuttal
- APSC Docket No. 04-121-U, CenterPoint Energy Arkla
- PUCT Docket No. 28813, Cap Rock Electric Corporation Rate Case Expense
- PUCT Docket No. 30706, CenterPoint Energy Houston Electric, Inc.
- RRC Docket Nos. 9598, 9599, 9603, Atmos Cities Steering Committee
- RRC, CenterPoint Energy Entex – East Texas Division
- RRC Docket No. 9625, CenterPoint Energy Entex – South Texas Division

- RRC Docket 9635, CenterPoint Energy Entex – Tyler
- PUCT Docket No. 8646, Central Power and Light Company
- Georgia Public Service Commission Docket No. 14311-U, Atlanta Gas Light Company
- Railroad Commission of Texas (RRC) Docket No. 9400, Allied Coalition of Cities
- PUCT Docket No. 28813, Cap Rock Electric Corporation
- PUCT Docket No. 28813, Cap Rock Electric Corporation Rate Case Expense
- PUCT Docket No. 30706, CenterPoint Energy Houston Electric, Inc.
- PUCT Docket No. 32758, AEP Texas Central Company
- RRC Docket No. 9670, Atmos Cities Steering Committee
- City of Port Arthur vs. Entergy et al
- Saquib Ejaz, et al, vs. Texas A & M University, et al
- PUCT Docket No. 33309, Cities
- PUCT Docket No. 33310, Cities"

Q: Were the same Pegasus-Global Team members that were involved in the Unit 1 prudence review also engaged in the Unit 2 review?

A: Yes, they were. In addition the Pegasus-Global team for the Iatan Unit 2 review included Mr. Jack Dignum and Ms. Jenelle Black as principal consultants. Ms. Brenda Pearson, Mr. Colton Kennedy and Ms. Kim Williams assisted as well. I was personally involved in both the planning and implementation of Pegasus-Global's Iatan Unit 2 review. I directed the Pegasus-Global team. Dr. Galloway, Mr. Dignum, Mr. Owen, Mr. Tucker and Ms. Black were all also directly and completely involved in the Iatan Unit 2 prudence evaluation process. Ms. Pearson, Mr. Kennedy and Ms. Williams were support personnel.

Q: Dr. Nielsen, would you describe the general qualifications of Mr. Dignum and Ms. Black?

A: Yes. In Exhibit 6 (KRN-6) are the detailed resumes of Mr. Dignum and Ms. Black. In a summary manner the following information is provided regarding their broad and

applicable experience as was done for the other Pegasus-Global team members for my Iatan Unit 1 testimony:

D. *Mr. Jack Dignum* is a recognized expert in program and project management, management control systems, cost estimating and control, risk management, and corporate governance. With over 35 years of domestic and international experience he has worked for and consulted with government agencies, private owners, contractors and investors on all aspects of capital program and project planning, management, control and execution. He has led and conducted both program management audit reviews and prudence reviews for both the public and private sectors. He holds degrees in Industrial Psychology from the University of Oklahoma (BA) and Program Management from the North Texas State University (MA). Mr. Dignum holds a Certificate in Director Education from the National Association for Corporate Directors and is a certified forensic claims consultant by the AACEI (Association for the Advancement of Cost Engineering International). He has extensive experience in the power industry including nuclear, coal, hydro and combined cycle gas power plants. Examples of power projects in which Mr. Dignum has been involved, including performance and prudence audits, are the:
   - Zimmer Nuclear Power Plant, Ohio;
   - Comanche Peak Nuclear Power Station, Texas;
   - Washington Public Power Supply System, Washington;
   - Hanford Nuclear Power Station, Washington;
   - Antelope Valley Power Station Colorado;
   - Delayed Coker Plant, Venezuela;
   - Laramie River Power Plant, Wyoming;
   - Cosumnes Combined Cycle Power, California;
   - Paloma Combined Cycle Plant, California;
   - Rabigh Power Station Engineering and Construction, Saudi Arabia;
   - Bayfield Combined Cycle Power Plant, Texas;
   - Paiton Units 7 & 8, Indonesia;
   - Wolf Hollow Combined Cycle Power Plant, Texas;
   - Covert Combined Cycle Power Plant, Michigan;
   - Dearborn Power Plant, Michigan;
   - Scherer Power Plant, Georgia; and
   - Rio Madeira Hydro Project, Brazil.

   Mr. Dignum has designed, implemented and audited capital construction risk management programs for mega-projects internationally for both governmental agencies and private firms including both owners and contractors. He has taught courses in program and project management, project control systems, risk management, and corporate governance.

E. *Ms. Jenelle Black* has over 25 years of experience in engineering and science implementation and has extensive experience managing complex projects for both private entities and governmental organizations. She has worked on all aspects of projects from initial scoping through completion and frequently advises on project

design, contracting and overall project strategy, including managing contracting and execution of research and monitoring projects, assisting in the scoping and project design development, reviewing and evaluating reports, and coordinating efforts of analysis teams. In addition she has managed and advised on environmental research and monitoring projects for agencies and environmental and engineering firms across the western United States. She has extensive experience in designing, managing, analyzing, and presenting results from large environmental data sets. She develops study plans for research, engineering, and monitoring projects, relying on her experience in field implementation and data management to guide those plans. She has worked with multiple landowners and agency personnel to engage them in large multi-cooperative projects and managed those relationships throughout the projects. She works with and advises project team members in developing and presenting reports. Her project management experience is with projects that involve numerous subcontractors, regulating entities, and stakeholders. She holds degrees in Aerospace Engineering from Princeton University (BSE) and in Forest Hydrology from the University of Washington (MS).

Q: In that prior testimony did you provide information on presentations, speeches, and articles that you have prepared and / or presented?

A: Yes, we did. That testimony was as follows (Nielsen Unit 1 testimony, page 14, line.3 – page 16, line 21):

"Q: Have you spoken or written on the subject of utility prudence and / or project management (including engineering, construction, procurement, etc.)?

A: Yes. In Exhibits 1 through 6 (Exhibits KRN-1 to KRN-5 have updated resumes for Dr. Nielsen and Dr. Galloway and updated lists for prior electric power plant and testimony experience for Dr. Nielsen) to this testimony are complete lists of papers and articles and lectures on prudence and other matters for the four of us. With respect to prudence, the following articles that have been authored/co-authored by Dr. Galloway and Dr. Nielsen are noted:

- "Design-Build/EPC Contractor's Heightened Risk-Changes in a Changing World." P. Galloway, *Journal of Legal Affairs and Dispute Resolution in Engineering and Construction,* American Society of Civil Engineers, Volume 1, February 2009
- "A Management System for Infrastructure Construction, Meeting the Needs of the Next Two Decades," K. Nielsen, *International Symposium on Social Management Systems, Annual Conference for the Society of Social Management Systems*, Kochi, Japan, March 5-8, 2009
- "The Multi-Billion Dollar Issue Facing the Nuclear Power Industry: Decommissioning Versus Life Extension," K. Nielsen, *The Future of the U.S. and International Environmental Industry*, Washington, D.C., November 10 - 12, 1997

- "Multiple Jeopardies," *Cogeneration & Resource Recovery*, Volume 8, No. 3, April 1990
- "Combining PURPA, Prudence and Avoided Cost Rate Design; A New Cost Engineering Environment," co-authored with P. Galloway, *AACEI Professional Practice Guidelines, No. 7, 2nd Edition, 2007, American Association of Cost Engineers 9th Annual Mid-Winter Symposium Transactions*, San Francisco, California, February 1987; Reprinted, *Cost Engineering*, Volume 31, No. 1, p. 16, January 1989
- "Outages Different Regulatory Technical Standards," K. Nielsen, *American Association of Cost Engineers, 10th Annual Mid Winter Symposium Transactions*, Phoenix, Arizona, February 1988
- "Effect of Current State Regulatory Environment on Outage Management," K. Nielsen, *6th Annual Project /2 Outage Symposium*, Cambridge, Massachusetts, June 29 - July 1, 1987
- "The 5-Year Living Schedule," P. Galloway, co-authored with R. Cochran, *AACEI Professional Practice Guidelines, No. 7, 2nd Edition, 2007, American Association of Cost Engineers Annual Convention*, Atlanta, Georgia, June 1987
- "Preparing for the Utilities' Future-Managing the Prudence Issues," co-authored with P. Galloway, *Electric Potential*, Volume 2, No. 4, July-August 1986
- Interview with Kris R. Nielsen, President, The Nielsen Wurster Group, Inc., *The Advisory*, July 3, 1986
- "Utilities Forced Delays-Controllable or Uncontrollable," co-authored with P. Galloway, *AACEI Professional Practice Guidelines, No. 7, 2nd Edition, 2007, American Association of Cost Engineers Annual Convention Proceedings*, Chicago, Illinois, June 1986
- "Preparing for the Utilities' Future An 'Attack Plan' for Minimizing Disallowable Costs In Outage and Future Capital Construction," co-authored with P. Galloway, *American Association of Cost Engineers, 8th Annual Mid Winter Symposium Transactions*, New Orleans, Louisiana, February 1986; Project 2, 5th Annual Outage Symposium Proceedings, Cambridge, Massachusetts, May 1986
- "New Directions in Project Control for the Utility / Construction Industries," K. Nielsen, *8th Annual Mid Winter Symposium Proceedings*, New Orleans, Louisiana, February 13 -14, 1986
- "Preparing for Utilities Future An 'Attack Plan' for Minimizing Disallowable Costs in Outage and Future Capital Construction," co-authored with P. Galloway, *American Association of Cost Engineers Utility Conference Proceedings*, New Orleans, Louisiana, February 1986
- "Second Guessing the Engineer," co-authored with P. Galloway, *Civil Engineering*, American Society of Civil Engineers, November 1985
- "Calculating Utility Prudence Issue Costs," K. Nielsen, *AACEI Professional Practice Guidelines, No. 7, 2nd Edition, 2007, 1985 American Association of Cost Engineers Annual Convention Transactions*, Denver, Colorado, July 1985
- "Utility Prudence Time Impact Evaluation," P. Galloway, *AACEI Professional Practice Guidelines, No. 7, 2nd Edition, 2007, American Association of Cost Engineers Annual Convention Transactions*, Denver, Colorado, July 1985

- "The Prudence Management Audit: A New Challenge For the Civil Engineer," co-authored with P. Galloway, *American Society of Civil Engineers Spring Convention Proceedings*, Denver, Colorado, April 1985
- "Performance Audits," P. Galloway, co-authored with D. Law, Proceedings, *Project Management Institute Symposium*, Toronto, Ontario, Canada, October 1982"

Q: Was that information complete?

A: It was when presented to the KCC in my testimony filed on February 20, 2009. However, there have been additions to the list of prudence publications, other prudence testimony and engagements since that time.

Q: What are the additions?

A: I have co-authored a peer review paper with Dr. Patricia D. Galloway and Mr. Jack Dignum, "Leadership and Risks during a Global Financial Crisis," Fifth Civil Engineering Conference in the Asia Region (CECAR5), to be presented in Sydney, Australia on August 9, 2010. I have been a contributing author to "European Oil Services – Gulf of Mexico Exposures and Implications," and June 2010 Pit Stop, London, U.K. I have written an additional article, "New Day for Prudence," published in *Public Utilities Fortnightly*, December, 2009 edition, co-authored with Dr. Patricia D. Galloway and Charles W. Whitney. In addition, Dr. Galloway has filed prudence testimony on behalf of Progress Energy regarding the Levy Nuclear Plant Units 1 & 2 before the Florida Public Service Commission on May 1, 2010, and Jack Dignum and I served as part of the engagement team. Pegasus-Global (Dr. Galloway, Mr. Dignum and Dr. Nielsen) is currently engaged in a confidential assignment for the Board of Directors and senior management of a large public utility on their generating plant options over the next 20 years which is nearly identical to a prudence review of an Investor Owned Utility subject to regulatory oversight. Dr. Galloway, Mr. Dignum and I have also obtained our

Certificate in Director Education from the National Association for Corporate Directors. In addition, Mr. Tucker provided testimony in PUCT Docket No. 37690 on behalf of El Paso Electric Company. The same Iatan Units 1 and 2 prudence evaluation team members were involved and will be involved regarding KCP&L in Missouri.

Q: Were the standards of analysis that you applied in Pegasus-Global's Iatan Unit 2 evaluation the same as the standards that you had previously applied in your Iatan Unit 1 evaluation?

A: Yes, they were. In a regulatory environment consistency of terms, analytical tools and standards of evaluation are important. My Iatan Unit 1 testimony, which describes Pegasus-Global's approach, is equally applicable to the approach Pegasus-Global used on Iatan Unit 2. That testimony was as follows (Nielsen Unit 1 testimony, page 17, line 1 – page 19, line 25):

"In evaluating Iatan Unit 1, Pegasus-Global employed a prudence definition consistent with that applied in Kansas, and most other jurisdictions, for over a century of jurisprudence. The prudence concept, which has been published in numerous publications as noted previously and under which I have testified in multiple cases is best articulated as follows:

> *Decisions are prudent if made in a reasonable manner in light of conditions and circumstances which were known or reasonably should have been known when the decision was made.*

Prudence cannot be judged from a hindsight perspective. The substantive decision quality is only an element to be considered. The issue is whether the decision was reasonable when made, not that the result of that decision is less desirable than other results. Thus, there is a zone of reasonableness, as prudence is not a test of optimality.

The evaluation focus is initially on the decision making process and the decision implementation to determine whether or not the decision was reasonable. The prudence evaluation process typically includes:

> *Data Development*-What information was available; were the management systems and procedures organized and implemented to produce information to enable analysis; was the data reliable; what was the timeliness of the data to the decision?
>
> *Information Flow*-To whom and when was data transmitted; what available data was communicated; in what format was the information made available?

Analysis-What does the information mean; what alternatives were identified or where possible; what benefits and impacts are projected; how does the decision mesh with project and corporate needs?

Decision-What decision was made; when was the decision made; how was the decision made; was the decision reviewed as assumptions and circumstances changed?

Thus, Pegasus-Global has applied a definition and approach widely recognized. Prudence is not merely the application of a test that accepts just any rational basis for acceptability of a decision but rather rigorous evaluation of concurrent context, process, and performance. In fact, Pegasus-Global uses generally as a guide the Government Auditing Standards issued by the U.S. General Accounting Office (GAO) as appropriate to prudence audits, especially with respect to capital projects (see Government Auditing Standards, United States General Accounting Office, GAO-03-673G, June 2007 – the so-called "Yellow Book" standards). With respect to auditing, the GAO has issued the following guidance:

> *Performance audits provide an independent assessment of the performance and management of government programs against objective criteria or an assessment of best practices and other information. Performance audits provide information to improve program operations, facilitate decision making by parties with responsibility to oversee or initiate corrective action, and contribute to public accountability. The term performance audit is used generically to include work classified by some audit organizations as program evaluations, program effectiveness and results audits, economy and efficiency audits, operational audits, and value-for-money audits.*

Pegasus-Global conducts audits internationally and one of the primary elements adopted by Pegasus-Global from the GAO standards is that of the auditor's responsibilities:

> *Auditors should act in a way that will serve the public interest, honor the public trust, and uphold their professionalism. A distinguishing mark of a profession is acceptance of its responsibilities to the public. This responsibility is critical when auditing in the government environment.*

Prudence is not synonymous with efficiency and does not require that decisions be made and executed in the most efficient manner. While Pegasus-Global had found that KCP&L actions generally fell within a zone of reasonableness, and are therefore prudent, Pegasus-Global has drawn no conclusion either as to whether KCP&L fulfilled all of its obligations to the other Iatan Unit 1 [and 2] Owners, or whether another reasonable course of conduct would have resulted in different consequences or costs. An auditor/reviewer, and especially a prudence auditor/reviewer, should never substitute their judgment for that of the organization it is auditing/reviewing.

Prudence also recognizes and relies on the concept of forseeability in two ways: First, an action or lack of action of a utility manager is not unreasonable or imprudent if it involves or is affected by events which were unforeseen and unforeseeable at the time; and second, the cost calculations for any imprudence found properly reflect only the foreseeable consequences of the imprudent decision making processes or performance.

Q: Are these standards consistent with prior standards used in Kansas?

A: Yes. The standards I have referred to above are consistent not only with Kansas law but are also consistent with the laws of most other jurisdictions. We have reviewed those

standards in a number of articles that we have published and in presentations we have made. For examples see *"Preparing for the Utilities Future"*, Electrical Potential, Vol. 2, No. 4, July-August 1986, which I co-authored with Dr. Galloway and, more recently a peer-reviewed article, *"Design-Build/EPC Contractors Heightened Risk – Changes in a Changing World,"* published in the "Journal of Legal Affairs and Dispute Resolution in Engineering and Construction," American Society of Civil Engineers, Vol. 1, Feb 2009, authored by Dr. Galloway."[1]

Finally, I have received the transcript of the oral arguments held before the KCC on December 15, 2009 regarding the proper prudence standard to use in this case. I believe the standard that we have used in both Unit 1 and Unit 2 is the same standard that was advocated at that hearing by both Empire and KCP&L.

Q: Dr. Nielsen, are you familiar with the testimony filed by Walter Drabinski in the Kansas regulatory proceeding relating to Iatan Unit 1?

A: Yes, I am.

Q: In that Iatan Unit 1 testimony, did Mr. Drabinski indicate any standard of prudence evaluation that Vantage was using to measure management's actions?

A: Yes, he did. The standard set forth in this testimony and my Iatan Unit 1 testimony in response was:

The Vantage prudence formulation– "whether a knowledgeable person in the industry would have made the same or similar decisions with the information and resources available at the time" (Drabinski, page 7, line 12-14), (Nielsen Unit 1 testimony, page 21, lines 14-16)

Q: Is the Vantage / Drabinski standard from Unit 1 basically the same as the standard you used on Unit 1?

[1] Government Auditing Standards, Comptroller General of the United States, United States General Accounting Office, 2007 Revision, the "Yellow Book"

A: I think they are nearly identical. We both testified that we would look at the management decision at the time it was made and not use hindsight. We both said we would evaluate the decision based on the facts known or that reasonably should have been known at the time of the decision; we both testified that the proper standard of expertise in decision making was that of a reasonably experienced utility manager.

Q: And is that the standard that Pegasus-Global has carried forward and are using in evaluating prudence on Iatan Unit 2?

A: Yes it is. Pegasus-Global's approach, and the general definition of prudence, is the same for Unit 2 as it was for Unit 1, and is the same approach Pegasus-Global has employed in our other prudence review engagements since the 1980s and is the same or very similar to the approach used by regulatory agencies and courts in other jurisdictions where we have been involved in prudence reviews, either for the regulatory commission staff or for utilities.

Q: In conducting your review of Iatan Unit 2, did you equate prudence with efficiency?

A: No, I do not think efficiency and prudence are synonymous. Prudence cannot be judged from a hindsight perspective. Only those circumstances that were known or that should have reasonably been known at the time the decision is made can be considered. Prudence, however, is not merely the application of a test that accepts any rational basis for acceptability of a decision. Rather, the prudence determination requires the evaluation of the concurrent context of the decision, the process for making the decision, and the performance or implementation of the decision by management. This does not mean that prudence is synonymous with efficiency. Efficiency is more a measurement of the effectiveness of the implementation of the decision once made. Efficiency is a way of

measuring performance in delivery of services. I use the term "prudence" to refer to the decision making process, decisions made, and prudence in implementing decisions.

Q: You are aware that the Kansas statute does provide that the KCC can evaluate efficiency?

A: I am, but the two terms prudence and efficiency – are used disjunctively and are separated by "or." Also, like prudence, there is no standard in the statute for evaluating efficiency. I use the term "prudence" to mean that there must be a rational, deliberate process that accounted for the circumstances and conditions facing management which was employed by management to make and implement the decision. I believe it is appropriate to use the same established approach in evaluating efficiency as Pegasus-Global, and others, have used in evaluating prudence. Using that standard for evaluating efficiency would result in a test of whether the decision, once made, was implemented in a reasonable manner given all of the facts and circumstances known at the time, including resources available. The process would include a feedback loop, just as it would in a prudence evaluation, to ensure that the implementing manager can track results and, if necessary, change course. Finally, efficiency, like prudence, would not be a hindsight test of optimality, but rather should account for a range of types of implementation, with a range of results, all of which can be reasonable and therefore efficient.

Q: The Kansas statute also lists a number of factors that the KCC can consider in evaluating prudence. Does this require the use of hindsight and, if so, is this a different standard than the one Pegasus-Global used?

A: As I understand the Kansas statute, the legislature identifies a number of factors that the KCC can consider in determining whether construction costs were prudently incurred and

whether such costs should be recovered through rates. The Commission should examine those factors leading to the costs and determine if imprudent managerial decision making was the cause, as opposed to all of the other potential causes. For instance, a cost increase above a base line budget could be due to any one of a number of different factors, and imprudent decisions may or may not be one of those factors. In evaluating the decision making process that led to a result, I have consistently used the prudence analytical framework that I described above, which specifically rejects the use of hindsight in evaluating the decision making process.

Q: You noted that you were familiar with the Kansas statutory prudence formulation which refers to comparisons of original cost estimates with final costs, inappropriate or poor management decisions, whether the utility accepted inappropriate risks, comparisons of cost overruns with overruns at similar facilities, any other factor or relationship that might indicate prudence or lack thereof. Did Pegasus-Global use these types of comparisons in evaluating KCP&L prudence in the management of the construction of Iatan Units 1 and 2?

A: Yes. Pegasus-Global did note these factors in the Kansas statute and used them, to the extent practicable, as a beginning point, not an end point or conclusion, in our analysis. For example, Iatan Unit 2 did cost more than the original cost estimates. As stated above, that fact, in and of itself, does not provide any insight as to the causes for the difference or provide any context as to the circumstances under which KCP&L management were making decisions relative to the Iatan Unit 2 costs. Pegasus-Global, therefore, at that point used our typical approach and the generally accepted prudence standard to examine the reasons for any differences and to determine whether those underlying reasons were

caused by a failure to gather or consider reasonable information, a misuse or misunderstanding of the information, or a decision by management that was outside the zone of reasonableness given all of these facts and circumstances that were known, or should have been known, at the time of the decision. Management decisions are not made in static conditions. Circumstances change over time and a management decision cannot be deemed imprudent based on unknown changes in the conditions or circumstances at the time the decision was made. Prudence, therefore, recognizes and relies on the concept of foreseeability in two ways: first, an action or lack of action of a utility manager is not unreasonable or imprudent if it involves or is affected by events which were unforeseen and unforeseeable at the time that the decision was made; and, second, the cost calculation for any imprudence found properly reflects only the foreseeable impact of the imprudent decision. The test is not whether there are cost differences, or even whether cost differences are attributable to decisions that turned out to be wrong because of some unforeseen and unforeseeable circumstances. Prudence also involves the evaluation of facts at the time the decision was made. The issue is whether management should have considered information that was or should reasonably have been known to it in making its decision, not whether someone else would have made a different decision under the same circumstances and conditions. Management decisions are seldom black and white, rather, more than one decision can prudently be made based on the same circumstances and conditions. The fact that someone else may have made a different decision does not mean that management's decision was imprudent. Differences in opinion or judgment do not render a management decision imprudent. As was previously

discussed, there is a zone of reasonableness in which management's judgment is exercised and decisions are reasonable and prudent.

Q: Given Pegasus-Global's general agreement with Mr. Drabinski's testimony in the Unit 1 proceeding regarding the applicable prudence standard, do you also agree with his Unit 2 Testimony regarding the appropriate prudence standard?

A: Vantage and Mr. Drabinski do not articulate any prudence definition or standard against which he is measuring the prudence of decision making and decisions in his Unit 2 Testimony. Mr. Drabinski lists a number of the statutory factors, recommends a disallowance, apparently because some of the statutory factors exist, but never applies any standard of analysis to any decision on the part of KCP&L management, and never applies the standard of analysis to that decision making process that he and I agreed was correct in our Unit 1 Testimonies. Finally, Mr. Drabinski never establishes a causal nexus between any management decisions and any proposed disallowance. Instead, he looks at the types of issues that arise on all mega-projects – such as staffing and personality issues, claims, accidents, equipment problems, schedule issues, etc. – and assumes, without any analysis whatsoever or calculation of actual cost impact, that the statutory issue and the noted mega-project issue are somehow related and that the assumed relationship caused a cost impact that crystallized from thin air. This is not a prudence review; it is simply taking two knowns and combining them with conjecture and speculation. There must be a causal nexus between an imprudent decision and an increase in costs sought to be received through rates. Mr. Drabinski ignores the nexus between an alleged "imprudent" decision and an increase in construction costs. I disagree

with this approach which abandons completely the approach advocated in his Unit 1 testimony, which was a commonly accepted approach in prudence reviews.

Q: Could you summarize your prudence review experience with regards to regulated utilities in which you have used the same approach?

A: I have personally been involved, usually in a managerial and testifying role, in power plant prudence reviews or audits on 37 separate generating units. Twenty-seven of those units were nuclear projects, completed in the 1980's and 1990's, and 4 of the units are recently ordered nuclear units. Six of those projects were fossil fuel projects. I have also evaluated prudence on other aspects of regulated utilities, including electric Transmission and Distribution and Water Utility operational prudence.

Q: Has all of Pegasus-Global's and your work with regards to those prior prudence reviews and audits been on behalf of regulated utilities?

A: No. Approximately 50% of the generating units Pegasus-Global evaluated were for utilities and the other 50% were for commission staffs – 15 of the clients have been utilities and 14 have been for commission staffs.

Q: Does Pegasus-Global also have experience with construction audits?

A: Yes. Pegasus-Global performs construction audits on major construction projects or programs in the Power Generation, Oil & Gas, and Infrastructure sectors for public and private owners, engineering and construction contractors, and financial firms. For instance, Pegasus-Global has conducted construction audits in the last decade for:

- Northside (FL) Combined Cycle Power Plant;
- Nations Petroleum (CA) Construction Program;
- All Capital Construction Agencies for the City of Winnipeg (Canada);

- Operational Audit of the Reid Gardner Unit 4 Power Plant for the California Department of Water Resources;
- Washington State Joint Legislative Audit Review Committee;
- Princeton University (NJ) Capital Program Management Process Assessment;
- Management Audit of the Vancouver Island Highway project for the British Ministry of Transportation and Infrastructure;
- Management Audit of the West Point Expansion Project (WA);
- Management Audit on the Generation of Consumers, New Grey Water Company (TN);
- Audit of Project Management Processes, Change Order Values and Decision re: B2 Outbound Baggage Facility Project – Port of Seattle (WA); and
- The Asheville – Bencombe Water Authority, Management and Operations Study of the Water Department of the City of Asheville, (NC).

Q: Can you explain the difference between a prudence review/audit and a construction audit?

A: Yes. First of all, construction audits and prudence reviews are two different tasks. A prudence review is conducted to determine whether or not the decision made and actions taken by management during the execution of a project were prudent. As I have testified earlier:

> *Decisions are prudent if made in a reasonable manner in light of the conditions and circumstances which were known or reasonably should have been known when the decision was made.*

The ultimate goal of a prudence review may be to determine whether or not any decisions found to have been imprudent had any negative impacts on the ultimate cost of the project. In fact, it is entirely possible for a decision by management to have been imprudent but find that the decision ultimately had no negative impact on the final cost of the project.

As I also testified earlier, the Government Accounting Office (GAO) developed and issued standards for what it terms Performance Audits:[2]

> "*Performance* [Prudence] *audits are defined as engagements that provide assurance or conclusions based on an evaluation of sufficient, appropriate evidence against stated criteria, such as specific requirements, measures, or defined business practices. Performance* [Prudence] *audits provide objective analysis so that management and those charged with governance and oversight can use the information to improve program performance and operations, reduce costs, facilitate decision making by parties with responsibility to oversee or initiate corrective action, and contribute to public accountability.*"

A prudence review or audit is a category of performance audit within which the auditor or reviewer is objectively examining the decision making processes and the decisions made during the execution of a project to establish if those processes and decisions were prudent.

A construction audit is generally understood to be an examination of the costs to execute a construction project; in short a financial audit. Financial audits have a long and fairly

[2] Government Auditing Standards, Comptroller General of the United States, United States General Accounting Office, 2007 Revision, Chapter 1, page 17, Section 1.25

stable set of guidelines and standards which are accepted across many industries, including construction. In general:[3]

> "*Financial audits provide an independent assessment of and reasonable assurance about whether an entity's reported financial condition, results, and use of resources are presented fairly in accordance with recognized criteria. Reporting on financial audits performed in accordance with GAGAS also includes reports on internal control, compliance with laws and regulations, and provisions of contracts and grant agreements as they relate to financial transactions, systems and processes. Financial audits performed under GAGAS include financial statements audits and other related financial audits.*"

Relative to financial audits, according to the Generally Accepted Government Accounting Standards (GAGAS) for financial audits:[4]

> "*Under AICPA standards and GAGAS, auditors must plan and perform the audit to obtain sufficient appropriate audit evidence so that audit risk will be limited to a low level that is, in their professional judgment, appropriate for expressing an opinion on the financial statements. The high, but not absolute, level of assurance that is intended to be obtained by auditors is expressed in the auditor's report as obtaining reasonable assurance about whether the financial statements are free of material misstatement (whether caused by error or fraud). Absolute assurance is not attainable because of the nature of audit evidence and the characteristics of*

[3] Government Auditing Standards, Comptroller General of the United States, United States General Accounting Office, 2007 Revision, Chapter 1, page 1, Section 1.22

[4] Government Auditing Standards, Comptroller General of the United States, United States General Accounting Office, 2007 Revision, Chapter 4, page 64, Section 4.01

fraud. Therefore, an audit conducted in accordance with generally accepted auditing standards may not detect a material misstatement."

In addition, according to the GAGAS:[5]

"Under AICPA standards and GAGAS, tests of internal control over financial reporting and compliance with laws, regulations, provisions of contracts or grant agreements in a financial statement audit contribute to the evidence supporting the auditor's opinion on the financial statements or other conclusions regarding financial data."

Typically, financial audits are intended to be *"tests"* of financial statements produced by the entity being audited. The goal is to establish with reasonable certainty that the auditing party can rely on what is reported within those financial statements. Once the test is completed, and assuming it is determined that those financial statements issued present a reliable source of information relative to the financial actions of the party audited, the financial test is "passed" and the financial statements are then used for such other purposes for which they are intended.

According to GAGAS there are four generally accepted standards for reporting audit results and conclusions:[6]

"a. The auditor must state in the auditor's report whether the financial statements are presented in accordance with generally accepted accounting principles (GAAP)

[5] Government Auditing Standards, Comptroller General of the United States, United States General Accounting Office, 2007 Revision, Chapter 4, page 67, Section 4.07

[6] Government Auditing Standards, Comptroller General of the United States, United States General Accounting Office, 2007 Revision, Chapter 5, page 78, Section 5.03

b. The auditor must identify in the auditor's report those circumstances in which such principles have not been consistently observed in the current period in relation to the preceding period.

c. When the auditor determines that informative disclosures are not reasonably adequate, the auditor must so state in the auditor's report.

d. The auditor must either express and opinion regarding the financial statements, taken as a whole, or state that an opinion cannot be expressed, in the auditor's report. When the auditor cannot express an overall opinion, the auditor should state the reasons therefor in the auditor's report."

While the results of the construction cost audit may ultimately be used in calculating an ultimate cost impact for an imprudent decision, the final total cost of construction in and of itself is not a test of, or proof of, management's prudence during the execution of that project. Simply because a project met its original budget does not mean that every decision made was prudent; likewise just because an element of a project cost more does not mean that the decisions made by management involving that element were imprudent. There are myriad forces at work during any large construction project which can result in changes in the cost of any element of that project or on the total cost of the complete project, and the majority of those factors are simply not under the control of the project's management. In a prudence review the task is to examine management's decisions, then determine if those decisions by themselves were responsible for negative cost impacts to the project.

Q: Why is this distinction important in the context of your evaluation of KCP&L's management prudence relative to Iatan Unit 2?

A: What Pegasus-Global evaluated was prudence. As I discuss in more detail later in this rebuttal testimony, what Vantage did was to review changes to the original project costs, including a review of change orders, to determine their effect on the overall change in project costs. This evaluation purportedly demonstrates evidence of imprudence. Mr. Drabinski then suggests actions that "prove" imprudent decisions. (For example see Vantage Unit 2 testimony, page 67, lines 10 – 11). This use of hindsight is precisely what is not allowed in determining management prudence. In addition, Vantage is not even consistent with construction audit standards, but seemingly takes a construction audit approach in the first instance, but then does not even express "*an independent assessment of and reasonable assurance about whether an entity's reported financial condition, results, and use of resources are presented fairly in accordance with recognized criteria.*"[7] The "mixing and matching" of parts of two different standards leads to misleading information clothed in terminology that suggests the presentation and evaluation were done according to recognized standards and thus are "reliable," which creates a condition which prudence audits or financial audits are designed to avoid.

The purpose of a construction audit or a financial audit is not to identify imprudent actions or to judge the results compared to an alternative course of action. A construction audit verifies the actions that have been taken and the results that have been reported to management and the public.

Q: Does Pegasus-Global also have experience with Risk Management and Construction Claims on large, complex projects?

[7] Government Auditing Standards, Comptroller General of the United States, United States General Accounting Office, 2007 Revision, Chapter 1, page 1, Section 1.22

A: Pegasus-Global performs Enterprise and Project Risk Management evaluations for public agencies and private corporations. In addition Pegasus-Global team members have evaluated and testified for either owners or operators, or engineer-constructors in proceedings all over the world. Representative engagements are set forth in **Exhibit 7 (KRN-7)**.

Q: Can you explain why Pegasus-Global's experience with Risk Management is relevant to your evaluation?

A: In reviewing the Vantage testimony, Mr. Drabinski appears to confuse the purpose of making decisions that assign, allocate, raise or reduce project or corporate (enterprise) risk with the success in doing so (again an impermissible use of hindsight), and /or evaluating risks which may emerge. Risk is defined as *"any activity, event, or action which tends to cause a negative impact to the planned goals of project scope, quality, performance, execution time, or cost"*[8], and the management of risk is defined and consequently typically embodies four constantly updated efforts as follows:

"Execution Risk Management is a systematic process by which risk elements or conditions may be identified, evaluated and avoided, mitigated or eliminated, in order to preserve the achievement of project cost schedule and quality goals...

1. The *identification* of potential or actual risks.
2. *Management action review* to accomplish project risk minimization and control.
3. *Execution reviews* on a regular basis to assure project management responsiveness.

[8] Nielsen, K.R, *"International Construction Projects – Managing Risk in the Field,"* World Congress on Construction Risk, Paris, France, April, 1994 and Nielsen, K.R., *"Execution Risk Management in Design-Build Infrastructure Projects,"* Proceedings of the Construction Institute Atlantic Coast Construction Conference, Tysons Corner, VA May 2004

4. *Adjusting management* to account for project dynamics."[9]

These efforts can be applied to a project as a whole, a specific portion of the project, or the operations of one or more parties. Risk Management is a process which most programs and projects employ to properly assess and respond to potential or emerging risks. It is not intended to prevent consequences, but assure a reasoned and proper consideration of potential risks to achieving project goals.

Again, the Vantage testimony is misleading because of inappropriate and misrepresented comments regarding risk management processes, results and applications. Later in this testimony Pegasus-Global goes into this in more detail.

Q: Likewise, can you explain why Pegasus-Global's experience with Construction Claims is relevant to your evaluation?

A: Yes. Contracts are the foundation of claims. That is, the parties measure their obligations through their contract, especially so in relation to the large number of documents which are used in construction. That document can be the payment by one party for meeting the promised delivery by the other party. In engineering, procurement and/or construction contracts, the performing party (the contractor) commits to the owner to engineer, or manufacture, or construct the facility according to parameters that are established in the contract. These parameters are embodied in requirements or specifications. In the case of power plants these requirements and/or specifications can be quite detailed. But even in spite of the detail, the parties often reasonably disagree whether the required engineering, manufacture or construction is included within their contract obligations. Whether the

[9] Nielsen, K.R. and Galloway, P.D. "Anticipating Problems: Project Risk Assessment an Project Risk Management, Collaboration Management: New Project and Partnering Techniques, edited by H. Shaughnessy, John Wiley & Sons, 1994

contract is services, delivery, performance, or construction, it is the actual result judged with the measure of hindsight that is used. You must look to the contract documents to determine the obligation. You examine that obligation in light of actual performance and determine whether the party performed. The proper measure of damage is to place the injured party (the party asserting the claim) in the position that it would have been in if the other party's performance had been as required. What makes construction claims so difficult is complexity, duration, number of parties, the number of conditions defined in an equally large number of documents, changing circumstances over the engineering-construction execution duration, and the myriad of factors that can contribute to cost or schedule impacts. Construction is one of the most party and document intensive commercial transactions that can be undertaken, and proof of causation can be very complex. The duration of the construction period for a mega-project adds a complexity seldom found in other types of commercial claims. I can truly say that no power plant has ever been constructed exactly as first planned.

Construction claims arise from many issues. For example, engineering errors and omissions occur on projects, as do changes to the design requirements. In those instances, the vendors and contractors are paid for the resulting changes. A vendor or contractor may err in the equipment or construction from that was specified, and in those cases they would typically not be entitled to additional compensation for such error. Likewise, an owner may change their requirements, and both the engineering and the vendor or contractor may be entitled to more compensation. These issues may appear to be easy to ascertain, they are not. Despite the detail in purchase orders and contracts for power plant

construction, issues such as these arise, and disputes or the interpretation are very complex and difficult to resolve.

From a management perspective, you can undertake many actions which are appropriate at the time and under the circumstances. But circumstances and party actions may make such decisions look inappropriate when reviewed in hindsight. Construction claims cannot be prevented, although KCP&L was prudent in mitigating disputes with contractors as they arose on the project, as discussed later in this testimony. Ultimately, parties may seek to settle their differences through some form of contractually agreed dispute resolution, or ultimately parties can turn to the courts to resolve differences. But under the conditions and circumstances of construction, one result is the longer claims and disputes take to resolve, the more costly they become, even if one party is ultimately found to be correct. I would like to say, in my experience over the last 40 years, seldom is a construction claim or dispute that moves toward arbitration or litigation "clear cut." Thus, the potential of expending more money to resolve claims and disputes and the potential to divert management from other issues lead to many "commercial" settlements of their differences.

As a result of all of these factors, merely relying on claims and allegations is not appropriate to make prudence assessments because claim analyses are primarily "after the fact" type of issues, such as, delay and/or cost issues. The fact that a claim was submitted on a project does not suggest that a management decision was imprudent. In fact, even the validity of a claim does not suggest that a management decision was imprudent. One must review and understand the circumstances giving rise to the claim, and the event to

which an allegedly imprudent decision of management – based upon facts known or reasonably available at the time of the decision – caused the costs being claimed.

As is discussed later in this testimony, Vantage improperly uses "its determination" of success in making KCP&L's contractors perform to the "letter" of the contracts of contractors and vendors, in essence assuring a "claims free" project. For instance, ** [redacted] ** This is purely speculation, unsupported by any analysis. Nevertheless, this broad, conclusory claims approach exemplifies the Vantage determination, unsupported by any facts or analysis. Vantage also, as discussed later in this testimony, attempts to quantify its hindsight allegations of imprudence by merely making an arbitrary allocation of omnibus settlements with contractors and vendors, which is even inconsistent with proper construction claims methodologies. Again the "mixing and matching" of standards and approaches is misleading and improper.

Q: Several times you referred to the Iatan Unit 2 Project as a "Mega-Project". Can you define that term?

A: Yes. Mega-projects are generally defined within the industry as very large-capital investment projects that attract a high level of public attention or political interest

because of substantial direct and indirect impacts on the community, environment, and companies that undertake such projects. They are generally defined as major projects that cost more than $1 Billion (US). Other attributes which may be exhibited by mega-projects include: execution of an engineered facility or structure which is complex or unusual, an extended execution schedule (greater than 3-4 years measured from initial concept development to final completion), involves multiple equipment and material suppliers, involves multiple specialty trade contractors, involves multiple project stakeholders/investors, and has multi-national party involvement.

Q: In Pegasus-Global's opinion was the Iatan Unit 2 Project a mega-project as defined within the industry?

A: Yes. An examination of the Iatan Unit 2 Project reflected the following attributes:

- Total final cost at completion will be approximately $1.9B (US);
- The power plant being executed is very complex from both an engineering and construction perspective;
- Total execution duration will be approximately from concept to final completion will be approximately 5+ years;
- There are multiple specialty equipment and material suppliers;
- There are multiple specialty trade contractors;
- There are multiple project stakeholders at both the ownership and the consumer levels;
- There are off shore (US) engineered equipment suppliers.

By every measure generally used within the industry the Iatan Unit 2 Project would be classified as a mega-project.

Q: Has Pegasus-Global had experience with mega-projects?

A: Yes. Pegasus-Global has experience, for instance, as part of Project or Program Management audits on mega-projects. In the Power Generation industry sector, Pegasus-Global has evaluated or been a contributing member of the project management on nuclear units as previously described. In the other sectors, we have similarly been involved, for instance, globally, in the following projects:

- BASF Fina Steam Cracker, TX
- Scherer Fossil (4 Unit Coal) Power Plant, GA
- Guri Dam & Hydroelectric Complex, Venezuela
- Casecnan Multi-Purpose Project, Philippines
- City Link, Australia
- Vancouver Island Highway Project, Canada
- Kuala Lumpur International Airport, Malaysia
- Regional Fast Rail Project, Australia
- Parramatta Rail Link, Australia
- Milwaukee Water Pollution Abatement Program (WI)
- PET Production Plants Program, Holland, Spain and Argentina
- Combisa Cantarell EPC 22, TX
- Oman LNG Project, Oman
- Murrin Murrin Nickel – Cobalt Refinery, Australia
- London Crossrail Project, UK
- Venice Lagoon Floodgate Project, Italy

Q: Do mega-projects require different project management systems than other construction projects?

A: No. Mega-projects like all construction projects generally require systems which enable the management cadre to manage and control such things as project planning, scope, cost, schedule, safety, quality, vendors and contractors. The primary difference between a mega-project and a typical project, beyond their total cost and duration, is difference in the mega-project risk profile, complexity of the mega-project, extended duration of the mega-project, and the overlapping execution staging of a mega-project.

Q: Can you explain the difference in a risk profile of a mega-project and a typical construction project?

A: Yes. A risk profile for any construction project is predicated on the knowledge that at some point during the execution of any stage of a construction project there will be elements of risk which have the potential to impact the successful attainment of project goals and objective. However, the risk profile of a mega-project has to address myriad risk elements that typical projects do not have to consider. For example, a simple gas fired combined cycle plant and Iatan Unit 2 are both power generation facilities. However, the combined cycle power plant will be executed at a relatively low cost and over a relatively short execution period, using a well known technology and set engineered design using "off the shelf" equipment and materials. Iatan Unit 2 will be executed at a high costs over an extended execution duration, using unique (and proprietary) technology requiring purpose specific engineering and design, using purpose specific engineered and manufactured equipment and materials from manufacturers located around the world. If one were to compare the risk profile of a typical construction

project to a mega-project there would be a noticeable difference in the second level risk elements and lower, and the probability and impact metric analyses contained within those risk profiles would be very different. For every significant risk element the project participant that was allocated that risk must develop appropriate avoidance and mitigation response plans to address that risk.

Q: What is meant by "second tier and lower risk" element?

A: For a simple example, every construction project has as a first level risk element "Schedule Impact." However, below that first level risk are a series of linked individual risk elements which are tailored to the project conditions for that specific project. In a typical construction project the first level risk element will be linked to a second level risk such as "valve vendor late delivery." In a mega-project a second level risk may have to address up to 10 individual and specific valve vendors each supplying a system crucial control valve, with the various valve vendors located in five different countries, etc. Mega-project risk profiles generally show a greater number of first level risk elements (addressing the unique conditions of that mega-project) and will generally reflect a boarder and much more complex set of risk elements below that first level.

Q: Explain what is meant by the statement that mega-projects are more "complex" than a typical construction project?

A: The unique conditions of a mega-project are the genesis of its complexity when judged against more typical construction projects. For example, while it would seem that the simple way for the owner of a mega-project to avoid any of the risk for such a project would be to execute that project under a EPC delivery method linked to a Fixed Price, Completion Date Certain contract approach, the reality is that there are only a handful of

contractors in the world that can take on a $1 Billion plus project on a EPC, Fixed Price, Completion Date Certain basis. Even those contractors that are capable of taking on a mega-project under an EPC do not have the ability to take on multiple mega-projects at the same time. However, it should be noted that even under an EPC arrangement, the owner has not really managed to shed all of the risk onto the contractor, as demonstrated by the construction claims history generated between EPC contractors and owners over various mega-projects around the globe.

Assuming that an owner cannot find a contractor capable of or willing to take on its mega-project leaves the owner with a more complex risk allocation environment which will most likely involve multiple contractors working under different delivery methods and contract approaches, all of which ultimately have to be managed and controlled by the owner. As demonstrated by this single example, one project condition, in this case the lack of an available EPC contractor, can radically increase the complexity of managing a mega-project. Similar complexity is inserted into mega-projects due to the wide variety and huge number of equipment and material procurements needed, which almost always prevent an owner, for example, from simply issuing a single purchase order for valves, piping, electrical equipment or materials.

Q: What impact does the extended execution duration of a mega-project have on managing that project?

A: It is a given in life that the further one attempts to see into the future the less reliable one's predictions of future conditions will be. The same given applies to mega-projects. The only thing anyone really knows for certain about the future insofar as a mega-project is concerned is that there will be changes which will impact the planned execution of that

mega-project and that these changes must be managed which fall on the shoulders of the Owner. If the current approach is not working as expected, you analyze the situation, evaluate the options, and you change the approach to improve or mitigate risk. The risk profile of every major construction project faces some risk element which is tied to its duration, for example: a change in the available electrical labor pool at the exact point in time when trade electricians are needed for the project. If a project knows that it will need those electricians 8 to 10 months in the future there are fairly accurate indicators of the state of the industry at that point in the future and specific plans can be made to address that industry condition insofar as the need for electricians at that point in time.

On a mega-project the extended duration means that one is basing plans on the need for electricians three years into the future and the industry predictions that far into the future are "informed guesses" at best over that period of time. Construction projects are announced daily, as are project cancellations; both of those factors will affect the availability of electricians throughout that three year period, up to and including the point at which the mega-project plans made three years earlier were made. For example, the announcement of one major stadium project made 20 months after the mega-project plans were set can soak up the majority of the available ironworkers pool just prior to the need for ironworkers hits the mega-project.

Q: What does Pegasus-Global mean by "overlapping execution staging of a mega-project."

A: Construction stages generally consist of a number of separate stages, the most common of which are Initial Project Planning, Engineering/Design, Procurement, Construction, and Commissioning. Depending on the project there may be additional stages, such as testing

and start up of process systems, however almost every construction project includes the stages cited above. Within the construction industry there are two methods by which one can stage the execution of a project:

(1) One can move sequentially through those stages generally in the order in which they are listed above, or:

(2) One can overlap those stages, initiating each subsequent stage as the preceding stage reaches a point at which it can maintain a lead over the subsequent stage. This is generally referred to in the construction industry as a "fast track" project schedule.

In a typical construction project, the owner or its agent has an option as to which sequencing method it will follow over the execution of the project.

Q: Does a mega-project have the same choice of project sequencing methods?

A: From a practical perspective, no. All mega-projects are executed on a fast track schedule simply due to the fact that sequential staging adds a tremendous amount of time to full execution of a mega-project. As noted above, the more time it takes to execute a mega-project the less reliable the future project condition predictions, and the less reliable the future project condition predications the higher the probability that risk elements will impact project goals and objectives. For example, again using the Iatan Unit 2 Project: the engineering and construction of the balance of plant ("BOP") systems is dependent on the engineered equipment which those BOP systems will support. For example, the boiler is the single most crucial piece of engineered equipment and as it can take a year or more to fully engineer a boiler and its appurtenances; if the start of BOP engineering had to wait until the completion of that boiler design time, then the construction of the BOP had

to wait until the completion of the BOP design, then the boiler equipment installation could not be started until BOP construction was complete, then the time it would take to execute a project such as Iatan Unit 2 would be much longer than was planned and has occurred.

Again, from a number of perspectives, project duration is one of the primary risk elements faced by a mega-project. Therefore, mega-projects take advantage of the more complex process involved in fast tracking the project sequence, balancing the need to keep the execution duration as low as practicable while at the same time recognizing the added stress that will be placed on the owner, contractors and suppliers.

Q: Is there a specific example of the stress which accompanies the fact that mega-projects are fast tracked?

A: Yes. Again, using the Iatan Unit 2 Project, the sequence required Alstom to provide the engineered equipment load data to Burns & McDonnell so that Burns & McDonnell could engineer the foundations needed to hold that equipment. That foundation needed to be in place and ready to receive Alstom boiler components as they were scheduled to arrive at site so that the installation of the boiler could coincide exactly with the receipt of that equipment and material. The date scheduled for the completion of the foundation was August 14, 2007. As might be imagined, both Alstom and Burns & McDonnell were under considerable stress to meet interim engineering and information exchange dates so that the foundation constructor could be given the designs in time to place the foundations within the time period required. That stress manifested itself in what KCP&L referred to as a "do-loop" which simply meant that both Alstom and Burns & McDonnell took the position that the other party was the one responsible for holding up the

completion and release of the boiler foundation. In this instance, KCP&L successfully managed and controlled the situation, with the result that the foundation was completed as scheduled.

Q: Are such situations common on mega-projects?

A: Yes, this is a common situation in a mega-project. The goal of Project Management is to control these stress situations in order to avoid or mitigate the additional impact of that risk element on the execution of the project. There are several such examples of such stresses addressed by Pegasus-Global within the body of this testimony.

Q: Given the unique circumstances involved in mega-projects and recognizing the stress which accompanies those circumstances, how does the management of a mega-project differ from that of typical construction projects?

A: The greatest difference lies in management's willingness to understand and accept that conditions will change. Management and control approaches, processes, procedures and systems must be flexible and adaptable to those changing conditions. Mega-project management must be able to adjust its focus repeatedly among myriad competing forces in order to maintain the greatest possible control over the project environment as it evolves. Management of a mega-project never gets the opportunity to simply sit back and say "everything is going according to plan," because the plan may, and often does, literally change every day. Without this ability to be flexible, or adapt to the changing project conditions, the management of the mega-project may suffer under the stress which we covered earlier in this testimony.

Q: What are these differences in mega-project management in the context of a prudence review of Iatan Unit 2?

A: Iatan Unit 2, by virtue of being a mega-project, was faced with having to engage in a constant decision making process. KCP&L management understood that executive management would have to be on constant vigil. As I will explain below from my Iatan Unit 1 prudence evaluation, this involved the use of consulting expertise, coupled with regular management questioning and evaluation of decisions already made and implemented. KCP&L did an exceptional job in matching important decisions to the needs of the full CEP Program and Iatan Unit 2, taking into account the actually required decisions that had to be made at the time. This approach also recognized that KCP&L management decisions may have to be altered when conditions, circumstances, or performances were different than when the decision was made. The constant KCP&L requirement of performance evaluation of all parties involved in Iatan Unit 2, including itself, was innovative and consistent with the changes that are faced in all mega-projects. The very change over the course of the Iatan Unit 2 Project demonstrated this decision making process and the reasonableness because of decision making processes by conditions made to enhance management and performance by project parties. Additionally, because they were transparent, decision making process and change assured good governance and accountability. This type of self critical management decision making processes are consistent with mega-projects today.

Q: Although Iatan Unit 1 was a large project, was it considered a *mega-project*?

A: No, unless if you consider the two units together.

Q: Does Vantage recognize the evolving context of a Mega-Project?

A: No, Vantage does not. Throughout its testimony Vantage applies smaller construction project management concepts and expectations against which Vantage then compares the

actions and decisions made by KCP&L during the execution of the Iatan Unit 2 mega-project. For example, Vantage consistently attacks KCP&L management within its testimony for "not even considering" an EPC project delivery methodology linked to a fixed price contract approach for the Iatan Unit 2 project scope of work. This assertion is made in spite of testimony by KCP&L witnesses and a number of document references to the fact that KCP&L had surveyed the contractor pool and found no interest among that pool in executing the Iatan Unit 2 project on an EPC, fixed price basis. Vantage simply ignores the reasons for that lack of interest in an EPC fixed price contract for the Iatan Unit 2 mega-project.

Vantage's persistence in applying contractor concepts and expectations that do not reflect the Iatan Unit 2 circumstances is also reflected in how KCP&L management decisions are treated throughout the Vantage testimony. For example: **[redacted]** Vantage's criticism of KCP&L is founded on applying a construction management understanding which essentially states that once a decision has been made it is not revisited or changed absent some negative impact has rendered that decision untenable. It is essentially a "decide", "monitor" and, if required, "react" management methodology which as a rule has been followed within the traditional construction industry of small projects. However in modern mega-projects, by the time the monitoring detected a problem or issue it is generally too late for project management to react in time to mitigate or avoid the problem, which then ripples out from that problem to impact other areas of the project. The ultimate results can be, and in the case

of the first wave of nuclear projects built within this country were, devastating to the cost and schedule of the mega-project.

Lessons learned from these early mega-projects spurred the adoption of revised management techniques, such as risk management and risk profiling, which were directed towards early identification and quantification of risk elements which may impact the execution of that mega-project. The theory is that the earlier a potential risk is identified and treatment options are developed, the better able management will anticipate and either avoid or mitigate those risks during execution. However, managing to a risk profile and set of treatment options demands that management adopt a flexible decision making posture throughout the execution of the mega-project. It requires that the project risk profile be constantly updated, as the project matures and evolves because that risk profile will also change in response to evolutionary changes in the project. Management decisions, which under a small construction project have a project life of months, have a project life of years within a mega-project. As a result, every crucial decision must be weighed against the current status of the project and the most current risk profile exhibited by that project. It is this constant change in management focus, timing and evolution which Vantage has ignored within its analysis of the KCP&L actions and decisions.

**[redacted]

[redacted]**

Pegasus-Global examined the same documents, and many others, and found that KCP&L made decisions and took actions following a pattern which is consistent with current mega-project management practice. KCP&L and its advisors constantly updated and modified the project risk profile, identifying changes in risk elements and their possible impact, and developing the most reasonable treatment options for each of those risk elements as they arose. Using the BOP delivery method example cited repeatedly by Vantage, Pegasus-Global interpreted the same documents and information differently:

- The BOP multi-prime delivery method decision was a result of the fact that no capable industry contractor expressed any interest in executing that scope of work under and EPC delivery methodology or at a fixed price.
- A reasonable alternative was to execute the BOP scope of work under a multi-prime method, with KCP&L acting as the construction manager. This option was explored in depth by KCP&L and its advisors, with significant attention paid to the risks inherent in that methodology, the risks which were particular to KCP&L's current project and construction management status, and the development of mitigation

treatment options to address both of those risk factors. For example; staffing needs were identified, management and organization plans initiated and recruitment efforts started to fill the most critical positions in the most logical order.

- Although the risk profile evolved with each staff addition and each process developed by KCP&L, the risk profile of the multi-prime delivery method remained significant at the end of 2006, at which point an unexpected event provided KCP&L with an alternative delivery methodology which had the potential to shift a significant portion of the current risk profile to Kiewit. Any reasonable mega-project manager or owner would examine the Kiewit offer to determine if accepting that offer provided the project with a way to mitigate project risk over the total duration of the project; which is just what KCP&L, with input from its advisors, did in early May 2007.
- Having profiled the risks of both alternatives – continuing with the Multi-Prime method under direct KCP&L control or shifting the bulk of that work and risk to Kiewit under a GC methodology – KCP&L's decision was to shift the risk to Kiewit.

Pegasus-Global's examination of the project record does not reflect a project in any danger of eminent failure as of the spring of 2007. The risk profile of the project reflected the effort which KCP&L would have to expend to mitigate those risks over the life of the project, and those expenditures would be significant. The documents indicate that KCP&L was, in fact, expending the anticipated level of effort throughout 2006 and into 2007. However, the Kiewit option provided KCP&L with an opportunity to address those risk elements almost immediately, with a lower expenditure of effort required. From a mega-project perspective, the decision making process which was followed throughout that period by KCP&L is exactly what Pegasus-Global would expect to see under the

conditions described in great detail within the project records. Iatan Unit 2 is a mega-project. Recognizing this circumstance enables Pegasus-Global to place the actions and decisions taken by KCP&L within the actual contextual conditions of the project.

Q: Did Pegasus-Global follow the same approach in applying the prudence standard as you did in your Unit 1 prudence review?

A: Yes. Whether a project is considered large or a mega-project is not relevant to the approach and context, but a circumstance which must be considered. Therefore, the approach Pegasus-Global utilized in the review of Iatan Unit 2 was consistent with that used in Iatan Unit 1 and adopted in each of the previous reviews conducted by our team, and specifically, was consistent with the approach I described in my Iatan Unit 1 testimony (Nielsen Unit 1 testimony, page 22, line 3 – page 26, line 23):

"The approach we utilized in the review of Iatan Unit 1 was consistent with that adopted in each of the previous reviews conducted by our team. We conducted a qualitative review which focused on the management processes employed by KCP&L and supplemented this with a quantitative review of the cost and schedule impacts of certain events. Within this overall approach we requested, obtained and reviewed substantial amounts of project documentation. This information was not meant to be exhaustive, but would be sufficient to reasonably assure that we could derive supportable conclusions therefrom. Documentation consisted of reports, correspondence, meeting minutes, presentations and other written material and data related to project events, decisions, responses and actions. The documents that provide the primary support for the conclusion of Pegasus-Global are listed throughout this testimony as well as listed in Exhibit 7.

Our review, for instance, included the review of various independent third party audit reports that were prepared over the course of the Iatan Unit 1 project. It is Pegasus-Global's experience that owners regularly retain outside consultants to review, audit and make recommendations relative to findings and facts at the time within the scope of the audit review. We find that conducting, using, and reviewing findings of audits to be prudent management practice. The fact KCP&L extensively employed and used audits on the Iatan Unit 1 project represents prudent management. That being said, audit findings contained within audit reports are not necessarily conclusive of prudent actions. Audits are conducted for many purposes. The purposes can be as diverse as providing "reasonable assurance" of: accounting practices, financial reporting, engineering quality practices, construction execution such as for welds, potential risks, and project management performance. And, in the context of regulated utilities, prudence audits

which provide reasonable assurance that a utility management was prudent in their decision making regarding capital expenditures. Audit reports are specifically designed to look at potential management issues or problems and/or to confirm the reasonableness of approaches. Audit recommendations typically are designed to improve performance and execution in the future. But audits are merely one of a selection of sources of information that a utility should and does take into account in making decisions.

Let me illustrate with a discussion of how audit reports are one documentary source which we consider in judging the prudence of management decision making. Review of audit reports must begin with an understanding of the audit purpose and scope, and how the audit was performed. Especially important is an understanding of the timeframe of data that was used in performing the audit. Great Plains Energy (GPE) formed a CEP Oversight Committee in October 2006 upon the recommendation of GPE's CEO, M. Chesser, and GPE's internal audit department. The CEP Oversight Committee was formed to provide program management assurance to minimize the risk of program failures. The responsibilities, structure and attributes were established at that time for the Comprehensive Energy Plan (CEP) Oversight Committee by Mr. Chesser in an attachment to his communication to KCP&L CEO, Bill Downey:[10]

[10] CEP Oversight Committee October 26, 2006

** [redacted] **

The CEP Oversight Committee started functioning in October 2006 and was formally approved at the beginning of February 2007. The oversight committee arranged with the GPE Internal auditor and Ernst & Young (E&Y) to provide one source of input to allow KCP&L executive management to monitor project decision making to assist in the normal conflicts of competing stakeholders, including external influences and project management executives. The proposal of the audits was proactive on the part of KCP&L management and indicative of good, prudent management process.

[redacted]

- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]**

In addition, the CEP Oversight Committee, reviewed reports from Schiff Hardin, who provided KCP&L with outside expertise with respect to the CEP program and specific projects. Schiff Hardin reports provided even more detailed, operating level recommendations with respect to specific project management, such as for Iatan Unit 1. Again, this is a process of decision making that we look for – the seeking out of potential risks and possible solutions regularly from outside sources which exemplifies good and prudent management."

Pegasus-Global evaluated KCP&L management decision making processes regarding Iatan Unit 2 in the same time frame, and considered the circumstances that the Iatan Unit

2 Engineering and Construction was occurring at a later time than Iatan Unit 1 by necessity and plan. For example, documents like the E&Y audits and the Schiff Hardin reports not only applied to Iatan Unit 1, but in addition to Iatan Unit 2. The CEP Oversight Committee did not distinguish between Iatan Unit 1 and Unit 2, except when decisions applied to one Unit or the other. For instance, in the March and April 2007 period, as the E&Y Audit Report describe above was released, the Execution Oversight Committee hired a separate advisor, Strategic Talent Solutions, Inc. (STS). STS had been used for various assignments for years by KCP&L. **[redacted]

[redacted]**

STS's observation addressed KCP&L's Iatan Project Team areas that could be improved and made several recommendations that were used in subsequent KCP&L management decisions as discussed, later in this testimony.

This illustrates Pegasus-Global's evaluation of the continuous process of management decision making and adjustments and/or new decisions that are always necessary on capital projects, and especially mega-projects. Again as I testified in my Iatan Unit 1 testimony (Nielsen Unit 1 testimony, page 26, line 24 – page 28, line 12):

"Consideration must also be given to the particular point in the execution period. For example, KCP&L was delayed from their 2004 plans by the need to obtain permits from various jurisdictions agencies and by the regulatory process leading to formal approval of the CEP. Once the overall CEP program was approved, KCP&L found themselves faced with a considerably different construction market. Today, KCP&L is faced with construction market conditions that were unforeseeable just six months ago. I point this out because circumstances and conditions seldom remain the same over the extended durations of major capital construction. When judging the prudency of decision making, we place decision making in the factual context of what could reasonably be known at the time. Once the decision is made, there also must be recognition of the time to implement or respond to the decision, during which circumstances and conditions are not static. From the end of 2005 to today the shifting issues and resulting circumstances have gone through many changes. For that reason we place the decision making process into time context or continuum that existed at the time the decision was made.

In addition to the review of documentation, we also identified and interviewed a number of project personnel, including key Iatan Unit 1 project team members and executives charged with direct oversight of the project. The interviews were conducted to establish the basis or underlying explanation for decision making. In our opinion, the conduct of these interviews is a necessary element of a comprehensive review to provide the rationale or justification not otherwise determinable solely from review of documentation. Interviewees consisted of:

- Carl Churchman – Vice President - Construction

[11] Strategic Talent Solutions Construction Project Effectiveness, Kansas City Power & Light, May 2007, page 2

- Terry Bassham – Chief Financial Officer & Oversight Committee Member
- Brent Davis – Project Director
- Steve Jones – Senior Procurement Director
- Terry Foster - Director of Project Controls

Likewise, Pegasus-Global also toured the Iatan 1 site as further input for our evaluations. In finalizing decisions on prudence, Pegasus-Global looks at the decision making process and the decisions from the perspective levels of management, taking into account each of the documents and interviews. The prudence of decisions is not made with the advantage of 20-20 hindsight. Thus, we judge prudence from the position of utility management and based upon the varying sources of input that they had or reasonably could have had at the time of making a decision. Never does management have the time or luxury of having all information that they desire. The very essence of management is making decisions on less than perfect information, and then putting in place techniques and systems to monitor performance and use that information to continue to improve performance. Nowhere is this truer than in major capital construction projects and especially for capital construction programs, such as, KCP&L's CEP program.

The final approach step is to relate causally to the specific actions, if any, that Pegasus-Global finds imprudent and quantify the cost of such imprudence. This step is as important as the prior steps. Often times where we find imprudent decision making, it has no or minimal impact or the impact is "cut off" by subsequent decisions that were prudent. Quantification must be tied to a real cause for which the utility has culpability."

Q: Did you follow that same approach in conducting your Unit 2 analysis?

A: We did. We built on our Iatan Unit 1 experience, added extensively to it, and followed an organized and disciplined approach.

Q: Please describe the scope of your review of the reasonableness and prudence of the KCP&L management with respect to the Iatan Unit 2?

A: As I testified earlier, the purpose of Pegasus-Global's review is to present its independent evaluation both of management prudence on Iatan Unit 2, but also a review of the conclusions expressed regarding the prudence of KCP&L's management of Iatan Unit 2 as presented in the testimony of Mr. Drabinski of Vantage filed June 11, 2010 on behalf of the Staff of the Kansas Corporation Commission. **[redacted]

[redacted]

[redacted]

[redacted] ** As part of Pegasus-Global's review, Pegasus-Global compared our understanding of the facts, our analysis and our conclusions with the Vantage conclusion.

First, to establish the facts related to this testimony that existed and were known or should have been known at the time, Pegasus-Global has examined thousands of additional pages of project records which were available to Vantage or were requested by the KCC staff which were not part of Pegasus-Global's Iatan Unit 1 review. In addition, Pegasus-Global re-interviewed KCP&L personnel at the Project Management level in order to gather the facts as objectively as possible, to gauge those facts against a zone of reasonableness and prudent decision-making, and to quantify the costs resulting from any imprudence.

Pegasus-Global's study focused on Iatan Unit 2 and on actions of the KCP&L Board of Directors, Executive Management and Project Management and encompassed the functional areas of design, procurement, and construction. As noted above, Pegasus-Global re-interviewed all of the KCP&L managers and executives identified above as part of our Iatan Unit 1 review and additionally, interviewed the following individuals specifically on Iatan Unit 2 issues:

- Bill Downey, KCP&L President and CEO and GPE President and COO;
- Chris Giles – Regulatory Affairs Director, (ret.);
- Forrest Archibald – Iatan Project Cost Manager;
- John Park – KCP&L Corporate Property Accounting Director;

- Dustin Harmon – Burns and McDonnell Kiewit Contract Manager;
- Mike Boyd – Burns and McDonnell Alstom Contract Manager;
- Myra Burgess – Iatan Project Engineering Manager;
- Denise Schumaker – former Iatan Project Risk / Compliance Manager;
- Lynda Snedegar – Current KCP&L Compliance Manager;
- David McDonald – Current Iatan Procurement Manager;
- Michael Cline, KCP&L Treasurer and GPE Treasurer and Chief Risk Officer; and
- Jeff Daniels, Enterprise Risk Manager.

Pegasus-Global's opinions are in respect to the performance of KCP&L in executing its management responsibilities over the duration of the project. The review scope in each of these areas was comprehensive and reflects the experience of the study team in the conduct of similar reviews. In Pegasus-Global's Iatan Unit 2 review of the critical decisions affecting all aspects of the project, Pegasus-Global reviewed the following areas:

- Project planning and approach, including contracting methodology and its evolution;
- Corporate Management and Project Management organization, staffing and evolution;
- Management of Project procurement of contractors, equipment and materials;
- Contract Management and Administration processes and decision-making, including Project Budget, Schedule and Change Management, and its evolution; and

- Project Control Systems (cost, productivity, scheduling and quality) and their evolution.

Within each of these areas, an evaluation was conducted with respect to the following subjects:

- Management concept;
- Roles and responsibilities;
- Organization and staffing;
- Procedures;
- Control Systems and processes; and
- Execution.

These subjects thus relate to the development of a management framework for implementation on the Iatan Unit 2 project and performance execution within that framework by KCP&L and its contractors which allegedly encompass the areas found imprudent. The conduct of this review addressed each of the above subjects and provides adequate breadth and depth of review to support the presentation of an objective and independent evaluation of each functional area.

Q: How did you determine what areas to focus on during your review?

A: Pegasus-Global identified a number of areas that were criticized in the Vantage Iatan Unit 2 testimony. Those areas were:

- Delivery Methodology and Contracting Approach;
- Project Management Organization and Staffing;
- Selection and Management of the Owner's Engineer;
- Project Controls (Monitoring and Controls);

- Project Time Management (Schedule);
- Project Cost Management; and
- Project Scope and Change Management.

Q: Did you address the issues raised by Vantage, identified above, as part of your review?

A: Yes. Pegasus-Global analyzed each area, reviewed management's actions, and provided conclusions regarding prudence, together with the factual basis for those conclusions as presented within this testimony.

Q: What did you conclude with respect to KCP&L's Iatan Unit 2 contracting approach?

A: Pegasus-Global found that KCP&L management followed a systematic process in selecting the project delivery methodologies and contracting approaches for the Iatan Unit 2 Project. In summary, KCP&L:

- Examined its project risks, goals and objectives;
- With the assistance of industry experts, examined the market and industry conditions and circumstances during its review of delivery methodologies and contracting approaches;
- Examined a wide range of project delivery alternatives with the assistance of industry experts engaged to provide advice and assistance relative to those alternatives; and,
- Made appropriate adjustments to the project delivery decisions as the project unfolded during execution.

Q: Can you describe your evaluation?

A: Pegasus-Global has worked with and written extensively on project delivery methodologies and contracting formats over the course of many years. And there are some critical points to understand before examination of the Iatan 2 delivery methodologies and contracting formats[12] including:

- A project delivery methodology and a contract approach are not the same thing and those terms are not interchangeable. The project delivery methodology involves the allocation of the scope of work among the participants in the project. For example, an Engineer, Procure, Construct (EPC) delivery methodology implies that a single contractor (or joint venture) has the duty to complete the entire scope of a project (or a discrete subcomponent of a full project), while a Design-Bid-Build (DBB) delivery methodology implies that there are separate contractors, with one having the duty to design (engineer) the project and one having a duty to construct the project. There are a wide variety of project delivery methodologies, including:
  - Design-Bid-Build (DBB);
  - Engineer, Procure, Construct (EPC);
  - Design-Build (DB);
  - Multi-Prime (MP);
  - Construction Manager (CM);
  - Construction Manager at Risk (CMR); and
  - Various Hybrid Methodologies

[12] See for example: Nielsen, K.R., "Execution Risk Management in Design-Build Infrastructure Projects," *Proceeding of the Construction Institute Atlantic Coast Conference*, Tysons Corner, VA, May, 2004 and Nielsen, K.R., "Managing Risk on CM Projects," *Establishing Standards of Practice,* University of Wisconsin, Madison, May, 1984

- Contract approach on the other hand defines the documents specifically developed and negotiated terms and conditions which govern the execution of the scope of work identified by the parties. Contract approaches tend to be classified by the payment and schedule provisions drafted and not by the specific delivery methodology. For example, contract approaches include the following:
    - Fixed Price, Completion Date Certain;
    - Fixed Price, Milestone Target Schedule;
    - Firm Price, Completion Date Target;
    - Unit Price, Milestone Schedule;
    - Unit Price, Completion Date Certain;
    - Unit Price, To Project Schedule;
    - Time & Materials, To Project Schedule; and
    - Various other combinations.

One of the elements of a contract approach will be the identification of the delivery methodology. However there is in reality no such thing as a "standard" EPC contract approach as under that delivery methodology the price can be firm, can be fixed or can even be target and the schedule requirement can be date certain, milestone or progress based. Any contract approach may identify and include reference to any delivery methodology. It should also be understood that contract approaches are specifically driven by the owner's policies and standards and local, state and federal laws, statues and regulations. As a result, while there are a vast variety of "standard contract formats" globally (i.e., the FIDIC Red Book Contracts), there is no universally accepted contract

approach for the simple reason that a contract is a document negotiated between two (or more) parties.

All of those delivery methodologies, or combinations of those delivery methodologies, and all of those contract approaches, have been used within the power industry and no one of those delivery methodologies or contract approaches has been identified as the "best" method for construction of power generation facilities, and any of those methodologies (or combination of those methodologies) is an appropriate vehicle for the delivery of a major power project. Likewise all of those contracting approaches or combinations of those approaches have been used within the power industry and no one of those contract approaches has been identified as the "best" contract under which to execute a scope of work on a major power project. The goal is to formulate a reasonable and prudent approach based upon all information known or reasonably available to management at the time that the project delivery approach and contract methodology are developed.

The distinction between delivery methodology and contract approach is important because it is easy to confuse those two elements of a project. To assert that Iatan Unit 2 should have been executed under an EPC delivery system because it would reduce risk and eventual costs when compared to a multi-prime delivery system (Vantage at page 29, lines 8 – 12) is mixing the benefits expected from a delivery system with the realistic elements of a contract approach. **[redacted] ** The construction industry maxim - that the more risk an owner sheds the

greater the cost - has been proven repeatedly because a contractor bidding a fixed price for the total risk of the project cost is going to assure that it has not only covered the direct cost of that project, but has included in that fixed price a contingent amount to cover any and all potential impacts to that fixed price.[13] Even if the project is executed to perfection and none of that contingency is used, the owner, under those contract conditions must pay the contractor that contingent sum. It is overly simplistic to assert that any project delivery methodology or contract approach is more or less costly or has more or less risk to any of the parties involved in that project.

The selection of project delivery methodologies and the contract approaches is dependent upon a number of factors that must be taken into account during the development of the project plans, including:

- The specific project risk profile;
- Project size and complexity;
- Project cost, schedule and quality goals;
- Project ownership profile;
- Ownership risk tolerance;
- Investor risk tolerance;
- Local, state and federal laws and regulations;
- Industry conditions;

[13] "*A Contract Clause for Allocating Risks*", Dr. George F. Jergeas P.Eng. and Dr. Francis T. Hartman, P.Eng., American Association for the Advancement of Cost Engineering, 1996 AACE Transactions, D&RM1.1; "*Risk Sharing – Good Concept, Bad Name*", James G. Zack Jr., American Association for the Advancement of Cost Engineering, 1995 AACE Transactions, D&RM.6.1; "Coal-Fired Power Plant Construction Costs", Synapse Energy Economics, Inc., July 2008, David Schissel, Allison Smith and Rachel Wilson

- Market conditions;
- Financing structure;
- Geographic location;
- Labor conditions; and
- Various other factors that should be known to management at the time of developing the project delivery methodology and contracting approach.

In short, myriad separate yet interrelated factors generally dictate the project delivery methodology (or combination of methodologies) and contracting approach (or combination of contract approaches) which best align with those factors. During the early development of the Iatan Unit 2 Project, KCP&L followed a process which "defined" the crucial project factors which would be crucial to its selection of project delivery methodologies and contracting approaches. Those crucial factors were summarized in two documents produced by KCP&L, the Project Definition Report (PDR) initially prepared in April 2004 and the CEP, which placed the Iatan Unit 2 project within the context of the full KCP&L generation and supply plans for the near term. The PDR of April 2004, while fairly broad in nature, set the basic context within which the project would be further developed and defined and provided KCP&L a set of project factors from which early project management decisions could be examined and based.

Q: Are there any additional considerations on very large and complex projects?

A: Yes. Earlier in this testimony, Pegasus-Global said there is one additional factor which influences projects such as Iatan Unit 2; the fact that the Iatan Unit 2 Project is, by definition, what is considered to be a mega-project. A mega-project is generally defined as a construction project with a total execution cost of $1 Billion (US) or more, requiring

several years to execute from initial planning to final operations, and which involves complex technologies and/or physical conditions. As a mega-project there are certain risk elements which are considered to be of heightened importance in the examination and formulation of execution plans and strategies, for example: The distribution of cost risk may become problematic as few contracting firms can assume the cost risk of one, let along multiple, mega-projects simultaneously. Although theoretically an EPC delivery methodology shifts cost risk to the contractor, it is very unlikely that any single contractor will agree to accept the entire cost risk for a mega-project, resulting in an EPC contract with a target price or a series of price conditions which offer the contractor with protection from cost increases which are not within its control. Likewise, most contractors would find it extremely difficult to secure bonding on a project in which it had agreed to assume the risk of cost. The distribution of schedule risk may become problematic as the extended time period required to execute a mega-project would involve "predicting" the future of the market, the industry, the general local, regional and international economic conditions, the impacts to various critical equipment being manufactured off shore, and the like. For example, regional conditions in Japan may impact the delivery of critical pieces of engineered equipment, delaying a project schedule. The choice of a project delivery and contracting method is dependent upon the identification and examination of hundreds or even thousands of project specific factors, as that delivery method and contracting approach must be tailored to the project factors. Within the industry it is generally considered unreasonable to attempt to force fit any project, but in particular a mega-project, into a specific delivery methodology and contracting approach chosen in advance of having identified and examined all of the

critical project factors. In the end, the delivery methodology and contracting strategy must align with the project factors as the project factors usually cannot be altered simply to fit a particular project delivery methodology or a preferred contracting approach.

Q: What project delivery methodology and contract approach was selected for Iatan Unit 2?

A: Ultimately, KCP&L used a mixture of delivery methodologies and contract approaches for the execution of the Iatan Unit 2 Project:

- The primary piece of engineered equipment – the boiler - used an EPC delivery methodology, based on operational specifications utilizing a fixed price contracting approach. This project element comprised the single largest scope and contract for the project. Alstom was the contractor for this project scope of work.
- Another crucial piece of engineered equipment – the turbine generator – used a straight procurement delivery methodology for that equipment using a fixed price contract approach based on operational specifications for engineering and manufacture. Construction (installation) was not included in that contract, although the supplier, Toshiba, was obligated to provide direction and assistance during the installation of the turbine generator.
- Engineering was contracted to Burns & McDonnell following a time and materials contracting approach which is typical within the industry when the project involves design of a new facility predicated on "operational specifications" which are being supplied by the owner and the primary engineered equipment suppliers. In such instances, the engineer is responsible to execute both

original design (i.e. BOP) and the incorporation of supplied design into the total project design definition.

- The balance of plant scope of work was originally planned using a multi-prime delivery method with KCP&L acting as its own Construction Manager. Just after the initiation of site construction KCP&L modified its multi-prime delivery method by engaging Kiewit as a General Contractor responsible for the bulk of the BOP construction.

Pegasus-Global's examination found the KCP&L actions and decisions in the selection of project delivery methodologies and contracting approaches to have been based on a systematic process which enabled KCP&L to identify and examine project specific factors, which enabled it to develop a reasonable project definition. That project definition then enabled KCP&L, with the assistance of experts, to examine its project delivery options in order to select the options which most closely aligned with its project definitions, goals and objectives.

Q: What was the basis for your examination of KCP&L's choice of project delivery methodology and contract approach?

A: The selection of delivery method and contract approach has to align with the risk profile of the project to be executed. One of the crucial decisions for an owner is to select a project delivery method and contract approach which enables it to allocate project risks appropriately while maximizing the ability to meet the project goals and objectives. The goal is not for the owner to attempt to shed all risk to a contractor; first of all it is simply not possible, even under an EPC delivery methodology and a Fixed Price, Date Certain, Turn Key contract approach for an owner to shed all project risk. Second, the more risk

an owner sheds, the higher the contracting cost, as no contractor will knowingly accept a risk without assuring that the compensation to be received is as high or higher than the cumulative impact of those risks should they manifest on the project. A primary tenet of successful risk allocation is that a risk element should be allocated to the project party that is best able to manage and control the specific risk element in question.

To preliminarily judge whether KCP&L followed a management process that generally reflected the best industry practice to capture and appropriately allocate risk for the Iatan Unit 2 Project, Pegasus-Global employed a table which Pegasus-Global has used for over ten years as a reference guide. The table is based on an approach presented by two senior Bechtel Corporation officers at an American Society of Civil Engineers conference in 1997.[14] The table employs various general project criteria against which an owner would match its potential project. These criteria generally describe risk allocation conditions between project parties. The project delivery methodologies and contract approach types reflect basic options that an owner may use depending upon the conditions and circumstances it faces at the time and reflects generally used and accepted expectations regarding risk allocation. By matching the various criteria with risk allocation expectations for each project delivery method and contracting approach type (shown by "tick marks" in the various columns of **Table 1 – Project Execution Conditions and Risk Allocation Re: Iatan Unit 2 Alstom Contract** and **Table 2 – Project Execution Conditions and Risk Allocation Re: Iatan 2 Kiewit Contract in 2007**), it provides an indication of which project delivery method and contract matches the criteria. Over the years, as risk management practices and programs have evolved, Pegasus-Global has

adjusted the original table in order to reflect the latest industry thinking as to the best methods for allocation and management of specific risk elements. Pegasus-Global uses the table to perform a general check as to whether the owner's processes met the general expectation at the time based upon what the owner knew or reasonably should have known.

When conditions permit, a utility will prefer an EPC delivery method with fast track selection as the choice for a mega-project with a tight schedule, such as a schedule that is driven by the need for power, especially when the project execution extends over a period greater than three years. However, a prudent utility does not blindly select the EPC delivery method without a full and complete understanding of the current project conditions and an evaluation which may be best met using a different delivery method. Pegasus-Global examines the management process through which a delivery method and contract approach are selected to ascertain if management in fact selected a delivery method and contract approach which appropriately allocated risk that was also reflective of project conditions at the point in time that the decision was made.

To evaluate KCP&L's management decision making process and its actual decision for Iatan Unit 2, Pegasus-Global picked the Boiler Island contract with Alstom and the BOP contract with Kiewit for examination as to the reasonableness of KCP&L's project delivery methodology and contract approach. The "tick marked" general criteria for Project Delivery Method and Contracting Approach are generally indicative for various project conditions which are appropriate to consider during the selection process.

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[14] "*Choosing the Right Delivery System*," By Charles M. Spink, P.E., F.ASCE, Construction Congress V, Managing Engineered Construction in Expanding Global Markets, Proceedings of the Congress, 1997, American Society of Civil Engineers

Relative to Iatan Unit 2 Pegasus-Global asterisked KCP&L's choice at the time. On balance, by comparing the criteria and thus risks, Pegasus-Global found that KCP&L picked a reasonable risk allocation delivery method and contract approach for the chosen contracts at the time. Thus, KCP&L's decision was found to be prudent.

Q: Can you explain your review and findings concerning the Alstom delivery method and contract approach selected by KCP&L?

A: Yes. First Pegasus-Global examined the Iatan Unit 2 Project records to determine that KCP&L had developed a clear understanding of the current conditions within the power industry relative to the execution of new generating facilities. Pegasus-Global first noted that KCP&L had completed its examinations of the future need for power and had developed a consolidated plan for addressing that future need, one element of which was to construct a second coal fired unit at the Iatan power station. Next, Pegasus-Global noted that KCP&L had engaged consultants such as Schiff Hardin, Black & Veatch and Burns & McDonnell to provide it with the information and data it needed to both understand the current state of the power project industry and maneuver through those conditions successfully. Specific advice was received by KCP&L management as to the general progress steps through which a power project proceeds, including identification of critical equipment decisions, timing of those decisions, and the interdependence of actions and decisions. For example, the long lead times to manufacture and install critical engineered equipment has an impact on the critical path to completion of every power project. Pegasus-Global found that KCP&L used the information gained from its advisors to prioritize the order of its actions and decisions, and effectively used that information

during its deliberative processes prior to making project delivery method and contract approach decisions.

Specific to the boiler island project delivery and contract approach decisions, Pegasus-Global examined the project conditions for the period during which KCP&L made its delivery method and contract approach selections. In the latter half of 2005 and early into 2006, KCP&L was in the process of preparing to bid the boiler island, the most crucial engineered equipment in a coal fired power project. At that time the industry as a whole was in the midst of a construction boom which was quickly locking up what is known within the industry as the "manufacturing queue" for major engineered equipment such as boilers and turbine generators.[15] As the boiler is the project element which tends to drive the majority of project design, cost and schedule, and as the manufacture of the boiler components and construction of the boiler island collective take the longest time for any single power project element to perform, utilities usually move to secure that equipment early in the project. Pegasus-Global found that KCP&L was cognizant of the need to secure a boiler contractor as quickly as possible and in 2005 moved quickly to have a performance specification prepared which could be expeditiously let for bid and awarded.

Boiler manufacturers are technical specialists. There are only a handful of boiler manufacturers fully capable of manufacturing a supercritical pulverized coal boiler capable of producing steam at the quantity and quality necessary to generate 850 MW of energy. Utilities procure boiler island equipment using a performance specification; that is, the owner (through its engineer) develops the performance requirements for the boiler identifying such attributes as pressure, temperature, flow rates, cooling and recapture

characteristics, etc. In short the owner does not actually engineer or design the boiler equipment, those tasks are left to the manufacturer awarded the boiler equipment scope of work. As a result, engineering is always an element of the boiler manufacturer's scope of work. Likewise, because of the specialized nature of the boiler equipment and appurtenances, the boiler manufacturer will subcontract certain elements of that work to specific subcontractors and suppliers with whom it is familiar and almost always with whom it has worked for over an extended period of time. As a result there is always an element of procurement within the boiler manufacturer's scope of work. Finally, the boiler components must be assembled and installed within the boundaries of the boiler island, a task which is again very specialized and complex. Therefore, the manufacturer will either do the installation as part of its scope of work or will directly oversee and manage a specialist contractor engaged to execute that scope of work. Thus, to at least some degree the manufacturer's scope of work will include some element of construction.

From a generic level, the risk elements attached to the boiler island include the following:

- Failure of the boiler to meet the technical performance specification;
- Failure to meet the cost limit established for the boiler and/or its appurtenances;
- Failure to meet the manufacturing schedule for the boiler components or appurtenances;
- Failure to properly install/construct the boiler or appurtenances; and
- Failure to properly test and commission the boiler island.

[15] KCP&L Strategic Infrastructure Investments– Quarterly Status Update Third Quarter 2006 and KCC Docket No. 04-KCPE-1025-GIE, page 9; Synapse Energy Economics, Inc., July 2008, David Schissel, Allison Smith and Rachel Wilson

Ultimately, Pegasus-Global examined the primary risks attached to the boiler island against the delivery method and contract approach table discussed above, with the following results:

TABLE 1
PROJECT EXECUTION CONDITIONS AND RISK ALLOCATION
RE: IATAN UNIT 2 ALSTOM CONTRACT

Choosing the Preferred Project Delivery Methodology, Contracting Approach and Resultant Risk Allocation Expectations[16]

	Project Delivery Methodology		Contracting Approach			KCP&L Choice Re: Iatan Unit 2
	Design Bid Build	EPC	Fixed Price	Unit Price	Cost Reimbursable	
Owner Considerations and Requirements						
Cost Control is Major Consideration		✓	✓	✓		*
Owner to Control Contingency		✓		✓	✓	
Bid Competition Required	✓	✓	✓	✓		*
Maximum Owner Involvement		✓			✓	*
Minimum Owner Involvement	✓		✓			
Owner Has No Oversight Capabilities	✓		✓			
Single Source Responsibility		✓	✓	✓	✓	*
Contractor In Part Provides Project Funding		✓	✓			N/A
Project Scope and Parameters						
Clear Scope Definition	✓	✓	✓	✓		*

[16] Modified by the authors from "Choosing the Right Delivery System," by Charles M. Spink, P.E., F.ASCE, Construction Congress V, Managing Engineered Construction in Expanding Global Markets, Proceedings of the Congress, 1997, American Society of Civil Engineers, pages 663 – 671

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Choosing the Preferred Project Delivery Methodology, Contracting Approach and Resultant Risk Allocation Expectations[16]

	Project Delivery Methodology		Contracting Approach			KCP&L Choice Re: Iatan Unit 2
	Design Bid Build	EPC	Fixed Price	Unit Price	Cost Reimbursable	
Minimal Scope Definition	✓			✓	✓	
Scope/Complexity Defined, Quantities Uncertain	✓	✓	✓	✓		*
Minimal Scope Changes Expected	✓	✓	✓			*
Potential for Large Scope Changes		✓		✓	✓	
Tight Schedule		✓	✓	✓	✓	*
Volatile Project Environment		✓		✓	✓	*
Stable Project Environment	✓		✓			
Large Complex Project	✓	✓	✓	✓	✓	*
Primarily New Technology		✓		✓	✓	

As noted by the "tick marks" in **Table 1** above, both the Owner Considerations and Project Scope and Parameters significantly favor the use of an EPC delivery method (14 out of 18 total risk elements). Under the Contracting Approach both the Fixed Price and Unit Price contract approaches appeared as the preferred contract approaches (12 out of 14 total risk elements). According to **Table 1**, Pegasus-Global could confirm that KCP&L's selection process included an examination of those risk elements most crucial to the choice of delivery method and contract approach.

KCP&L ultimately selected an EPC delivery methodology and a Fixed Price contract approach as shown in the last column. Pegasus-Global concluded that KCP&L's process for selection of a delivery method and contracting approach for the boiler island scope of work was reasonable and prudent based on what was known or reasonably could have been known by KCP&L relative to industry and project conditions as of late 2005 and early 2006.

Q: Can you explain Pegasus-Global's review and findings concerning the Kiewit delivery method and contract approach selected by KCP&L?

A: Pegasus-Global followed exactly the same process in examining KCP&L's selection of delivery method and contract approach for the Kiewit contract that was used to examine the Alstom contract. In examining the industry and project conditions as of 2007, the most significant change to the project conditions between 2005/2006 and 2007 was that Kiewit, who previously had declined an invitation to bid on the BOP scope of work, contacted KCP&L with an offer to assume the responsibility for that scope of work. Up to that point in time KCP&L had proceeded with the actions necessary to implement its decision to execute the BOP scope of work under a multi-prime delivery methodology with itself serving as the construction manager. The decision to change delivery methodology for the BOP scope of work needed to be evaluated against the impact that change would have on the project's risk profile and, in particular, the reallocation of those risks. Pegasus-Global found that KCP&L and its advisors carefully examined the impact to the project's risk profile of changing the delivery method and ultimately determined that although the core risk elements would not change, the allocation of those risk elements could be improved by shifting certain risks to Kiewit, a party that at that

time was better able to manage and control those risk elements which existed within the BOP scope of work.

Pegasus-Global again used the delivery method and contract approach table to examine KCP&L's decision making process relative to the selection of delivery method and contract approach, as shown in **Table 2** below:

TABLE 2
PROJECT EXECUTION CONDITIONS AND RISK ALLOCATION
RE: IATAN UNIT 2 KIEWIT CONTRACT IN 2007

Choosing the Preferred Project Delivery Methodology, Contracting Approach and Resultant Risk Allocation Expectations

	Project Delivery Methodology		Contracting Approach			KCP&L Choice: Re: Iatan Unit 2
	Design Bid Build	EPC	Fixed Price	Unit Price	Cost Reimbursable	
Owner Considerations and Requirements						
Cost Control is Major Consideration		✓	✓	✓		*
Owner to Control Contingency		✓		✓	✓	*
Bid Competition Required	✓	✓	✓	✓		
Maximum Owner Involvement		✓			✓	*
Minimum Owner Involvement	✓		✓			
Owner Has No Oversight Capabilities	✓		✓			
Single Source Responsibility		✓	✓	✓	✓	*
Contractor In Part Provides Project Funding		✓	✓			N/A
Project Scope and Parameters						
Clear Scope Definition	✓	✓	✓	✓		*
Minimal Scope Definition	✓			✓	✓	

TABLE 2
PROJECT EXECUTION CONDITIONS AND RISK ALLOCATION
RE: IATAN UNIT 2 KIEWIT CONTRACT IN 2007

Choosing the Preferred Project Delivery Methodology, Contracting Approach and Resultant Risk Allocation Expectations

	Project Delivery Methodology		Contracting Approach			KCP&L Choice: Re: Iatan Unit 2
	Design Bid Build	EPC	Fixed Price	Unit Price	Cost Reimbursable	
Scope/Complexity Defined, Quantities Uncertain	✓	✓	✓	✓		*
Minimal Scope Changes Expected	✓	✓	✓			
Potential for Large Scope Changes		✓		✓	✓	
Tight Schedule		✓	✓	✓	✓	*
Volatile Project Environment		✓		✓	✓	*
Stable Project Environment	✓		✓			
Large Complex Project	✓	✓	✓	✓	✓	*
Primarily New Technology		✓		✓	✓	

As noted by the "tick marks" in **Table 2** above, both the Owner Considerations and Project Scope and Parameters significantly favor the use of an EPC delivery method (14 out of 18 total risk elements). Under the Contracting Approach both the Fixed Price and Unit Price contract approaches appeared as the preferred contract approaches (12 out of 14 total risk elements). According to the chart presented directly above Pegasus-Global could confirm that KCP&L's selection process included an examination of those risk elements most crucial to the choice of delivery method and contract approach.

As engineering and procurement were too far advanced to be fully re-allocated to Kiewit for the BOP scope of work, KCP&L ultimately selected a EPC delivery methodology under which Kiewit would assume full responsibility for the actual construction of the BOP scope of work, while providing input into engineering (i.e. construability reviews) and taking responsibility (and risk) of certain material and specialist subcontract procurement. Because Kiewit was not involved in the initial BOP planning, engineering and procurement activities it was understandably unwilling to accept a Fixed Price contract approach; therefore KCP&L and Kiewit negotiated a Unit Price contract. That compromise contract approach was reasonable both from the perspective of the **Table 2** results shown above and in consideration of the status of the project at the point in time when the decision was made to modify the delivery method for the BOP scope of work. Pegasus-Global concluded that KCP&L's process for selection of a delivery method and contracting approach for the BOP scope of work was reasonable and prudent based on what was known or reasonably could have been known by KCP&L relative to industry and project conditions as of 2007.

Q: Did Pegasus-Global examine Vantage's review and conclusions relative to KCP&L's selection of the project delivery methodology in 2005?

A: Yes we did.

Q: **[redacted]

[redacted]**

A: **[redacted]

- [redacted]

- [redacted]

- [redacted]**

Q: What is the basis of Pegasus-Global's disagreement with Vantage's assertion that KCP&L should have been seeking an EPC contractor in January 2005?

A: First, KCP&L was facing a project risk profile which as of January 2005 still included significant make or break risk elements, each of which a prudent owner would attempt to resolve or mitigate prior to entering into any significant expenditure on a project such as Iatan Unit 2. For example, the acceptance and approval of KCP&L's CEP by the Commissions was a make or break risk element from the standpoint of securing investor/co-owner participation in the Iatan Unit 2 Project. The approval of the CEP was critical to assure investors and potential co-owners of the viability of the Iatan Unit 2 mega-project given that even at that early stage of development (January 2005) the mega-project was expected to cost well in excess of $1 Billion (US) and take five-plus years to execute. Without a solid indication from the Commissions that the CEP – including the Iatan Unit 2 Project - was "acceptable" for future inclusion in the rate base, the investment community and possible co-owner pool could have shifted to other power

investments which reflected a more secure recovery future. Had KCP&L incurred the significant cost involved in preparing a project for an EPC bid and award only to have the Commissions reject the CEP, one could argue that initiating that project and incurring those costs without having secured that acceptance and approval was an imprudent management decision.

Second, as of January 2005 the project definition was not at a detailed enough level to select the primary engineered equipment (boiler and turbine generator) from which would flow operating specifications and, ultimately, the bases for basic and detailed project engineering. Searching and selecting an EPC contractor as of January 2005 would have meant entering the contractor market with a "blanked" Request for Proposal; that is soliciting response proposals from EPC qualified contractors with the majority of the operating specifications and basic designs left "blank" or marked "to be determined." In a blanked solicitation, the experienced EPC contractor will either (1) refuse to bid, or (2) will caveat the entire bid response to avoid accepting any undefined scope risk attached to cost or schedule. For example, an EPC contractor may submit a proposal founded on the basis of a two stage response which sets aside setting a firm price and completion date certain until sufficient engineering has been completed to enable the EPC contractor to set a firm or fixed price and complete a detailed execution schedule. There would be no "risk advantage" in soliciting, or awarding an EPC contract on such a response for the project, as contractors would be unwilling to accept cost or schedule risk on a blanked solicitation. This condition is actually exemplified by the presentation by Black & Veatch to KCP&L on November 8, 2005.[17] Although Black & Veatch preferred the EPC delivery

[17] Black & Veatch November 8, 2005 Presentation to KCP&L

method and contract approach, it refused to bid the Iatan Unit 2 project on a fixed price based on the level of project definition in place as of November 2005, offering instead to set a target price approximately one year after the initiation of full project engineering. In addition, Black & Vetch was not confident that the project could be completed by the June 2010 date set using an EPC delivery methodology (Giles Direct Testimony, Page 16, Line 19). This refusal by Black & Veatch occurred eleven months after January 2005, the point at which Vantage asserts that KCP&L should have been soliciting and securing an EPC contractor for the project.

Finally, conditions in the EPC contractor market did not favor KCP&L securing a contractor willing to accept any significant amount of cost or schedule risk. This is for a number of reasons, including:

- There are a limited number of contractors that can successfully execute a mega-project as an EPC contractor. Such contractors must have substantial engineering and construction forces in-house; must be able to secure financing, insurance and bonding on the basis of that internal capacity; have a successful record of executing mega-projects; and must be able to manage their client so as to maintain control over the project, limiting the owner's direct involvement in that project without securing additional cost and/or schedule advantage.
- KCP&L's history with, and involvement in, the EPC contractor market had been minimal, for approximately two decades. In fact, KCP&L had limited involvement in, or experience with, project construction for almost 20 years previous to the CEP. EPC contractors tend to severely limit their exposure to cost and schedule risk when working for an owner for the first time under an EPC

contracting basis. It is doubtful that KCP&L could have generated any fixed price, fixed completion "date certain" responses from EPC contractors with which it had developed no previous track record.

- The EPC contractor market was saturated in 2005 and 2006, particularly in the power industry.[18] As noted in its presentation to KCP&L in November 8, 2005, Black & Veatch believed that finding a qualified EPC contractor for either the total plant or even the BOP would be a constraint that would have to be overcome by KCP&L[19]

Based on Pegasus-Global's contextual examination of normal contracting practices within the industry at the time and the actual status of the project definition as it existed in 2005, **[redacted]** Rather, Pegasus-Global found that KCP&L followed a systematic process which worked to match the project, industry and market conditions to project delivery methodologies and contract approaches which gave it the best opportunity to successfully meet this project's goals and objectives.

Q: **[redacted]**

[18] Coal-Fired Power Plant Construction Costs, July 2008, Synapse Energy Economics, Inc., page 4
[19] Black & Veatch November 8, 2005 Presentation to KCP&L

A: Yes. The purpose of the original PDR in 2004 was to support the following activities:

- Development of adequate detail to support permitting requirements;
- Evaluation of the economics of the major technology components; and
- Integration of the project performance and financial data into the KCP&L Integrated Resource Plan.[20]

In order to accomplish the purpose of the 2004 PDR, Burns & McDonnell had to establish certain assumptions upon which to base the Iatan Unit 2 Project study. Among those assumptions was that the project delivery methodology employed for the project would be a mix of EPC (Boiler Island) and multi-prime (BOP).[21] That assumption, to use a mix of delivery methodologies, was reasonable as it provided Burns & McDonnell with the ability to execute the study using the two most common methodologies used within the power industry, without limiting the study to a single methodology.

[redacted]

- The PDR was a study, intended to be used as a basis from which the viability of project could be examined from a number of perspectives and, to some extent, as a preliminary project planning guide from which the critical project elements could be identified for future detailed planning. Such documents require that the author make assumptions concerning a wide range of issues and elements, knowing that those assumptions must be as broad and flexible as possible while at

[20] Iatan Unit 2 Project Definition Report for KCP&L, August 2004, rev. 0, page 1-1
[21] Iatan Unit 2 Project Definition Report for KCP&L, August 2004, rev. 0, page 1-3

the same time adding structure to the study. Assumptions made in such studies are not, however, fixed and final management decisions; they are simply the starting point for review and examination of decisions which will eventually have to be made by management as the project detail grows and matures.

- **[redacted]** Project Management is a dynamic process by which examination of data and decisions is never completely finished until the project itself is finished and in service. As information and data is accumulated project management re-visits all of its decisions and actions in a continuous process. For example, the 2004 PDR was just one early stage in the development of information and data to be used in the examination and decision making process and almost from the minute the 2004 PDR was released the project conditions were evolving. Mega-project managers never cease their examination of a project's risk profile, as that profile evolves almost continuously during the project. Likewise, mega-project managers will actively review and evaluate any and all opportunities to mitigate risk elements which have the potential to impact the achievement of project goals and objectives. Thus mega-project management must be willing and capable of adjusting plans and decisions made earlier in a project if an opportunity arises which presents a possibility of reducing the projects total risk profile. However, it must be understood that project risk can never be totally eliminated nor can the full risk of any project be totally shifted to a contracting party, regardless of the delivery methodologies or contract approaches employed.

The dynamic nature of management decision making is exemplified in this instance by the fact that KCP&L sought advice relative to the project delivery methodology from at least three expert sources: Schiff Hardin, Black & Veatch and Burns & McDonnell. Throughout 2005 the issue of project delivery methodology was one of the primary issues under examination.

In the fall of 2005 the decision as to delivery methodology was still under discussion and examination as both Black & Veatch and Burns & McDonnell were requested by KCP&L to prepare and submit proposals which addressed both of the EPC and the multi-prime delivery methodologies. Black & Veatch's proposal, which favored the EPC approach, was conditioned in that it would assume neither the risk of a fixed price or a completion date certain under an EPC delivery methodology and contracting approach (Giles Direct Testimony, Page 16, Line 19). Two of the primary reasons to utilize an EPC delivery methodology and contracting approach are to (1) shift cost and schedule risk to the EPC contractor and (2) to gain cost and schedule certainty for the ownership group and rate payers. Black & Veatch's EPC proposal provided neither of those two goals.

Burns & McDonnell submitted a proposal with two delivery options; a hybrid EPC delivery methodology and a multi-prime delivery methodology. In essence, Burns & McDonnell proposed putting certain work under an EPC structure (i.e. the primary engineered equipment) while executing the BOP under a multi-prime structure. The advantage to this methodology was that it shifted cost and schedule risk for a significant portion of the work – the Boiler Island – to a single contract for a fixed price and a completion date certain. This was possible because the "boundary limits" of that work could be appropriately defined and the scope could be founded on an operational

specification rather than completed engineering and detailed design. However, the work which could not be engineered in detail – the BOP scope – and therefore was unlikely to generate fixed price, date certain bids, was to be executed by multiple prime contractors as the detailed design and engineering was completed.

Given that the Black & Veatch proposal actually gained none of the risk reduction generally sought by an owner and the fact that there was no cost or schedule certainty provided within that proposal, KCP&L's first decision was to separate the Boiler Island from the BOP, immediately initiating action to enable solicitation of an EPC supplier/installer for that engineered equipment.

However, KCP&L did not finalize a decision relative to the multi-prime delivery methodology for the BOP work at that same time. In early 2006 KCP&L's Steve Jones was surveying contractors in an effort to gauge whether or not there was any interest among the contracting community in bidding the BOP work under an EPC delivery methodology and contracting approach[22]. Among those firms contacted were the following:

- Kiewit;
- Washington Group;
- Fluor Daniels;
- Black & McDonald Power;
- EMCOR;
- PCL; and
- Shaw.

In a memo dated May 24, 2006 Steve Jones summarized his notes on one of those interviews, noting that the Washington Group had politely declined any interest at this time.[23] Similar answers were received from the other contractors that were contacted and interviewed by telephone. (Jones direct testimony, page 14, line 18 – page 16, line 8)

During the spring and summer of 2006 KCP&L continued to review project delivery options, finding that demand for engineering and construction services had risen from what had existed in early 2004, forcing them to include a variety of options in their review. Strategically, KCP&L had a range of delivery method options, ranging from EPC (single source responsibility for engineering and construction) to separate contracts for engineering and various contracts for vendors and contractors (typically called a multi-contract approach). In analyzing this overall strategy KCP&L management determined that the recently approved CEP program (by the Kansas and Missouri Commissions in August 2005) would require enhanced project management personnel and staff. In addition, and noted at page 35 of my Iatan Unit1 testimony (Nielsen Unit 1 testimony, page 35, lines 12 – 22):

"** [redacted] ** These results indicate that these companies were making decisions based on their own particular circumstances, including their evaluation of competitive options, and that there is no single "prudent" choice for project construction during this time period."[24]

[22] E-mail string, Steve Jones to John Grimwade, et al, May 15, 2006 and Robert Reymond to Steve Jones, et al, May 17, 2006

[23] Memo, Steve Jones to Terry Murphy, et al, May 24, 2006 (date on memo incorrect)

[24] Burns & McDonnell survey of coal plants 090207

** [redacted] ** Pegasus-Global found that KCP&L did not discard any delivery option for the BOP scope of work until mid-2006, at which time it committed to a multi-prime delivery methodology.

Q: ** [redacted] **

A: First, Pegasus-Global knows of no industry study which supports the contention that an EPC delivery methodology reduces costs when compared against a multi-prime delivery methodology. Vantage provided no documented support for that assertion, and in fact that statement conflicts with the combined personal experience of the Pegasus-Global team and with what Pegasus-Global believes is the conventional wisdom in the construction industry. Second, while the EPC delivery methodology is primarily known within the industry as a way to shift cost and schedule risk to a contractor, that is only true if the contractor agrees to accept that risk under the EPC contract. As discussed above, attempts by KCP&L to find a contractor willing to take on the cost or schedule risk of the Iatan Unit 2 Project under an EPC contracting approach were unsuccessful. An EPC contract approach which leaves the cost unfixed and the scheduled completion date floating until sometime in the future has not shifted any of the cost or schedule risk from the owner.

Q: What in summary are Pegasus-Global's findings relative to KCP&L's selection of the project delivery methodology during the period from 2005 through 2006?

A: Pegasus-Global found that KCP&L not only solicited expert advice but also took this advice into account in evaluating project delivery options. Further, KCP&L continued,

with the assistance of those experts and their own information sources, to explore all of its project delivery options up until the point in time when a final decision had to be made in mid-2006. KCP&L concluded that its project conditions, goals and objectives could be achieved within the approved CEP program schedule by engaging in a combination of EPC and multi-prime delivery methods for Iatan Unit 2. KCP&L's decision is consistent with Pegasus-Global's experience on mega-projects in all industry sectors for over four decades.

KCP&L further recognized that such a strategy necessitated enhancing their project management staff and organization to assume the owner's role during the execution of this strategy. KCP&L acted appropriately at initiation of the project and the CEP program and established appropriate cost and schedule metrics for measuring their performance and the success of initial program objectives. These KCP&L decisions, and the decision making processes KCP&L followed, exhibited good management and fell within a zone of reasonableness. Pegasus-Global concludes these decisions and the decision making processes were prudent.

Q: Pegasus-Global described the initial decisions regarding KCP&L. Did KCP&L evolve and alter this Delivery Methodology and Contract Approach during Iatan Unit 2 Execution?

A: Yes. As I noted earlier, all construction projects are executed within a dynamic environment, confronted with myriad factors, events and issues, which arise during their execution. Mega-projects such as Iatan Unit 2 are confronted with an even greater range of issues which require adjustments to the project execution plans. In evaluating prudence one of the elements that must be examined is how management reacted to changes in the

project environment as the project moves through its execution cycle. Again, prudence is in part judged by the decisions and actions taken by management within the context of what was known or should have been known to management at a specific point in time. As the project environment evolves, management decisions and actions should also evolve to meet those changing conditions.

The Iatan Unit 2 Project was evolving throughout its life cycle; however the speed of that evolution was occurring at a very quick pace in the period from late 2005 through 2007. Each decision by KCP&L during that period added to and, to varying degrees altered, the project environment within which management was operating. The most critical decisions within the project environment involved early engineering to establish the operating specifications for the primary engineered equipment, soliciting proposals for that equipment and awarding that equipment. As described earlier, during 2006 the turbine generator and boiler island engineered equipment were specified, solicited and awarded.[25] Those actions set the parameters of the plant, and to a certain extent began to focus the project execution environment. For example, the boiler island was awarded to Alstom on an EPC delivery and fixed price, date certain contract basis.[26] That action set certain elements of the project environment which now had to be factored into all subsequent decisions and actions by KCP&L management. In part, KCP&L's management structure, staffing and execution plans had to adjust to that element of the project's environment in order to insure that the decisions made and actions taken going forward with the project aligned with that change in the environment.

[25] KCP&L Strategic Infrastructure Investment Status Report First Quarter 2006, pages 27 & 28, April 28, 2006
[26] KCP&L Strategic Infrastructure Investment Status Report Second Quarter 2006, page 7, July 31, 2006, and KCP&L Strategic Infrastructure Investments – Quarterly Status Update, Third Quarter 2006, KCC Docket No. 04-KCPE-1025-GIE, page 34

As noted above, in 2005 and 2006 KCP&L's experts, and its own surveys of major contractors, found no interest in bidding the full project or even the BOP scope of work on an EPC basis, with a date certain completion or a fixed price. One of the reasonable options moving through 2006 was for KCP&L to execute the BOP under a multi-prime delivery structure for that scope of work acting as its own construction and project manager.

In the midst of that environment a new factor was introduced when, in December 2006, Kiewit approached KCP&L with an offer to assume responsibility for the BOP scope of work. According to Kiewit, one of its projects had been terminated, which freed an experienced management team and construction force for reassignment to another project. As noted earlier in this testimony, Kiewit had been approached by KCP&L in the spring of 2006 to determine any interest in the BOP scope of work but Kiewit had declined due in part to the fact that its forces were fully committed at that time. When this condition changed it was not at all unreasonable for Kiewit to contact KCP&L in an attempt to secure that work for its now unassigned management and construction forces.[27]

Q: What did Pegasus-Global find regarding KCP&L examining the possibility of changing its multi-prime delivery method to the BOP contracting methodology in early 2007?

A: The unsolicited proposal from Kiewit gave KCP&L an opportunity to reexamine its initial plans from a perspective which did not exist when the original decision was made to execute the BOP using multi-prime contractors. First, market conditions had evolved

[27] Status Report on Comprehensive Energy Plan Projects, Schiff Hardin, page 3, January 10, 2007

such that a very experienced contractor capable of executing the BOP scope of work was readily available. Second, in late 2006 the Iatan Unit 2 Project was poised to enter the construction phase of the project. Detailed engineering was being released for bid/construction, initial construction civil work had been bid and awarded and the procurement of the multi-prime contracts was scoped and was being prepared for solicitation. At this stage KCP&L had expanded its internal staff at the project management level; had drafted the primary contract administration policies, procedures, and processes; had identified and in some cases installed management and control systems; and, adopted a project control line item budget for the Iatan Unit 2 Project.[28] The next steps for KCP&L would be to recruit and hire its construction "line and support" staff; solicit and procure the prime specialty contractors; install (activate) the project-specific management and control systems; and, initiate Contract Administrative actions. Up to this point KCP&L was able to utilize staff from both Burns & McDonnell and Schiff Hardin to assist it in those tasks it had undertaken relative to cost estimating, procurement, permitting and very early construction (demolition and early site preparation), relying on existing project-control processes. From this point onward, KCP&L would have to staff a significant number of construction specialty positions, and directly manage, control and coordinate multiple vendors, suppliers and contractors engaged to execute the construction of the Project.

Kiewit's unsolicited proposal provided an opportunity to re-examine the BOP delivery methodology before KCP&L had to fully and finally commit to the multi-prime delivery methodology towards which it had been working. Having gained a more detailed

[28] KCP&L Strategic Infrastructure Investment Status Report, Fourth Quarter 2006, pages 6 – 10 and Section 6, February 15, 2007

knowledge of the level of effort (staff and systems) involved in executing the multi-prime execution strategy through its experience to date, having set the final control budget, and after a review of the risks which accompany acting as its own CM, KCP&L in addition had an obligation to the Joint Owners to re-examine the delivery methodology. **[redacted]**[29]

The process of holding a competitive bid for other possible General Contractors would have had a significant impact on the project execution schedule. The process by which that competitive bid would have been prepared and executed would, in Pegasus-Global's estimation, have taken no less than four months and more likely six months from preparation of the bid specification and package to final award. Undertaking a competitive bid would not simply affect the construction schedule, the procurement and engineering schedules would also be impacted as planned procurement packages would be delayed pending the selection of the GC and detailed design personnel would be distracted to assist in the preparation of what would be an extensively detailed GC scope of work package. In effect, the only practical choices were:

- Reject the Kiewit proposal and continue with the original multi-prime execution methodology;
- Accept the Kiewit proposal and transition from the multi-prime methodology to a GC methodology.

[29] Schiff Hardin Report, January 10, 2007, page 17

As such a significant decision could not (and should not) be made without extensive examination of the ramifications of that decision, KCP&L moved to continue its effort towards full implementation of the multi-prime methodology while fully exploring the possibility of transitioning to a GC methodology prior to the initiation of full construction.

KCP&L did not make the decision to change its execution methodology upon receipt of the Kiewit proposal; that final decision was made months after receipt of the Kiewit proposal and without KCP&L stopping any of the preparations it was then undertaking to execute the multi-prime methodology.

Q: How did the decision to change the execution methodology evolve into award of the BOP Scope of Work to Kiewit?

A: Pegasus-Global found that having determined that it would be unreasonable to simply reject the Kiewit proposal without conducting a thorough examination of the possible benefits which might be gained in changing the project delivery methodology for the BOP, KCP&L adopted a strategy whereby it could take the time necessary to make a fully informed decision without having to make any immediate decision to accept or reject the Kiewit proposal. **[redacted]**

[30] Schiff Hardin Report, February 28, 2007, page 4

Having made the decision not to simply award the BOP scope of work to Kiewit without having completed a detailed analysis of the pros and cons of that decision meant that KCP&L had to find a means by which it could both gain time to conduct that analysis without halting progress on the project while keeping the Kiewit option open. In a fast-track project it is normal to update project estimates as the amount of project detailed engineering increases. As the project was moving towards the procurement of the prime contractors and the start of major construction, KCP&L would be expected to update the control budget estimate frozen in December 2006 based on those more detailed designs and on the most recent market condition in the industry. It did so in the summer of 2007.

One of the tasks identified within the Kiewit proposal was the preparation of a detail construction cost estimate. **[redacted]**

By February 16, 2007 Kiewit had submitted the BOP construction estimate proposal and the Memorandum of Understanding (MOU) was executed to enable Kiewit to execute that limited scope of work. The Kiewit BOP construction estimate was completed by mid-April 2007.

During the period from January 2007 through April 2007, KCP&L did not suspend or stop any work which it had planned to initiate or execute under the original multi-prime execution methodology. KCP&L continued to prepare and release bid packages for equipment, materials and BOP construction work and continued to recruit to fill line staff positions which were needed to perform both project management and contract administration functions for those procurement awards made during that period. Work

which was underway on site was directly managed and controlled by KCP&L during that period of time. During that period KCP&L continued to examine the pros and cons of sole sourcing the BOP GC scope of work to Kiewit.

After having completed its due diligence examination and having received the Kiewit estimate, KCP&L began focused negotiations with Kiewit for the award of the BOP scope of work. On May 17, 2007 Kiewit submitted a revised cost proposal for the BOP scope of work which in effect would place Kiewit in control of the majority of the BOP work (thereby shifting a significant portion of the execution risk from KCP&L to Kiewit). **[redacted][31]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]**

Q: Did Kiewit's unsolicited proposal have any impact on the work then underway on the Iatan Unit 2 Project?

A: Pegasus-Global found that KCP&L did not stop working on the BOP scope of work at any point between the receipt of the Kiewit proposal in May 2007 and the execution of the BOP contract in November of 2007; it continued to advance its plans to work within the environment as it stood at that point in time. However, the offer by Kiewit had the potential to alter that project environment significantly by bringing into the project a level of experience and expertise that was proving to be difficult to recruit into the KCP&L

[31] Schiff Hardin Report, May 23, 2007, pages 1-3

construction management structure. Because of that, KCP&L decided in early 2007 to engage Kiewit on a LNTP to fill an immediate need in the completion of a quantity and cost estimate of the BOP scope of work. Kiewit's retention enabled KCP&L to immediately gain expert assistance in that effort, also providing KCP&L with an opportunity to observe Kiewit's expertise and abilities prior to making any final decision relative to the BOP scope of work.

By mid-2007 KCP&L had determined that engaging Kiewit would enable it to address two of its primary risk elements with the current project environment:

- The difficulty in recruiting and securing experienced construction management staff to direct the BOP scope of work;[32] and,
- The trade labor market was growing increasingly tight as the construction industry in general, and the power construction industry in particular, was over heated.[33]

Kiewit essentially offered a way in which the first risk element, putting an experienced construction management group in place, could be met immediately, with its own forces. Kiewit also provided a vehicle for addressing the second element, adequate trade labor, by both providing its own internal trade forces and through engagement of preferred subcontractors and union labor agreements. As I observed during my Iatan 1 testimony at page 37 (Nielsen Unit 1 testimony, page 37 lines 12-23):

"**[redacted]

[32]Schiff Hardin Report, August 7, 2006, page 3, "Coal-Fired Power Plant Construction Costs" report by Synapse Energy Economics, Inc., July 2008.
[33] Schumacher Report, Area Labor Study for KCP&L Iatan Unit 2 Project, February 13, 2006, page 1

[redacted]**"

Because KCP&L had initiated actions on the BOP scope of work prior to the Kiewit proposal and had continued to advance that work during the period from receipt of that proposal through May 23, 2007 the transition of that scope of work to Kiewit had to be done in a carefully controlled and systematic fashion, and the ultimate contract provisions had to be carefully crafted and negotiated to insure that both parties were fully aware of and accepting of the contract terms and conditions.

To ensure that work on the BOP did not stop and was not delayed during the contract negotiation period, KCP&L issued a LNTP with the BOP scope of work to Kiewit on May 23, 2007. That LNTP identified the key work efforts to be undertaken by Kiewit during the transition, as gradually KCP&L moved out of its construction manager role and Kiewit moved into its GC role. Included in the LNTP:

- Consult and advise KCP&L and Burns & McDonnell relative to the design and installation of foundations for the turbine pedestal. This work had been let and was underway prior to May 23, 2007 and by consulting and advising relative to placement of these foundations Kiewit could bring its experience and expertise to bear without assuming complete risk for the execution of the installation prior to having a formal contract in place.
- Perform constructability reviews of the Burns & McDonnell designs and construction documents, including preliminary drawings and technical

specifications. This work was in process and this again enabled Kiewit to bring its experience and expertise to bear before final decisions were made by KCP&L relative to designs and specifications issued for bid or construction prior to having a formal contract in place. This had the additional benefit of enabling Kiewit to quickly assimilate the information it needed to understand the project at the detail level, which then enabled it to refine its own execution plans and staffing matrix.

- Begin development of the BOP schedule, including start-up. This was a significant advantage in having Kiewit, an experienced power plant constructor, as the GC for the BOP scope of work. Rather than further expanding its scheduling and schedule control group staffing, KCP&L could now shift that work scope to Kiewit. As the schedule would comprise a part of the contract agreement, this work by Kiewit served both the needs of the project prior to the execution of the contract and ultimately assisted in formulating the schedule requirements to be contained in the contract.
- Development of mobilization and execution plans; including site services and safety, and initial mobilization. This is normally a task which involves a considerable number of experienced line staff, which Kiewit had immediately at hand. By turning these mobilization tasks over to Kiewit KCP&L received immediate benefit from that established cadre of experienced line staff.
- Work with KCP&L to coordinate procurement of materials and services required for BOP work. On a fast-track project the ability to procure materials and support services in a timely and coordinated fashion is a key to maintaining schedule and labor productivity. It is critical that the necessary materials and services are in

place to support each phase of construction at the exact point in time when each phase of construction is ready to commence. Kiewit's experience base as a GC would enable KCP&L to refine its procurement coordination and schedule, while at the same time enabling Kiewit to match that procurement flow to the work plans that it was developing for execution of the BOP scope of work.

- Assist owner in the development and evaluation of the site logistics plan. In short, this provided Kiewit the opportunity to develop and install its own logistics flow plans, which, by necessity, had to align with Kiewit's execution plan.

All of the work indentified within the LNTP was aimed at (1) taking advantage of Kiewit's qualified and experienced staff during the process building to full BOP construction and (2) enabling Kiewit to influence the primary management and control processes to meet its preliminary execution plans. This was a sound method by which to begin the immediate transition of the BOP execution methodology from multi-prime to GC without awaiting the execution of what would be a complex contract agreement between KCP&L and Kiewit.

Ultimately Kiewit provided an opportunity for KCP&L to modify the project environment in a manner which addressed KCP&L's risk concerns, addressed the concerns raised by the audit cited above, and which also enhanced the probability of the project achieving its cost, schedule and quality goals. Thus, the process by which KCP&L's examined its opportunity to modify its project delivery methodology and contracting approach for the BOP scope of work was reasonable and the ultimate decision to amend the BOP project delivery methodology and contract approach was prudent.

Q: Was the decision to change the BOP execution methodology from Multi Prime Contractor to a General Contractor prudent?

A: Pegasus-Global concluded, for the reasons stated above, that the decision by KCP&L to change the BOP execution methodology from multi-prime to GC was reasonable given the status of the project at the time, the information as to risks and market conditions known by KCP&L at the time and the ability to make the change in delivery methodology at this point in time without impacting the overall project budget or schedule, and thus concluded that this decision was prudent.

Q: Did Pegasus-Global reach a conclusion relative to the prudence of KCP&L's decision to engage Kiewit for the BOP scope of work?

A: Yes. The changes in project strategy structure and organization and the constant follow up that Pegasus-Global observed during the 2006 – 2007 time period is evidence of proactive management attention and action to changes in the project environment. Decisions by KCP&L were timely and based upon timely information. In a dynamic project environment new decisions seldom can be implemented immediately, but the project documents show steady improvement and further refinement of its project and construction management by KCP&L as more information was received. One of the decisions that stands out is the decision to use Kiewit under a LNTP while the parties took the time necessary to appropriately establish definitions and scope to enable a contract. Pegasus-Global finds the evolution of the Iatan Unit 2 management and contract approach and the decision making process reflected appropriate management practices that fell within a zone of reasonableness. Pegasus-Global concludes these decisions and decision making processes were prudent.

Q: Was the decision to sole source the BOP scope of work to Kiewit prudent?

A: Pegasus-Global concluded that KCP&L's actions in response to the Kiewit proposal were reasonable and that it exercised sound reasoning and judgment in arriving at its decision to award this scope of work to Kiewit without going through a competitive procurement process. Further, KCP&L's actions and decisions in transitioning the work to Kiewit under a LNTP while giving it time to thoroughly negotiate the terms and conditions of that GC BOP contract agreement were reasonable, prudent, and served the best interests of the Iatan Unit 2 Project.

Q: Has Pegasus-Global reviewed Vantage's testimony relative to the decision to engage Kiewit?

A: **[redacted]

[redacted]**

Q: Would you expand on Pegasus-Global's contention that Vantage's facts are wrong?

A: Yes. In Pegasus-Global's examination of the decision to engage Kiewit Pegasus-Global found the following:

- Pegasus-Global saw nothing in the project record which supports Vantage's assertion that KCP&L was "late in recognizing" any inability to effectively manage a multi-prime project. While there was recognition early on by KCP&L that securing the staffing necessary to manage the construction of the project would be difficult, throughout 2005 and well into 2006, KCP&L was unsuccessful in gaining any interest within the contracting industry in taking on the BOP scope of work at that point in time under any delivery methodology or contract structure, despite repeated attempts to garner that interest. Therefore, KCP&L initiated immediate actions to develop its own construction management staff with the sole purpose being to gain the ability to effectively manage a multi-prime project. By the early third quarter of 2006, prior to the initiation of any significant Iatan Unit 2 construction (in fact, KCP&L was merely doing site work preparation then) on site, KCP&L had filled the majority of its critical senior management positions and was actively recruiting for the next staff tier positions.

- **[redacted]** A contract is a tool used to formalize the expectations of each of the parties to that contract; it does not represent an end in and of itself or signify the starting point of work by either of those parties. In short, KCP&L did not stop work on the execution of the BOP scope simply because it was negotiating a formal contract agreement with Kiewit. Not only does the record show that the construction work which had been initiated in the fourth quarter of 2006 under KCP&L management forces (primarily foundations) continued as planned, it reflects that KCP&L continued to expand and strengthen its own project management forces, procedures and systems. **[redacted]**

- [redacted]** In fact, the contract arrangement between Kiewit and KCP&L is an accurate reflection of the then project environment (i.e. the status of engineering complete, which for Iatan Unit 2 was reported to be 60%, for instance, at the beginning of September,

2007[34]), market conditions (i.e. the still rising prices of certain commodities) and the industry conditions (i.e. the availability of specialty subcontractors and union trade labor[35]). A construction contract is also a method which allocates risk between the parties. (See the previous discussion in this testimony.) During 2007 the project was still in its developmental stage, with procurement fully underway and only very limited construction starting in the fall of 2006. As a result, a significant level of cost and schedule risk attached to the BOP scope of work remained undefined or fluid, which in turn resulted in the long, involved contract negotiations between KCP&L and Kiewit. The contract ultimately achieved was greatly influenced by how that risk was allocated between those two parties and for that reason the primary approach of the contract was founded in unit rates, which basically split the scope risk between the two parties with Kiewit taking the risk of the unit rates it set and KCP&L taking the risk for the actual number of units ultimately consumed.[36] The target price (Unit Price) contracting approach was established on the basis of the engineering in place at the time, estimates of quantities necessary based on that engineering, and expert examination of the market conditions expected over the execution life of the project. As those conditions changed (as discussed later in this testimony), that target price would be impacted with each party being responsible for its portion of the impact as established within the contract through the unit rates set. Pegasus-Global found that the fact that the ultimate total contract price increased neither surprising nor

[34] Joint Owners presentation, September 13, 2007, attachment B-Schedule, page 3
[35] Coal-Fired Power Plant Construction Costs, July 2008, Synapse Energy Economics, Inc.; Schumacher Report, February 13, 2006, Area Labor Study for KCP&L Iatan Unit 2 Project
[36] Kiewit Contract, November, 2007, page 35

unforeseeable given all those contextual factors. However, Pegasus-Global also found that it was the reason that KCP&L and Kiewit took the time necessary to craft a contract which was equitable to both parties.

Given the project environment, the market conditions and the industry conditions in place during 2006 Pegasus-Global determined that the care with which KCP&L and Kiewit developed a contract within which risk could be allocated was reasonable and prudent. **[redacted]**

Q: What were Pegasus-Global's findings and conclusions pertaining to Executive and Corporate Management and Oversight of Iatan Unit 2?

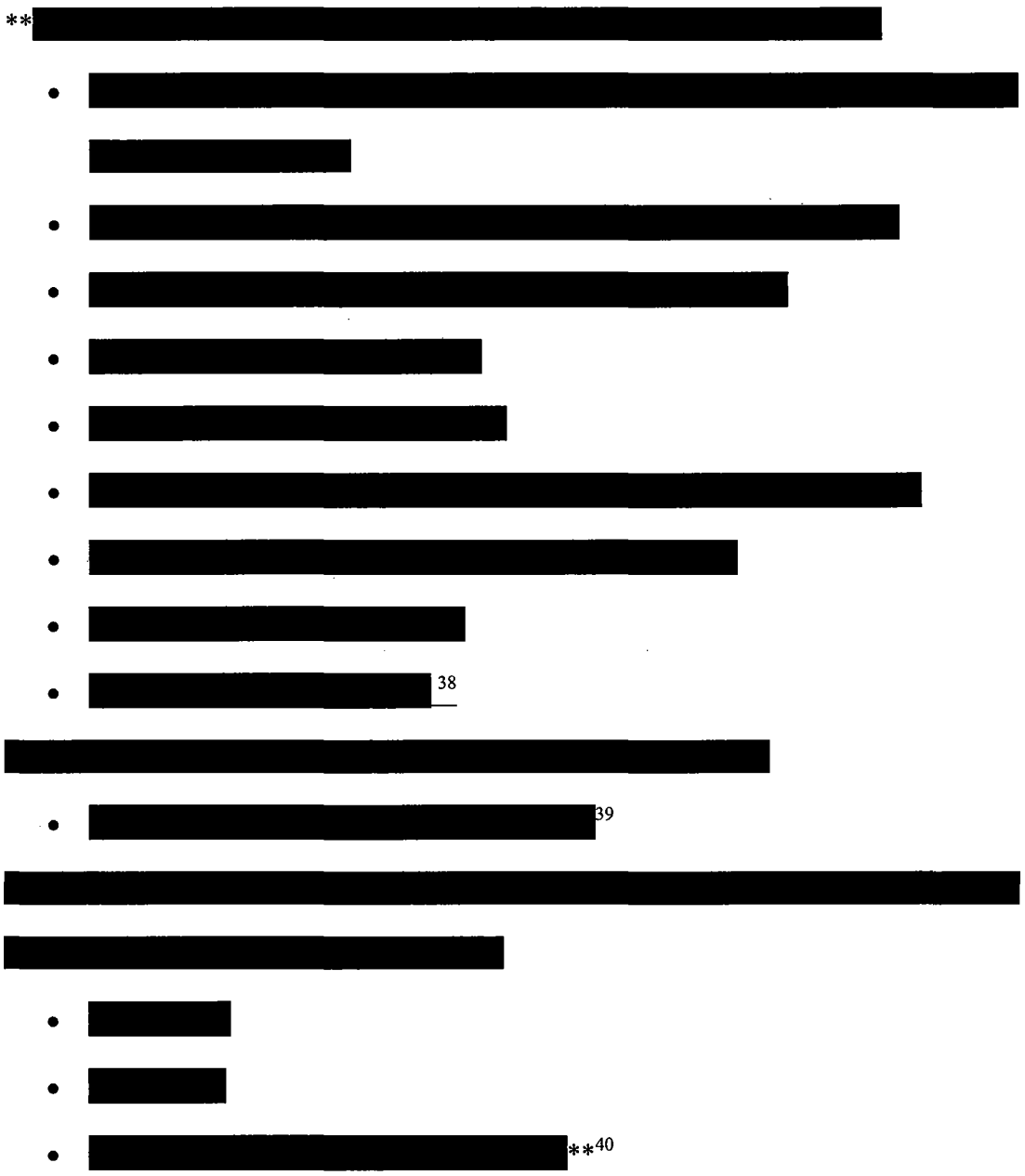
A: In Pegasus-Global's review of prudence for Iatan Unit 1 we did an extensive analysis of senior executive involvement and concluded that the management oversight process was thorough, complete, and what would be expected of a reasonable and prudent utility. In reviewing executive involvement and oversight for Iatan Unit 2 we continued that review, including recent executive oversight activity.

Q: What were Pegasus-Global's observations?

A: A team of KCP&L executives was formed in the summer of 2005 and met throughout 2006 to discuss and make decisions regarding the Iatan projects.[37] This committee evolved into the more formalized CEP Executive Oversight Committee (EOC) in late 2006, which I described earlier in this testimony. The EOC was established so that every

[37] Schiff Hardin Report of April 10, 2006, Downey testimony, December 17, 2009, page 5, lines 16-17

one of the CEP Projects in the program was strategically aligned in terms of scope, quality, cost and schedule.



[38] CEP Oversight Committee.102606.pdf, page 8
[39] CEP EOC, April 25, 2008 minutes
[40] CEP Oversight Committee Meeting, March 26, 2010, minutes, page 1

After October 2006, the EOC met regularly, approximately monthly, and that the meetings were well attended. The meeting agendas and presentation materials indicate that the EOC Committee was focused on the critical issues affecting CEP success, including the Iatan Project (Units 1 and 2) safety, cost, schedule, status, contractor performance indicators, contractor issues and conflicts, and actions to mitigate identified project risks. **[redacted]**[41]

Q: Were there any other KCP&L senior management involvement in Iatan Unit 2?

A: Yes. KCP&L executive managers involved themselves with the Iatan Unit 2 Project in other ways beyond just serving on the EOC. Executive level managers were directly involved in contract negotiations, dispute resolution and had responsibility for approval of major contracts. **[redacted]**[44]

**[redacted]

[41] CEP Oversight Committee Meeting, March 28, 2008, minutes, page 1 – 3
[42] Proposed Resolution, Board of Directors Teleconference October 7, 2008
[43] Schiff Hardin Report November 14, 2007, page 1-2
[44] Iatan 2 Joint Owners Meeting Minutes of May 14, 2009

[redacted]

[redacted]**[45]

Q: Was the KCP&L Board involved in Iatan Unit 1?

A: Absolutely, and I described their involvement in my Iatan Unit 1 testimony. For example, Operation Reviews were presented by Bill Downey to the Board on a quarterly basis, updating the Board on the status, progress, and significant issues with respect to the CEP Programs. (Nielsen Iatan 1 testimony at page 38, lines 18-20) The Board was very active in its review and analysis of Iatan 1.

Q: Did the involvement of the KCP&L Board continue for Unit 2?

A: Yes, it did. The CEP program was discussed at each quarterly Board of Directors meeting, and the Iatan Project was by far the largest part of the program. Each meeting featured a presentation on Iatan Unit 2 construction activities, usually presented by KCP&L CEO Bill Downey. The Board was involved and/or informed on all major decisions on the CEP Program and the Iatan Project. On decisions that called for Board actions, their decisions were duly recorded in the minutes.

Q: Based on Pegasus-Global's review has Pegasus-Global formed an opinion regarding whether KCP&L senior management executives, and the Board of Directors acted prudently in their oversight of Iatan Unit 2?

A: Pegasus-Global did. KCP&L senior management, executive management, and the Board of Directors had an effective oversight process in place, focused on important Iatan Unit 2 issues, participated fully in the strategic decision making process, were active in issue

[45] CEP OC Presentation 2008 03 28 – Meeting Minutes; CEP OC Presentation 2008 04 25 – Meeting Minutes

resolution and remained fully informed and engaged throughout the Iatan Unit 2 execution. The KCP&L executive management and Board of Directors' oversight of Iatan Unit 2 was thorough and reasonable, and Pegasus-Global found the decision-making processes and decisions fell within a zone of reasonableness and to be prudent.

Q: What were Pegasus-Global's findings and conclusions pertaining to KCP&L's Project Management Organization and Staffing for Iatan Unit 2?

A: The initial development of the Iatan Unit 2 project management and staffing were as described in my previous testimony for Unit 1, since the overall management at that time was the same for both units. My prior testimony set forth Pegasus-Global's findings and conclusions (Nielsen Unit 1 testimony, page 38, line 9 – page 39, line 11):

"The early decisions regarding organization and staffing reflected the fact that KCP&L had a limited construction program for almost 20 years. In fact, KCP&L had shifted their corporate strategy early in this decade from growth through unregulated subsidiaries to a future where the dominant business model was the vertically integrated state regulated electric utility. KCP&L recognized that the change in corporate strategy brought with it the certainty of rate cases and the expectation of broad public review of decisions that such rate cases meant.

**[redacted]

[redacted]**

Q: Did the KCP&L project management organization and staffing for Iatan Unit 2 evolve beyond the initial plan?

A: Yes, it did. Into late 2006 KCP&L worked within a project environment shaped in part as follows:

- Major engineered equipment was set, including the Turbine Generator (Toshiba) and Boiler Island (Alstom).
- The Toshiba was a supply only agreement, with installation to be included in the BOP scope of work under Toshiba guidance.
- The Alstom Boiler Island was a full EPC agreement with fixed price and completion date certain; the scope of work was set to specific boundary limits.
- Engineering was ramping up as crucial data was received from the engineered equipment suppliers which would enable detailed engineering for foundations.
- KCP&L was staffing to meet its role as both Project Manager and Construction Manager, assuming direct responsibility for the BOP multi-prime project execution.
- KCP&L was focused on procurement as a critical early element in the project execution both in order to support engineering needs (size, capacity, loads, etc.) and to gain firm pricing and delivery commitments for critical equipment and materials in what was an overheated construction market.
- As project staff was engaged, KCP&L initiated efforts to enhance its corporate and operations level policies and procedures to a level commensurate with the needs of a major construction project.

As the project entered 2007, KCP&L continued to increase its project management and staffing on Iatan Unit 2. **[redacted]**

Pegasus-Global found KCP&L management reasonably knew the environment in which it was trying to recruit new project management level staff. As already noted, the large number of major construction projects being executed across the country put a high demand on experienced personnel in the 2006-2008 time period. Although KCP&L had begun ramping up staffing in 2006, the availability of qualified, experienced project and construction management staff was low, making that recruitment effort slow.[49] For

[46] Schiff Hardin December 12, 2006, page 15
[47] CEP Risk Management Report 3-27-07, page 41, 45
[48] Schiff Hardin Report, May 23, 2007, page 1; Iatan Audit Report, July 2007, page 4
[49] Schiff Hardin Report, August 7, 2006, page 3

instance, although KCP&L knew from early in the project that a master scheduler was required, in 2006 the position was advertised for months before being filled.[50] As a result, recruitment of new hires, as well as training of internal staff, required long lead times. Since having adequate, qualified and experienced project and construction management staff was essential to the successful execution of KCP&L's role, KCP&L contracted with outside firms such as Burns & McDonnell, Schiff-Hardin, and Aero-Tek to fill their management and staffing needs, while KCP&L built up internal resources. Despite the difficulties, KCP&L was able to make progress in developing the project management team. An audit performed in early 2007 indicated significant progress had been made between late 2006 and the first half of 2007.[51] These decisions seem reasonable, appropriate and prudent."

Once contracts were in place and project control metrics were established, lower level staffing needs were addressed in order to support implementation of the contractor controls. Many of these staff positions were contracted through workforce agencies. Within this level of staffing, personnel were frequently retrained and shifted during the course of the project in accordance with changing needs. For instance, as the initial procurement and purchasing phase wound down, people were shifted to project control monitoring roles where needs were increasing as the construction proceeded. The use of contracted staffing at this level was prudent in that much of the workload is of a limited duration (the construction project), and so staff levels can more readily be increased and decreased according to project needs than they can be with permanent employees. This is a prudent and typical strategy for a project like Iatan Unit 2.

Q: Was KCP&L's initial project management organization and staffing for Iatan Unit 2 prudent?

A: Yes. As noted in my Iatan 1 testimony (Nielsen Unit 1 testimony page 39, lines 19-24): "Pegasus-Global concludes that KCP&L identified timely that the project management

[50] Iatan No. 2 Weekly Status Update, July 14, 2006, page 1; Iatan Station Weekly Status Update, September 22, 2006, page 5

[51] Kansas City Power & Light Iatan Construction Project Audit, July 2007, page 4

organization and staffing needed to be increased. KCP&L further recognized that a strategy that was schedule driven did not allow time for the recruitment and training of an all KCP&L staff. KCP&L decided appropriately to enhance their project management staff and organization with experienced consultants while the KCP&L PMT was fully developed." Pegasus-Global concludes that KCP&L Iatan Unit 2 project management was consistent with acceptable utility practices under the initial conditions and circumstances of the project. KCP&L employed knowledgeable advisors, evaluated options, and made acceptable and appropriate adjustments to the Iatan Unit 2 project management organization and staffing. Pegasus-Global concludes KCP&L's initial project management organization and staffing was prudent.

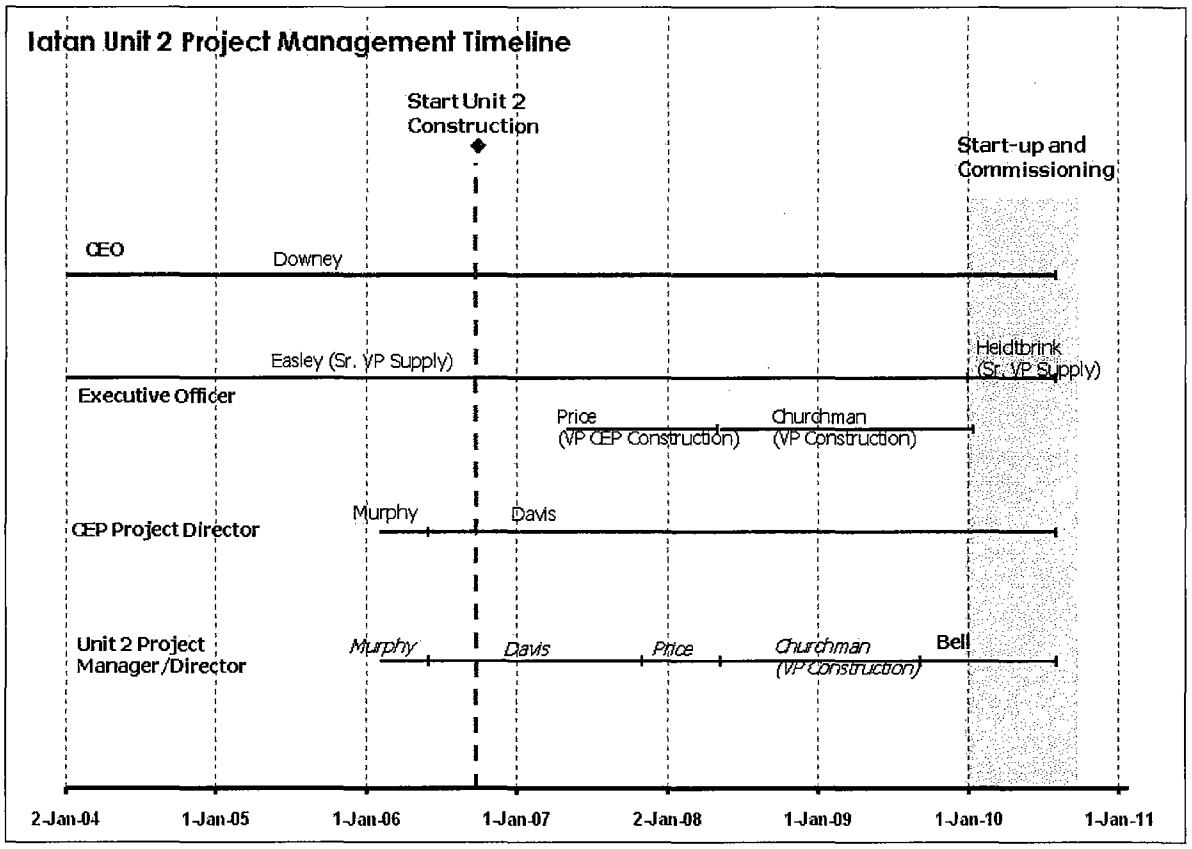
Q: Did KCP&L continue to monitor and adjust the Project Management Team (PMT) and Project Management process as the needs of the Iatan Unit 2 Project changed and the Project progressed?

A: Yes they did. Overall, the Iatan Unit 2 organization and staffing progressed in a manner that Pegasus-Global has observed on other major capital projects. The PMT and KCP&L CEP recognized increasing needs and received from various sources information identifying potential risks with respect to the project opportunities to further improve effectiveness. KCP&L was receptive to that input and responded accordingly when it was appropriate.

As noted earlier in this testimony, Iatan Unit 2 is a mega-project. It is usual to have multiple project managers on a mega-project, with each of those managers being to some extent "specialists" in particular phases or elements of execution. For example: one project manager may be chosen for planning and conceptual engineering strengths;

another may then be brought on board during the heavy procurement and contracting phase; a third with mega-project execution experience may be sought to oversee the completion of detailed coordination and multi-party construction; while a fourth may be inserted for particular experience in commissioning and start-up of complex facilities. It is possible for a mega-project to have three or even four of those "project managers" on board during overlapping periods, with different but equally critical titles and functions. One clear example of this is the hiring of Carl Churchman in May, 2008 as VP of Construction, bringing experience as a Construction Completion Director on large-scale power plant construction projects to the project executive management level as Iatan Unit 2 moved into the most critical construction phase.[52] Farther along in the project, Bob Bell – with particular expertise in startup transitions – was hired to direct Iatan Unit 2 construction under Churchman and then was installed as the Unit 2 Project Director under the VP Supply as the project entered the Startup phase.[53] The Senior Management positions relative to Iatan Unit 2 are summarized in the following figure:

[52] Business Wire April 28, 2008
[53] Direct Testimony of Robert Bell, page 3, line 22 – page 4, line 6 and CEP Oversight Presentation 2010 02 26, page 6



Examples of organizational changes in response to feedback during the Project are evident in the Iatan Project Management Team restructuring in November of 2007. The CEP Project Director at that time (Brent Davis) was dedicated to Iatan Unit 1 in November 2007 and the VP of Construction assumed direct management responsibility for the Iatan Unit 2 Project.[54] Moreover, additional management positions have been added as needs have progressed: BOP construction manager and Startup Manager

[54] Iatan Construction Project Organization Audit Report , January 2008, page 21

positions were added in May 2007;[55] separate contract managers for each of the major contractors (Alstom and Kiewit) were hired in mid-2007 under Steve Jones to handle the large workload as the work under those contracts increased; and, a dedicated Unit 2 Startup Manager was hired in February of 2009.[56] Management of the Engineering contract with Burns & McDonnell was also moved from Engineering to Procurement and Contracts in January, 2008 in response to changing management needs and organizational capabilities.

Q: Was KCP&L's overall approach to project management organization and staffing for Iatan Unit 2 prudent?

A: The evolution of project structure, organization, and staffing and the constant follow up that Pegasus-Global observed is evidence of management attention and action. Decisions by KCP&L were timely and based upon timely information. New decisions cannot be implemented immediately, but the project documents show steady improvement and further refinement as more information was received. Pegasus-Global concludes that the KCP&L continued project management organization and staffing decisions and decision making processes exhibited good management and were reasonable. Pegasus-Global finds the evolution of the Iatan Unit 2 management and contract approach and the decision making process reflected appropriate management practices and were reasonable. Pegasus-Global concludes these decisions and decision making processes were prudent.

[55] CEP OC Presentation 2007 05 23.pdf, page 17, 21
[56] CEP Oversight Presentation 2009 02 27 – Meeting Minutes.pdf, page 1

Q: What are project controls?

A: "Project Controls" is a general term of art within the construction industry which denote those systems used by management to enable it to measure progress toward a project objective, evaluating the work remaining to be completed to achieve that project objective and reporting the status information gathered to project management in a timely manner enabling project management to take necessary corrective action to achieve the project objective. There are three steps to project control processes; measuring, evaluating and correcting[57]. Within the construction industry the two predominant project objectives which are measured are cost and schedule/progress. Other control systems exist for other project management process responsibilities, such as, contract administration (i.e. invoice review and approval), regulatory compliance (i.e. safety), materials management, etc. However, those control systems are focused on the administrative process elements of the project and not the primary project cost and schedule/progress objectives of the project. For the purposes of Pegasus-Global's prudence evaluation of Iatan Unit Unit 2, Pegasus-Global examined the following project control processes:

- Cost Control;
- Schedule/Progress Control;
- Change Control; and
- Contract Management/Administration

Each of those four project elements and the development and use of the respective control processes and systems are examined in greater detail elsewhere within this testimony.

[57] Project Management, Kerzner, Wiley & Sons, Sixth Edition, 1998, Chapter 5.1, page 226

The key elements of any project control system is that it enables project management to monitor/measure current project conditions against a set plan, it enables project management to evaluate that data within the context of future plans, and it provides project management with contextual information from which corrective actions can be formulated by project management. While there are various "packaged control systems" available within the industry, project control systems are, to lesser or greater extents, always customized to conform to the project conditions, and to meet the project manager's and project owner's needs.

Q: In your Iatan 1 Testimony, did you discuss the Project Controls in effect for the Iatan Project?

A: Yes I did. Regarding the Iatan Unit 1 Project Controls I testified (Nielsen Unit 1 testimony page 44, line 20 – page 45, line 6):

> "The project control systems used to manage the Iatan project in the initial stages were existing KCP&L systems and internal controls. Where it was determined that existing systems and internal controls had to be improved to reduce potential risk for specific projects, KCP&L enhanced those systems and internal controls to function appropriately for the Iatan Unit 1 project as needed. Project controls consists of three major components, cost controls, scheduling, and reporting. The purpose of cost controls is to identify, trend, analyze, and report the status of project costs in a timely manner to support corrective actions by management as appropriate. The purpose of the scheduling function is to prepare a schedule showing the major sequence of activities required to complete the project, assure adequate planning and execution of the project by the contractors and assure coordination of the project by all vendors. In addition the schedule provides management with information necessary to manage the project and make necessary adjustments to meet the CEP program goals. The reporting function is necessary to create various documents to effectively manage the project."

Q: Did KCP&L have project control systems in place for cost and schedule/progress during the Iatan Unit 2 project?

A: Yes. As with project delivery methodologies, project controls are developed to meet the conditions of the project and the needs of project management. To develop controls systems before setting the project conditions or defining the management needs at both the corporate and project levels often leads to disconnects between the output of those control systems and the input required by project and corporate management. This is particularly true of mega-projects during which project management faces some unique challenges, such as, off-shore procurements, long lead equipment purchase, transport and installation, multiple contracting entities, multiple construction contractors and engineering input sources, and the like. As it became clear in 2006 that the project delivery methodology would consist of both EPC and multi-prime scopes of work, KCP&L and its advisor Schiff Hardin initiated an examination of KCP&L's current control systems, identifying the gaps which existed within those control systems as they stood at that point in time. That examination noted that the development of adequate controls systems and staffing of the senior project management positions were linked; as the team which would rely on those systems to manage and control the project, that senior project management staff needed to be directly involved in the development of those project control systems.

By October 2006, KCP&L had secured the experienced staff necessary to develop and implement specific project control systems and process for the Iatan Unit 2 Project. That staff immediately worked to enhance the KCP&L control systems for cost and schedule/progress, and by December 2006, both of those enhanced control systems had been completed and installed within the project. In January 2007, the first Monthly

Progress Report was issued using those systems as a basis for the project progress reporting.

Q: Does Pegasus-Global believe that KCP&L was slow in implementing key project control systems?

A: No. In the case of KCP&L, as with many other utilities in the country, there had not been significant generation construction for a number of years. As a result, an advanced and mature project control system for complex projects was not maintained as would have been done in previous periods when a number of complex projects were initiated over a compressed time period. When the Iatan Units 1 and 2 projects were started, the use of existing project controls was reasonable as a starting point. By mid 2006, KCP&L had issued the Comprehensive Energy Plan Construction Projects Cost Control System and was developing metrics for tracking engineering status and procurement.[58] Weekly Project team meetings had commenced during this time as well as the development of contract administration functions and the KCP&L Project Controls team. Further enhancement of the Project Control tools were developed in response to the E&Y risk analysis performed in late 2006, such as, Plan-of-the-Day meetings and establishing the change order process. Earned value metrics were agreed upon with Burns & McDonnell in November 2006, approximately the same time the CEP Executive Oversight Committee Monthly meetings started, which further allowed weekly reporting to management in order to provide it with information from which decisions could be made, again consistent with reasonable and prudent decision making. With the Project Controls team in place and the base tracking tools established, KCP&L was then positioned to

[58] KCP&L CEP Cost Control System, Sept-2006

begin the development of the Level 1 milestone schedule as discussed later. This was a reasonable and prudent ramp up of systems and personnel based on the status of the Iatan Unit 2 Project at the time.

As the Project progressed the need for changes and enhancements was recognized, and necessary changes were made. For example, in 2007, project controls data from Burns & McDonnell was provided through the project Document Locator System, thus ensuring transparency in the information that was shared. In this regard, KCP&L's Project Management team began development of the Project Execution Plan (PEP) in January 2007, involving all the Project team participants, including contractors. Software was being assessed to track contract administration and cost management with the Project Controls team establishing protocol for policing contractor schedule updates by February 2007. KCP&L expanded its earned value reporting to other contractors at this time, including, for example, Kissick. Accordingly, with more project controls tools in place, KCP&L also during this time began reconciling actual costs and accruals with its project tracking.

KCP&L, in its oversight role of the project, continued to refine how the earned value information was reported and requested additional data from Burns & McDonnell and its contractors in order to verify the data being reported in the earned value reports. By the first quarter of 2008, after a detailed evaluation of the various control systems and tracking, KCP&L had implemented the selected Skire software system to track Requests for Information (RFIs) and changes. KCP&L had also begun to track performance through the use of Cost Performance Indices (CPI) and Schedule Performance Indices (SPI). A risk matrix had also been developed which tracked various risks including

schedule, labor availability, potential interferences, and potential for discovery work, startup risks, and technology risks.

Q: Did KCP&L use the Audit Process to enhance the Project Controls Systems?

A: **[redacted]** For example, a number of process controls were refined and/or adapted from what was learned on the Iatan Unit 1 outage including the methodology to validate Project Schedule status with Plan of the Day meetings, refinement of the earned value and schedule tracking and to have the Iatan Unit 2 start-up team replicate the Unit 1 process for the Iatan Unit 2 CTO packages.

In summary, Pegasus-Global found that the evolution of the Iatan Unit 2 project controls decisions and the decision making processes were reasonable and concludes the KCP&L decisions and decision making processes were prudent.

Q: What did Pegasus-Global find in 2006 regarding project control systems in place to manage the Iatan Unit 2 Project?

A: As noted earlier, KCP&L at a corporate level had various control systems in place which encompassed all four of those project control elements examined by Pegasus-Global. While those control systems were not sufficient to manage the Iatan Unit 2 Project through its entire life, those systems were sufficient to enable KCP&L to manage and control the project work underway during 2006. Pegasus-Global examined the work in progress in 2006 and developed the following contextual history for that year:

- **Planning and organization**. Throughout 2006 KCP&L was finalizing its project execution plans, which generally included:
  - setting the project delivery methodologies, development of the contract approaches;
  - working with advisors to formulate the project organization structure and staffing plans;
  - working with advisors to enhance project management, control and reporting processes and systems;
  - recruiting and hiring experienced staff to fill both project and construction management roles identified with the assistance of its advisors; and
  - identified the critical data interface points between project management and corporate level within KCP&L.
- **Procurement**. Early in 2006 based on operational specifications KCP&L, with the assistance of Burns & McDonnell and Schiff Hardin, identified and initiated procurement of long lead engineered equipment, such as the turbine generator

(awarded to Toshiba) and boiler island (awarded to Alstom). Pegasus-Global found that KCP&L had strong, comprehensive procurement processes, systems and staff in place at a corporate level to execute procurement which enabled it to execute those procurement functions effectively and efficiently throughout 2006. The procurement management and control systems in place enabled KCP&L to effectively monitor, evaluate and control the procurement activities executed throughout 2006 and beyond.

- **Engineering**. Burns & McDonnell was awarded the owner's engineer scope of work and continued working on the development of the primary project operational specifications in support of long lead procurement of engineered equipment. The initial scope and schedule for detailed engineering was developed and limited detailed engineering was initiated and partially for foundation work in part based on equipment load and size data supplied by the engineered equipment suppliers, Toshiba and Alstom. KCP&L was monitoring the progress of engineering based on Burns & McDonnell's internal controls reporting system (see additional detail of these control systems elsewhere in this testimony).
- **Construction**. Actual construction on site for Iatan Unit 2 was initiated at the beginning of September, 2006[59] when Kissick mobilized to site to execute foundation work. While there was other site preparation work (i.e. demolition, site grading, facility preparation) initiated in the latter half of 2006, Kissick represented the primary project construction activity on the project at that time. Pegasus-Global determined that the project control systems in place at KCP&L at

[59] Iatan Status Report, September 8, 2006, page 3

the corporate level were adequate to monitor and control Kissick's work and the work being done in preparation of the site for full scale construction.

In summary, Pegasus-Global determined that during 2006 KCP&L had sufficient project control processes and systems in place to manage and control the scope of project work that was underway during that period. Pegasus-Global also determined that those project control processes and systems were not sufficient to manage the full scope of the Iatan Unit 2 project, which coincides with the opinion of KCP&L and its advisors at the time. The fact that KCP&L recognized and moved expeditiously to correct the gaps in those control systems is exactly what Pegasus-Global would expect a reasonable and prudent utility to do. As noted above, additional details relative to Pegasus-Global's examination of each of the four control processes and systems examined is presented elsewhere in this testimony.

Q: Can you explain the process that KCP&L used in reporting the information gained through its project controls on Iatan Unit 2?

A: From a process standpoint, KCP&L project control staff managed the day-to-day inputs, which it maintained in a repository of project control information, updating it on a daily basis to ensure it was constantly tracking every opportunity or risk associated with the project. The rest of the Project Team and its staff also had inputs on a daily basis and would provide those inputs to one central repository within the Project Controls area. Monthly project control information was gathered, reviewed, evaluated, trended, analyzed and then summarized into a monthly Project Status Report. The purpose of the Iatan Unit 2 status reports were to document project issues, overall project progress, and progress on the various phases of the project, engineering, procurement and construction.

The Project Status Reports were prepared with the input of a number of project personnel including the engineering leads, procurement personnel, and cost and schedule personnel. The CEP EOC was the primary recipient of the Project Status Reports, although they were shared with the Joint Owners and senior management. Monthly cost reports were also provided to the CEP EOC and the Joint Owners that provided information on contingency status, cash flow, accruals, budget transfers, project to date costs and Estimate at Completion (EAC).[60] KCP&L provided information in its quarterly reports to both the Kansas and Missouri Commissions that included contractor earned value man-hours, trends against the Provisional Acceptance Date, engineering complete, construction complete, safety incidents, CPI, SPI, contingency use, procurement, budget and other events including the hire of new personnel, Tiger Team efforts, and facilitation efforts with Contractors.

Q: **[redacted]**

A: **[redacted]

- [redacted]
- [redacted]

[60] Quarterly Status Update, KCC Docket No. 04-KCPE-1025-GIE, Third Quarter 2008, page 29

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]**

Q: Do you agree with Vantage's testimony?

A: **[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]**[61] The effort to enhance the KCP&L project control systems was being conducted simultaneously with KCP&L's expansion of the project definition and project conditions discussed earlier in this testimony. For Vantage to say that KCP&L failed to develop systems in 2006 and early into 2007 is simply incorrect; those systems were continuously under development throughout 2006 and were introduced into full service in 2007 with the publication of the

[61]KCP&L Quarterly Report, pages 4-5, July 31, 2006

first KCP&L monthly Project status report.

** [redacted] ** Up through the first quarter of 2007 the primary project activities involved engineering, procurement and some limited construction. There had been no major mobilization to the site for construction through that period. That work which was underway, primarily procurement and engineering executed in support of that procurement, was managed under KCP&L corporate processes and systems, which Pegasus-Global found adequate for management and control of those efforts. ** [redacted]

[62] Kansas City Power & Light Company, Strategic Investment Status Report, Third Quarter 2007, Docket No. 04-KCPE-1025-GIE, Page 6

[redacted]

[redacted]** There is a vast difference between preparation and issuance of a comprehensive compendium of the Iatan Unit 2 project control processes and systems and the development and implementation of those systems into the project. A project management team's focus early in any project is not on documenting what it has accomplished; it is on developing, installing and refining those systems and processes it intends to follow throughout the project. Pegasus-Global's review of the project records shows that contrary to Vantage's claim, there was no point at which the project work in progress was not under control or not being managed effectively with those systems which were already in place during 2006 and into 2007. While Pegasus-Global found that those systems in place needed enhancement and expansion to ultimately enable KCP&L to fully manage and control a mega-project such as Iatan Unit 2, Pegasus-Global also found that KCP&L, with the assistance from its advisors, moved expeditiously to initiate development and complete installation of those project control systems.

Q: What was your general finding relative to KCP&L's project control systems?

A: Pegasus-Global found that the project controls in use during the execution of the Iatan Unit 2 project were reasonable within the context of the project status during which those controls were used and enhanced by KCP&L. Pegasus-Global would expect prudent project management to initiate a review of the project control processes and systems in place as soon as possible once the project definition was advanced to the level that the review could provide specific data as to the control systems and processes needed to effectively and efficiently manage and control the project. Pegasus-Global found that KCP&L, with detailed input from its advisors, assessed its current project control

processes and systems in a timely and thorough manner, then initiated efforts specifically intended to address the enhancements needed to those control processes and systems. Pegasus-Global found KCP&L's actions and decisions relative to the development and installation of project control processes and systems during 2006 and into 2007 to be prudent.

Q: What did you conclude with respect to Iatan Unit 2 Project Cost Management?

A: Pegasus-Global found the evolution of the Iatan Unit 2 cost management decisions and the decision making process was reasonable. Pegasus-Global concludes that these decisions and decision making processes were prudent for the reasons described below.

Q: Please describe the development of the Project Budget for Iatan Unit 2 over the life of the Project.

A: The development of the budget for Iatan Unit 2 progressed from an initial high level conceptual estimate in 2004 based on the 2004 PDR conceptual project to a detailed control estimate in 2006 and updated with design maturation in 2008. In July 2009 the Cost Reforecast Validation was conducted to review the CBE and it was determined that the estimate was accurate in total, but adjustments were made within the budget details. **[redacted]**[63] This budget development process is consistent with other projects Pegasus-Global has evaluated and shows that KCP&L was diligent in updating cost estimates as the project progressed. It is important to understand the development of the budget for Iatan Unit 2 in light of the evolution of the permitting

[63] Iatan 2 Reforecast Presentation to Joint Owners, April 2010, page 16

events and market conditions surrounding Iatan Unit 2, and in light of the economic conditions affecting all utility projects during this period of time.

Q: What did Pegasus-Global find regarding the use of the manual process discussed in the E&Y CEP Risk Assessment Report?

A: Pegasus-Global reviewed the process implemented on the project and finds it to be reasonable. In late 2006 and early 2007 KCP&L transitioned to cost reports as discussed above. These cost reports were developed utilizing project costs recorded in the General Ledger of the utility and reported through an Excel work sheet to the project cost system. While there was manual processing necessary at the project level the practice was not unique to KCP&L. In June 2007 a presentation was made to the CEP EOC regarding the Cost Tracking System in response to the audit findings. In that presentation the EOC was informed that a survey of other Edison Electric Industry (EEI) members had confirmed that other large utilities, including America Electric Power and Pacific Gas and Electric, utilized Excel or similar programs to report costs of the project contained in the General Ledger to the project management group.[64]

Q: What information was available to KCP&L when it was considering the design and construction of the Iatan Unit 2, how did KCP&L use this information in its decision making process, how did this information change over time and how did KCP&L use this information in its decision making over the course of the Project as it relates to the increased cost of the Iatan Unit 2 Project?

[64] "Cost Tracking System", presentation to CEP Oversight Committee on June 6, 2007

A: In its initial decision making process of whether to build Iatan Unit 2, KCP&L retained Burns & McDonnell in 2004 to prepare a PDR, regarding the feasibility of building a new Iatan Unit 2 facility on the same site with the existing Iatan Unit 1 facility. The intent for the PDR was to provide preliminary engineering and cost estimates, contracting approach and other early development information so that KCP&L could begin scoping and provide feasibility inputs for use by KCP&L in its production cost modeling. The PDR provided KCP&L some gross information for what it was going to build and how the costs would translate to the equipment that would be installed. The PDR was also used to provide some sense to KCP&L on how it was going to construct the project and the type of packages that would be involved. An understanding of the various technology options and the framework from which to evaluate those options was also an important aspect of the PDR's function. It allowed KCP&L to work through the various options with economic and technology analysis to arrive at a base assumption for what Iatan Unit 2 would eventually look like. The PDR was only considered to be a conceptual estimate based on a "generic" schedule and several assumptions regarding the plant design to provide KCP&L management with sufficient information to make an informed decision at the time as to whether to proceed with the Project, and if so, in what context. While the PDR did contain certain performance parameters for Iatan Unit 2, the PDR did not identify any detailed level of design as having been completed as of the PDR.

As so stated in the PDR, the purpose of the study was to define preferred design parameters of major components of the project and provide adequate information to support the following activities:

- Development of adequate detail to support permitting requirements;

- Integration of project design and financial data into KCP&L's IRP;
- Discussion within KCP&L management; and
- Internal budget appropriations.

Risks were also identified in the PDR including:

- Planning, design and construction for a project of this size to take between 5-6 years.
- This 5+ year time span provides a significant amount of time for labor and material pricing and market conditions to change from that originally anticipated.
- The risk is heightened by the fact that the skilled workforce that constructed coal plants in the 1970s and 1980s has aged without a significant influx of younger workers with similar specialized skills and experience.
- Recent significant increases in natural gas prices have led to a number of utilities looking at coal as an alternative and economic fuel source.
- Proposed new emission requirements could have impacts to the project.
- All projects anticipated in the market would be competing for a limited labor force.

A review of the PDR demonstrated that Burns & McDonnell followed standard industry practices during the development of the conceptual estimate, clearly establishing the limited basis of that estimate and citing the intended management purpose for that estimate (i.e. to assist in decision making relative to the basic technical parameters of the project to ultimately be executed).

Since the original PDR was based on an 800 MW unit, KCP&L evaluated alternatives and proceeded with Iatan Unit 2 as an 850 MW unit. In addition, KCP&L decided to

prepare a comprehensive emissions permit application for both Iatan Unit 1 and Unit 2 to reduce net emissions from the existing plant site.

Q: What were the permitting issues that impacted the cost estimate during and after this period?

A: **[redacted]**[65]

The environmental permitting process implementing emissions netting resulted in KCP&L receiving a permit, but the permit requirements were more stringent on both Unit 1 and the overall site operation, including Iatan Unit 2, than had been initially anticipated. These more stringent requirements required changes to both the current operations of Iatan Unit 1, as well as the need to modify the scope of the emissions equipment. These changes were necessary to ensure long term compliance once the permit takes full effect for each of the units. Any increases to cost due to "netting" decisions are not, in and of itself, evidence of imprudent management. To the contrary, KCP&L management evaluated options and made a decision which produced more energy and lower emissions. This type of decision by management is within a prudent zone of reasonableness.

[65]Proposed Definitive Estimate Briefing, Board of Directors meeting, July 24-25, 2006

Q: Was the process for estimating the Iatan Unit 2 Project reasonable and prudent for a coal utility in the industry contemplating a similar project?

A: Yes. First, the Iatan Unit 2 Project was a "fast track" project which essentially means that engineering would not be fully completed prior to the initiation of major procurement or construction of the project; rather engineering would "pace the project" by being just ahead of procurement and construction needs rather than fully completed prior to the initiation and construction of the project. A fast track project reduces the total time for project execution by essentially overlapping the engineering, procurement and construction phases sequentially; in volatile market conditions, such time savings can have a significant cost benefit for the owner. As discussed more fully below, KCP&L acted reasonably in its decision to fast track the project based on market conditions and KCP&L's Iatan Unit 1 joint owners generation needs forecasts.

The Iatan Unit 2 Project produced a number of iterative estimates between its initial definitions in the summer of 2004 through to the current status as of July 2010, which is fully anticipated in any project on fast track execution profile. In addition, KCP&L relied upon industry experts to provide input and review of the cost estimating process.

When engineering was approximately 25% complete, KCP&L prepared its Control Budget for the project which served as a starting point from which KCP&L could evaluate all changes as it proceeded with the project. As the Alstom contract was in place by August 2006 and KCP&L had some specifics around some of the major components of the Plant, given the fast-track approach, the timing and basis of the Control Budget was reasonable. **[redacted]

[redacted]

[redacted]** Pegasus-Global confirmed that KCP&L has maintained the control estimate exactly as frozen in November 2006 and that any changes to that estimate have been reported directly against that Control Estimate. This is in keeping with accepted industry practice for control estimating of mega-projects. It is common practice for procurement and construction to be initiated prior to the design engineering achieving 30% on fast track projects as it is critical that the project establish a detailed control estimate as soon as significant procurement and construction activity is initiated. Pegasus-Global found that the control estimate produced by Burns & McDonnell and adopted by KCP&L in late 2006 was developed following generally accepted estimating practices used for like projects on a fast track execution plan. The conversion of that control estimate into the Project Control budget for management and control of the Project costs during execution was also done following generally accepted estimating practices.

KCP&L acted prudently in its development and use of project control metrics and data to identify trends in project cost or schedule which would either threaten the projects costs or schedule or provide it with the possibility of improving the project's cost schedule. KCP&L's decision to initiate trend based estimate forecasts is representative of an industry best practice as it provides KCP&L with the optimum number of responses and actions to address any overruns which might occur on the Project, including increasing the Project total budget, adjusting Project scope, shifting money between line items, etc.

**[redacted]

[redacted]

[redacted] **

Q: Can you please define a Risk and Opportunity analysis?

A: A Risk and Opportunity analysis is a repetitive function on mega-projects during which the risk profile is upgraded to reflect the status of the project as it exists and as it continues forward through the remaining execution. At certain points in a project life cycle the risk profile is analyzed to remove risk elements which no longer confront the project and add risk elements which may be new to the project. For example: once a major milestone has been achieved then any risk elements which were linked to a failure to meet that milestone date can be removed from the project risk profile.

The "opportunity" element of a Risk and Opportunity analysis identifies situations which have arisen that offer management an opportunity to advance goals ahead of their risk element probable impact point. For example: assume that a major milestone it achieved one month ahead of schedule with two additional major milestones linked to that accomplishment. By finishing early management may have an opportunity to accelerate one (or both) of those successor milestones thereby reducing any risk elements attached to the inability to complete those milestones on time. An opportunity analysis is the somewhat more complex portion of a risk and opportunity report as it requires management to analyze the potential benefits possible against any possible risk or cost impact for taking advantage of an opportunity.

By conducting periodic risk and opportunity analyses during the life cycle of a mega-project management can ensure that it is focused on the "real time risks" facing the

project and taking advantage of opportunities to reduce the future risk elements that still have the potential to impact project goals and objectives.

Q: Can you describe the Iatan Unit 2 Cost Reforecast Process?

A: A reforecast is a comprehensive process that occurs periodically during the course of a large complex construction project that involves getting input from a variety of sources, including contractors involved in the marketplace, and then taking that input and making a determination from that point to the end of the project what would be appropriate action from a cost standpoint, a schedule standpoint, and from a contractor relations standpoint to complete the project in the original time, the optimal schedule. It involves looking at every work function and requires involvement from all stakeholders. The reforecast was a look at the assumptions used in the control budget estimate established back in 2006 and reviewing and analyzing the changes from that point to assist in forecasting where the costs would be going in the future. As knowledge is gained through a project, more information is gained around the type of project being built. Given that better information, it is prudent to evaluate that additional information and to determine how that information affects the cost and schedule of the project. At that time and consistently throughout all of KCP&L's quarterly reporting to the commissions KCP&L has stated that the marketplace is dynamic and changes to the original estimate would continue to be tracked, documented and explained. The reason for the reforecast is to explain where Iatan Unit 2 was currently and where it would likely end up. A cost reforecast is one of the project trending tools used by management throughout the execution of a mega-project.

Q: Can you explain project trending?

A: Yes, it is a term of art within the construction industry used to describe the process and tools used by project management to precisely identify where a project is and how it got there, and, using that data establish trend patterns and lines that can be projected into the future of the project to conclusion. A project can trend any number of project elements, including costs, schedule, bulk commodity installation, procurement milestones, etc. For example, a reforecast trending analysis uses four sets of data:

- The planned cost of an element of work;
- The actual cost of that element of work to date;
- The progress gained against that total element of work to date; and
- The future trend of that element of work assuming that the work is executed at the same consistent rate and at the same consistent cost experienced to date.

A trend analysis enables project management to identify elements that are ahead of their planned trends and elements of work that are behind their trends. Using that data management can then make necessary adjustments to either bring those elements "back on line" (the planned trend line) or adjust the planned line to reflect the actual conditions which need to be addressed relative to that particular work elements or the relationship of that work element with other, interrelated work elements. A detailed trend analysis enables project management to make necessary mid-project adjustments in the project execution plans, which is crucial during the execution of any mega-project.

Q: What was the result of the Reforecast Process?

A: Two findings made early in the process and consistent with the potential risks that KCP&L had identified in its Business Planning Process involved the discovery that (1) the bulk commodities (i.e. electrical cable and wire, pulling, etc.) quantities installed

were trending greater than the commodity quantities used within the control estimate, and (2) that the current market pricing by contractors was trending higher than assumed in the control estimate. Thus, KCP&L acted prudently in its decision to address both of these impact issues in its reestimate of the total project cost. The May 2008 cost reforecast was presented to the CEP EOC, the Board of Directors, the Kansas and Missouri Commissions and the Project Joint Owners. **[redacted]**

Pegasus-Global's review of KCP&L's actions concluded that KCP&L's actions were consistent with best industry practice and the decisions regarding the reforecast estimate were deemed to have been prudently made based on the following findings:

1. KCP&L had converted the project control estimate into a project control line item budget, which enabled it to monitor and trend commitments, spending, changes and contingency allocation on a monthly basis.
2. KCP&L was monitoring costs closely on a monthly basis, providing snapshot reports of cash flow, commitments, spending, changes and contingency allocation and on an aggregate basis, which enabled KCP&L to discern patterns and trends which threatened specific estimate and budget line item cost limits. This enabled KCP&L to identify trends at a very early point in time rather than picking up trends only when line items "went negative".
3. KCP&L used trend data to forecast probable impacts; for example, the fact that several contracts came in higher than assumed within the control estimate was

treated as a holistic trend in the industry marketplace and not a series of isolated contract pricing events. By combining trend data from multiple perspectives, KCP&L was able to forecast probable cost impacts at a very early point in the execution of the project.

4. In industries, the earlier in the project one identifies potential impacts the more alternatives the project team has to address and overcome those impacts. Early identification of trends by KCP&L enabled it to not simply increase the project total estimated budget but to examine and employ several actions aimed at managing and controlling project costs through to completion. For example: KCP&L examined the budget estimate by line item, and using the same trend data, moved money from line items trending under the control budget into line items which were trending over the control budget.
5. KCP&L appropriately took the time to examine the "root cause" for the trends it had detected in order to ensure that its response actions not only addressed the cost impact, but also enabling project management to address the underlying causes to the extent those causes were within its control (for example, market conditions are not within the project's control but scope creep is, to some extent, within the control of the project management team). This action by KCP&L would represent a "best practice" within the industry.
6. KCP&L acted well before the Project cost control budget "went negative", that is reflected an actual overrun in the total cost of the project. It is easy in a fast track project to lose sight of the future when attempting to address the pressures to coordinate multiple activities (engineering, procurement and multiple construction

efforts) involved in a fast track project. By acting proactively, KCP&L avoided having to make a series of "budget increase requests", without being able to understand or explain why those budget increases were necessary. This evidences good and prudent management decision making.

Q: Did Pegasus-Global review the Iatan Unit 2 Cost Revalidation Process?

A: Yes. As engineering neared completion, 90% complete by September 2008, KCP&L again acted as a reasonable and prudent utility in its decision to move forward with a revalidation of the May 2008 Project reforecast to gauge the accuracy of the original reforecast and measure how the project was tracking against the revised project budget, including evaluating the current known schedule to complete the work, current trends on additions to the project's scope and the velocity of those changes in light of the status of design completion. KCP&L specifically included the following evaluations in its revalidation of the May 2008 reforecast:

- Review of schedule and any post-effect of any changed milestones to the completion date;
- Evaluation of all cost trends;
- Determination of any unknowns from design maturation;
- Quantity growth in the BOP contract to determine velocity and timing of change orders emanating from design maturation; and
- Vetting of the contingency assumptions.

**[redacted]

[redacted]

[redacted]** The revalidation work performed by KCP&L enabled it to weigh the benefit of accelerating the work to maintain the original schedule versus the cost of the acceleration effort required to maintain the schedule. Based on changed market conditions and a drop in demand, Pegasus-Global concluded that KCP&L's decision was prudent in light of the information available to it at the time and based on the analysis KCP&L conducted to consider the alternatives before making its decision. Pegasus-Global found that the cost reforecast revalidation effort has enabled KCP&L to again stay ahead of critical issues and cost drivers, making decisions in a timely and reasoned manner.

Q: **[redacted]

[redacted]**

A: As described in the Supplement 2 to the PDR issued on June 28, 2007, there were several changes to the Iatan Unit 2 base assumptions and refinements that were made to the PDR based on additional information that became available to KCP&L after August 2004, as well as changes to market conditions from what was known in 2004. **[redacted]

[redacted]** The original Iatan Unit 2 PDR was based on many assumptions and excluded several owner-furnished costs. Subsequently, the cost estimate was

modified to include all expected costs, including owner costs pending refinement during the budgeting phase of the project development and indirect costs that have now been included in the current budget. These changes and refinements included:

- Steam generator and turbine generator technology upgrades;
- Unit generating capacity increase from 800 MW to 850 MW;
- Postponement of the in-service date:
  - Additional time required for the completion of the regulatory plan reduced the amount of time available in the Project Schedule for contingency.
- Scope refinements of the facility (as so detailed in an Appendix to Supplement 2 of the PDR);
- Market escalation;
- Risk assessments to establish project contingency; and
- Permitted emission requirements finalized.

In addition, while the Iatan Unit 2 PDR suggested a contracting approach of a combination of EPC and multiple contracts with a single EPC for the boiler and air pollution control equipment and multiple contracts for the Balance of Plant, the contracting strategy was only an assumption for purposes of the study. As discussed elsewhere, several options have been considered over the course of the Project to consolidate multiple construction contracts into one of two general construction contracts.

Both the unit size and schedule changed from the original PDR and influenced the project costs. Meanwhile, the market shifted to become more volatile generally trending toward higher costs. During 2005 and 2006, the market for engineered equipment and material

was volatile as niche market suppliers became constrained; steel based products were subject to price and availability pressures and the price and availability of other commodities, like copper, also exhibited significant volatility. The major drivers to the cost increases include:

- Base labor costs which have increased since the Original PDR Union rates used for conceptual estimating purposes;
- Labor Availability;
- Incentives to attract labor;
- Major equipment increases;
- **[redacted]
- [redacted]**
    - The volume of the power house building (steam turbine-generator building) increased substantially from the expected size during the detailed design layout based on the purchased equipment.) Bids for the structural steel supply contract were received in October 2006 and when the bid-to-estimated steel quantities were compared, it became obvious that the Powerhouse building required about twice the volume as originally expected.
- Owner site management costs;
- The Substation & Interconnect costs that were originally carried independently by KCP&L (an Iatan Unit 2 PDR assumption) are included with each estimate revision;

- Refined Risk Assessment:
  - The initial Iatan Unit 2 PDR and the subsequent cost estimate updates that were made in January 2006 maintained a consistent 8% cost estimate contingency.
  - A more sophisticated Monte Carlo analysis of the remaining expected costs and schedule variations were performed during the period after January 2006 and continued into November 2006. The objective was to predict the contingency necessary to achieve 80% confidence that the project would be within budget and on or ahead of schedule. ** [redacted] ** Multiple evaluations were performed during the course of procurement as pricing information provided feedback regarding estimated versus actual values for procurement.
  - In addition to the Monte Carlo analyses performed by B&M, ** [redacted] ** Risk was a significant concern and specifically the impact that could occur due to a low probability-high impact event. A low probability – high impact event is defined as a specific risk issue that has a low probability of actually occurring during the execution of the project but if that risk event does occur the impact on the project goals and objectives

would be very high. For example, a the probability of there being a 500-year flood on the Missouri River during the execution of the Iatan Unit 2 project would be classified as a low probability risk event; however, the impact of that event should it occur would have a very high impact on the ultimate cost and schedule of the project.

- **[redacted]**

- Commodity cost increases.

Q: Please describe the changes in commodity costs that impacted the Iatan Unit 2 detailed estimate?

A: KCP&L found that there had been a major shift in the construction market from the conceptual estimate to the detailed estimates. In 2005 the Environmental Protection Agency (EPA) issued both the Clean Air Institute Rule (CAIR) and the Clean Air Mercury Rule (CAMR) that required all coal fired plants in the Eastern half of the United States to install a SCR, Wet Scrubber and a Baghouse by 2009 or buy credits. These new requirements caused a flurry of projects across the country, all of which are on the same general timeline. In turn, this increase in demand stressed the material and labor supplies, thus causing pricing to increase and lead-times to extend. **[redacted]**

[redacted]

[redacted]**[66]

Q: Was the information collection and analysis done by KCP&L in making its Reforecast of the Iatan Unit 2 Project reasonable?

A: Yes. In Pegasus-Global's review of the KCP&L Business Plans for 2006-2009, and the quarterly reports that were issued by KCP&L, Pegasus-Global found that KCP&L based its decisions and conducted its decision making process through analysis of several key factors and risks, which it continued to and still continues to review and evaluate through the project execution.

KCP&L recognized in its 2006 Business Plan that execution success was influenced by several key factors including:

- Clear understanding of drivers for each project;
- Construction strategy;
- Dedicated team with proper experience (KCP&L, Engineer and Contractors);
- Effective Project Controls and reporting systems; and
- Decision making process and documentation to support.

KCP&L continued to recognize and evaluate several market drivers, as so noted in its Business Plans from 2006-2009. Although some of the risks were identified in the

[66] Iatan Projects Cost Estimate and Schedule, July 17, 2006, page 6

original August 2004 PDR, the impact of those risks manifesting could not be costed based on the information available at the time. In addition, other risks emerged[67]. KCP&L further recognized that it understood its risks, and developed and implemented prudent management techniques to mitigate them, as discussed later in this testimony regarding the Corporate and Project risk management and project control processes that were established.

Both known and emerging risks impacted the project's cost and schedule including:[68]

- Labor and Manufacturing Capacity:
  - Strong market demand for new coal units as well as environmental retrofits for existing units to comply with CAIR and CAMR had put several other projects out for bid at the same time as Iatan Unit 2 resulting in additional demand on supplier's engineering and manufacturing resources. Construction of new facilities and retrofitting existing facilities constrained the available construction resources, resulting in significant higher prices and long lead times; and
  - Labor productivity.
- Supplier failures;
- Ability to attract and retain talent:

[67] An emerging risk is a risk element or condition which was not present or identified at any earlier stage in the project's risk management profile. Emerging risks often arise as a consequence of the long duration and complexity of mega-projects, especially for elements which are outside the control of, but impact upon, the execution of a mega-project. For example, sudden changes in the global economy such as those which impacted in the last 3 years would be an example of an emergent risk.

[68] Congressional Research Service Report for Congress, Power Plants: Characteristics and Costs, November 13, 2008; Black & Veatch, MMEA Presentation, Building New Baseload Generation in the Midwest, May 11, 2006

- Changing workforce demographics;
- Changing workforce expectations;
- Changing Business Environment regarding employee culture; and
- Employee skills.

- Commodity price volatility:
  - Already volatile commodity markets were even being further impacted by 2005 hurricanes which impacted the timing and availability of major steel contracts.
- Base operations affected by weather and natural gas volatility, coal conservation and unit outages;
- Fuel and energy prices exhibited volatile movement:
  - Coal transportation performance and costs.
- Environmental regulations;
- Rising interest rates which drive down share price, valuation and increase financing costs;
- Capital liquidity markets; and
- Tight budgets which strained technology, training and staffing

Q: Did Pegasus-Global find KCP&L's Project Budget and Cost Management systems prudent?

A: Yes. Pegasus-Global found that KCP&L employed the industry standards in both areas, and that decision making and decisions regarding Iatan Unit 2 costs were prudent.

Q: Did Pegasus-Global review the Vantage Testimony regarding the KCP&L Project budget and cost management systems?

A: Yes.

Q: **[redacted]**

A: **[redacted]**

Q: Vantage has testified that the cost control system for the Iatan Unit 2 Project was not in place in a timely fashion. Did Pegasus-Global examine this assertion?

A: Yes. As with other project control systems discussed within this testimony, initial cost control was accomplished using the KCP&L corporate level cost and accounting systems.

[69] Iatan Audit Report, July 17, 2007, page 5

Through early 2006 the primary project costs involved either KCP&L internal costs (i.e. project management salaries), limited engineering functions (i.e. development of the turbine generator and boiler island specifications) and consultant advisory services, using the corporate level cost and accounting system was appropriate. By August 2006, the project initiated work developing the project specific cost accounting and control system, establishing the project's control budget, code of accounts and reporting procedures and systems. By December 2006 the project cost management and control systems were fully in place and, by January 2007 the first status reports were issued under that project specific cost control system. In context to the project status, procurement had continued and accelerated moving through 2006, with two major engineered equipment contracts awarded to Toshiba and Alstom, and the owner's engineer scope of work awarded to Burns & McDonnell. In the fall of 2006 the first of the construction contracts was let to Kissick, with initial site work starting in the last quarter of 2006.

In Pegasus-Global's opinion KCP&L had adequate control over project costs throughout 2006 and found that prior to the full onset of construction the project specific cost control system was fully in place. In Pegasus-Global's opinion the cost control processes during that developmental stage were reasonable.

Q: Vantage has asserted that the cost control system used by KCP&L was inadequate because it was not "integrated" and it was a "manual" system. Did Pegasus-Global examine that assertion?

A: Yes. Vantage testified that during the development period the cost system was done "manually" and was not "integrated" (Vantage testimony at page 51, lines 14 – 18). Vantage did not define either of those terms. KCP&L's project cost control system did

have two manual elements: the first was to input relevant cost data from original source documents and the second was when the project cost data had to report up into the KCP&L corporate accounting system. First, every cost control system has some manual elements. For example, when invoices are received they must be manually reviewed and the relevant data has to be manually entered into whatever electronic cost control system is in used by a project.

Second, KCP&L is a regulated utility which means that from a corporate perspective it was required to meet FERC accounting and reporting regulations. At the point where the project level cost control system intersected with the corporate accounting system it was necessary to reorder the project cost account data to meet the corporate level accounting structure. **[redacted]**

[redacted]

[redacted]**[70]

[70] Schiff Hardin Status Report on Comprehensive Energy Plan Projects, page 20, March 28, 2007

Project cost control and corporate accounting worked together to develop an account code matrix that enabled that transition to occur on a routine basis. Simply put, the cost control needs of the project could not be met by the corporate FERC regulated accounting system nor could the corporate FERC required accounting and reporting requirements be met by the project cost control system. That transition does require some manual work following the matrix developed by KCP&L corporate and project staff.

Q: Vantage cites an attempt by KCP&L to implement a computerized cost control system entitled Skire. Are you familiar with that issue?

A: Yes. In 2007 KCP&L formed a team to look for ways to improve the total cost control process from the project level through the corporate level, if possible using a totally integrated electronic system. As part of that team's charge they examined what other regulated utilities were doing and found that only one of the companies, WPS, had to date been able to directly integrate its project and corporate accounting systems using two different base programs: Expedition and PeopleSoft. Every other regulated utility contacted was using the same process that was in place at KCP&L. Two of the utilities were using the same EXCEL program and one utility was using an Access Database for integrating the project cost data into the corporate accounting structures. In the case of WPS it reported that it took 5 months to implement the Expedition software and 3 months to complete the interfaces between Expedition and PeopleSoft. WPS also reported that it took a full day each month to download and process the data. The ultimate question facing that team was would KCP&L benefit from implementing such an integrated system at this time.[71]

[71] Cost Tracking System Power Point Presentation at the Comprehensive Oversight Committee, KCP&L, June 6, 2007, Slide 7

** [redacted] ** The Skire system is designed to be a project level cost control program and did not at that time have the capability of performing the integration function which was at the heart of KCP&L's issue. While the Skire system had features that could benefit the project cost control system (such as the change order management feature), the ultimate conclusion by KCP&L was that to modify the Skire system to the point at which the project cost control system and the corporate accounting system could be automatically integrated was simply too costly and would take too long to implement effectively for the Iatan Unit 2 project. As a result, KCP&L continued to maintain the interface matrix process between its project and corporate cost control and accounting systems as originally established in early 2007.

Q: Did Pegasus-Global reach any general conclusions relative to KCP&L's cost management system?

A: Pegasus-Global understands why it would be preferable to have a single, fully integrated cost control and cost accounting system, and, for utilities which are not subject to FERC regulations, systems such as Skire can be modified to meet both project and corporate needs. However, FERC regulations are prescriptive and there is no leeway in how regulated utilities must maintain their corporate accounts. Every regulated utility faces this same dilemma and, as reported in the KCP&L report to the EOC in June 2007, most of those utilities have ultimately used the same system in place at the Iatan Unit 2 Project. Pegasus-Global found that KCP&L's actions in searching for a single integrated project and corporate cost accounting program were reasonable and prudent. However, Pegasus-

Global also found KCP&L's ultimate decision to keep and maintain the matrix integration process already in place reasonable in light of the unknown amount of time or the ultimate cost to modify Skire system to take the place of a system that, while not optimal, was meeting the needs of the project and the corporation.

Q: What did Pegasus-Global conclude with respect to Iatan Unit 2 Project Schedule Management?

A: Pegasus-Global's review of KCP&L Iatan Unit 2 Project scheduling found that the process and reporting were appropriate and evolved with the evolution of the project and project management needs.

Q: What did Pegasus-Global conclude with respect to Iatan Unit 2 Project Schedule Development?

A: The initial Iatan Unit 2 Project Level 1 schedule was developed by Burns & McDonnell and included in the August 2004 PDR. This schedule was based on the plant characteristics and assumptions identified in the PDR and included key milestone dates, procurement and construction durations[72]. This schedule included a commercial operating date (COD) of October 10, 2009, start of engineering November 1, 2004 and start of construction May 1, 2006. Thus, this initial schedule provided a 42-month plan for construction and start up preceded by 18 months for design engineering, vendor engineering and procurement for a project schedule of 60 months. Permitting efforts were considered to be conducted parallel with the other project activities. The schedule critical path was through boiler island procurement and foundations. This level of

[72] Iatan Unit 2 Project Definition Report, KCP&L, August 2004, page 1 – 3, Appen. C

schedule is what Pegasus-Global would have expected at this point in time of a project and represents prudent utility practice.

KCP&L continued to rely upon Burns & McDonnell during this initial phase of the project to develop an Iatan Unit 2 Schedule until KCP&L hired a Project Controls Project Director in August 2006[73] who then assumed responsibility for the development, management and reporting on the Unit 2 project schedule.

Preparation of the Master Schedule continued throughout 2006 with developments of both Level 2 and Level 3 schedule culminating in issuance of the Unit 2 integrated baseline Unit 2 schedule in April 2007.[74]

In the spring of 2006, when KCP&L retained the Iatan Procurement Director, Steve Jones, the procurement group updated the Burns & McDonnell procurement schedule, which became the final procurement program for the project, (Jones, Unit 1 rebuttal testimony, page 5, lines 8-22) and was issued in September 2006 and later integrated into the Level 3 Unit 2 schedule issued in April 2007. This April 2007 baseline Level 3 schedule incorporated the evolution of the project since issuance of the Level 1 PDR schedule in 2004, including the reforecast of 2006, the September 2006 procurement schedule, the Alstom and Toshiba contract schedules, and the then current civil contractor schedules. In addition, "place holders" for BOP construction contracts that had not yet been executed, Start-up and Commissioning were also included. Additionally, as the work progressed and KCP&L monitored the progress this Level 3 schedule was re-baselined.

[73] Terry Foster hire August 2006;Iatan Station Weekly Status Update, August, 11, 2006, page 1
[74] Iatan Status Report, April 7 – 20, 2007, page 3

Thus, by September 2006 KCP&L had a detailed procurement schedule for all engineered long delivery equipment and materials ensuring their availability to support a June 1, 2010 Provisional Acceptance date and by April 2007 KCP&L had a level 3 Unit 2 baseline schedule on which to plan and manage the project, including BOP construction activities which did not start until late 2006.

Q: Did KCP&L continue to update the April 2006 Iatan Unit 2 baseline schedule after April 2006?

A: Yes. KCP&L's Project Control Director had responsibility for maintenance of the baseline schedule. This maintenance of the schedule included incorporation of the contractor's schedules as they were awarded, integration of change order as they were approved for the various contractors and consideration of contractor progress.

Q: Describe KCP&L's actions with respect to the development of the Master Schedule.

A: KCP&L's actions in its development of the integrated Master Schedule, including the discussions among the various stakeholders and parties completing the project, were typical of what Pegasus-Global would expect on a project the size and complexity of the Iatan Unit 2 Project. BOP contracting strategy decisions were determined by KCP&L to be a key factor before freezing the Project Baseline Schedule, a decision that Pegasus-Global found to be prudent and consistent with the need to have stakeholder buy-in. Once the BOP contracting strategy had been agreed, KCP&L proceeded to finalize the Project Master Schedule. Line-by-line schedule reviews were held with the schedule stakeholders and the KCP&L project management team, and the KCP&L project management team approved the integrated Master Schedule.[75] KCP&L continued to integrate and

[75] Schiff Report February 28, 2007, page 7

incorporate additional information as received, as evidenced by the BOP schedule integration which began in June 2007 and continued through the fall of 2007 when the Kiewit contract was signed. Consistent with the approach undertaken in its cost estimate update, KCP&L acted prudently in its actions and decisions to update the Master Schedule in conjunction with the May 2008 Reforecast. The final rebaselining of the Master Schedule was presented to the CEP EOC on November 24, 2008[76] and agreed to by Alstom and Kiewit in December 2008.[77] KCP&L continued to review and update the Master Schedule in conjunction with its cost revalidation in 2009, again involving all the Project stakeholders in the process, which exhibited good practice and fell within the zone of reasonableness.

Level 3 schedules were developed by each major contractor for their respective scope of work, including Burns & McDonnell, Toshiba, Kissick, Alstom and Kiewit. KCP&L used these schedules to update the overall Master Project Schedule. KCP&L evaluated and assessed how the various stakeholder schedules integrated with the overall Master Schedule and provided the expected oversight required to ensure all stakeholders were progressing towards the Provisional Acceptance date.

Beginning in January 2009, KCP&L, Alstom and Kiewit developed the project schedule impact team, charged with reviewing the scheduled activities and developing a set of agreed upon milestone completion dates for the Project while maintaining the Provisional Acceptance date of June 1, 2010. Throughout March 2009, the scheduling team continued working with the Project's major contractors to reach a re-baseline schedule

[76] CEP Oversight Committee presentation, Iatan 2 Level 1 Schedule, November 24, 2008
[77] Iatan Unit 2 Status Report, December 2008, page 30; Schiff Hardin Status Report on CEP Projects, November 24, 2008, page 23 – 24

maintaining the June 1, 2010 Provisional Acceptance while providing adequate time for start-up and commissioning activities.

By June 2009, the Project team held a series of schedule interface meetings with Alstom and Kiewit to review and reach agreement on all construction turnover (CTO) dates for the remainder of the Iatan Unit 2 Project. Both Kiewit and Alstom reached tentative agreements that aligned with their respective construction deliverables and dates with the individual systems that will be turned over to the start-up and commissioning teams in support of the project schedule.[78] KCP&L worked closely with both Alstom and Kiewit to formalize these tentative agreements. Pegasus-Global finds the schedule monitoring process undertaken by KCP&L to fall within a zone of reasonableness specifically due to:

- The contract approach taken by KCP&L and the other project control tools in place to monitor overall Project Progress against the Provisional Acceptance date;
- KCP&L's ability to use all the project control tools available to them; and,
- KCP&L's ability to hold individual contractors accountable to their own detailed Level 3 schedules.

KCP&L's schedule management concept was to set contractor and project milestones based on the critical path schedule early dates, thereby ensuring the float in the schedule was available as a contingency for the inevitable issues that arise on mega-projects. As the project progressed, KCP&L initiated meetings where schedule issues were reviewed and actions promulgated with contractors and other parties. Throughout the project schedule status reports were issued to construction and senior management were informed on timing of important project events and milestones.

[78] For example, Iatan Unit 2 Status Reports, Executive Summaries from January 2009, March 2009, June 2009

Q: What did Pegasus-Global conclude regarding whether KCP&L's exercised prudent management over the schedule and scheduling process?

A: Pegasus-Global found that KCP&L, based on the conditions at the time and weighing all its options and advice presented to it, took a prudent management approach in its monitoring of the project schedule as a whole and with respect to each individual contractor. Pegasus-Global found that the Iatan Unit 2 schedule management decisions and the decision making process were reasonable and conclude these decisions and decision making processes were prudent.

Q: **[redacted]**

A: **[redacted]**

[redacted][79]

- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]
- [redacted]

[redacted]

[79] Kansas City Power & Light Co., Strategic Infrastructure Investment Status Report, Second Quarter, 2009, page 32

[redacted]

[redacted]**[80]

From Pegasus-Global's review, Pegasus-Global concludes that KCP&L decisions on work-arounds, contractor negotiations, incentives, etc. to maintain the June 1, 2010 PAD were appropriate and consistent with prudent utility management practices.

**[redacted]

- [redacted]
- [redacted]
- [redacted]**

Q: What are Pegasus-Global's conclusions regarding KCP&L's management of schedule delays?

A: Pegasus-Global found that the process which KCP&L followed relative to the establishment of the Iatan Unit 2 completion date was within the zone of reasonableness that Pegasus-Global would expect for a utility. In addition, KCP&L was able to maintain its original anticipated completion date for nearly four years, despite the multiple unknowns and market conditions that were unforeseeable. **[redacted]

[80] Form 8-K filed by KCP&L on January 13, 2010

[redacted]

[redacted]**

Q: Did Pegasus-Global discuss the Iatan Unit 1 Project Scope and Change Management process in your Iatan Unit 1 Testimony?

A: Yes, the Pegasus-Global Iatan Unit 1 testimony, stated the following:

"**Q: Why is Scope and Change Management an important part of the management of a project such as Iatan?**

A: In any project such as Iatan Unit 1 it is necessary to provide clarity as to the responsibilities that each party has to complete the project. As changes in the project are recognized the identification of the responsibility for implementing the change and incorporating it into the project schedule and cost is required in order that unnecessary delays and costs can be avoided. These changes can be the result of scope changes in the contracting process or in the management of change orders as cost and schedule impacts are recognized during the construction execution period. If scope changes are not understood by the appropriate parties, the number and amount of change orders requests will also be increased. If scope changes and change orders are not proactively managed, projects experience submission of claims at the end of the project when the chance to mitigate the impact on project cost is limited.

Q: Have you investigated the management of Scope and Change processes on the Iatan project?

A: Yes, I have. In the review of project documentation I have seen numerous examples of efforts to identify and respond to scope changes and to deal with change order issues. **[redacted]** **

Another example of management attention to the change order process is found in a review of Oversight Committee Meeting presentations. In each of the presentations the Committee was provided a listing of change orders that were under review or had been resolved. This provided management information about the issues that were being addressed by the Iatan Unit 1 PMT and insured that KCP&L Senior Management was aware of the importance of the change process through the CEP Oversight Committee presentations.

Q: **[redacted]

A: [redacted]

[81]KCP&L Strategic Infrastructure Investment Status Report, Second Quarter 266, page 7, July 31, 2006

[redacted]**

(Nielsen Unit 1 testimony, page 54, line 6 – page 55, line 23)

Q: What were your observations and conclusions pertaining to Change Order Management for Iatan Unit 2?

A: Pegasus-Global concludes that the KCP&L management of the cost and scope change process at Iatan Unit 2 was appropriate in a project of this nature and falls squarely within a zone of reasonableness and thus is prudent.

Q: Why is Scope and Change Management an important part of the Management of a Project such as Iatan Unit 2?

A: As I discussed in my testimony regarding Iatan Unit 1, in any construction project and especially a mega-project like Iatan Unit 2, clarity as to the responsibilities that each party has is necessary to complete the project. As changes in the project are identified the identification of the responsibility for implementing the change and incorporating it into the project schedule and cost is required in order that delays and costs can be minimized. Changes can be the result of scope changes in the contracting process or in the management of change orders as cost and schedule impacts are recognized during the construction execution period. If scope changes are not understood by the appropriate parties, the number and amount of change order requests will also be increased. If scope change and change orders are not proactively managed, projects experience submission

of claims at the end of the project when the chance to mitigate the impact on project cost is limited.

Q: What did Pegasus-Global's review regarding the Management of Scope and Change Processes on the Iatan Unit 2 Project disclose?

A: Pegasus-Global reviewed project documentation discussed in the Iatan Unit 1 testimony, as well as in the review of documents on Iatan Unit 2. Pegasus-Global has seen numerous examples of efforts to identify and respond to scope changes and to deal with change order issues. As an example, in May 2006 during the negotiations of the Alstom contract, the project team insisted that Alstom identify pricing of subcontractor services instead of utilizing the change order process as Alstom was proposing. The project team stated its desire to avoid change orders to the extent possible.

Management attention to the change order process is found in a review of CEP EOC meeting presentations regarding both Iatan Units 1 and 2. In each of the presentations the EOC was provided a listing of change orders that were under review or had been resolved. This informed KCP&L management about the issues that were being addressed by the Iatan project management team and insured that KCP&L Senior Management was aware of the importance of the change process through the CEP EOC presentations.

Q: Is there additional evidence of the attention KCP&L Management was paying to the Change Process?

A: Yes. In each of the cost audits that were conducted for the combined two unit project by the Company with the assistance of E&Y, the change order process was reviewed and improvements were recommended. In subsequent audit reports it became clear that improvements had resulted through management attention to the needs for changes in the

processes, which is an indication of responsive management, which is evidence of prudent management. Additionally, in early 2007, as construction was ramping up in earnest on Iatan Unit 2, the project team contacted Skire to investigate the feasibility of utilizing the vendors "unifier" software product to manage the change order process and to allow all parties on the project to review documents and analysis supporting each change order. This system would also allow for real time status updates on all change orders. In this way there is less uncertainty about the status and disposition about individual change orders. This provided transparent availability of data that was integrated with other management tools utilized on the project. While the project management was using the change order program they were also loading information generated in the early stage of the project in order for all data to be available in one location for the entire construction period.

Q: What conclusions has Pegasus-Global reached about the Scope and Change Management Process on the Iatan Unit 2 Project?

A: Pegasus-Global has concluded that, as was found for Iatan Unit 1, KCP&L decisions and the decision making process regarding Iatan Unit 2 Scope Management and Change Management exhibited good management and was reasonable. Pegasus-Global concluded these decisions and decision making processes were prudent.

Q: How was the selection of the Owner's Engineer made by KCP&L?

A: As noted at pages 40 - 41 of Pegasus-Global's Iatan Unit 1 testimony, KCP&L utilized Burns & McDonnell to perform Owners Engineer services for the Iatan project early during early evolution of the project definition for both the Iatan Unit 1 and Iatan Unit 2 Projects. During that early project development phase Burns & McDonnell worked under

a "General Services Agreement," which is common practice in the industry and was appropriate to the scope of work involved in this early phase of the project definition development process. As is also expected with complex mega-projects, Burns & McDonnell's initial development work evolved and expanded as the project definition was refined and expanded and, in the case of Iatan Unit 2, culminated in Burns & McDonnell's preparation of the Iatan Unit 2 PDR in August 2004. However, Burns & McDonnell was not released to proceed with any significant level of engineering on Iatan Unit 2 pending the further refinement and expansion of the project definition beyond that contained within the 2004 PDR.

In one action taken to refine and expand the project definition beyond that contained in the 2004 PDR, in 2005 KCP&L engaged Black & Veatch, another experienced power plant engineer, to prepare technical specifications for the Iatan Unit 2 engineered boiler equipment and turbine generator.[82] The development of the boiler technical specification was arguably the most critical element to the completion of the Iatan Unit 2 Project preliminary definition, establishing the basis from which the majority of basic and detailed engineering of the project would flow.

As discussed earlier in this testimony, specific to Iatan Unit 2, by the fall of 2005 the project definition was sufficiently defined to the stage where the selection of an owner engineer under a formal a commercial project engineering relationship was possible. To this point two experienced power project engineering firms, Burns & McDonnell and Black & Veatch had participated in the development of the preliminary project definition.

[82] KCP&L Strategic Infrastructure Investment Status Report, First Quarter 2006, page 4, April 28, 2006

Thus, reasonably, KCP&L solicited proposals from both of those qualified power engineering firms. The proposals were not limited to provision of engineering services, as each firm was free to propose for any scope of work from pure engineering, to engineering with construction management scope to full EPC scope. Likewise there was no restriction placed on the contracting approach proposed by the two engineering firms; the firms could propose on a fixed price, unit rate, time and materials or hybrid contracting approach. Ultimately each firm submitted proposals that were not limited to engineering, but also included some procurement and construction scopes of work.

Each of those proposals was subjected to a formal review process by KCP&L, with each of those two contractors given an opportunity to present their respective proposals and address issues and questions which arose during the formal KCP&L reviews. On the basis of the selection process, in November 2005, KCP&L formally awarded the engineering scope of work for Iatan Unit 2 to Burns & McDonnell. (Giles direct testimony. December 17, 2009, page 15, line 9 – page 16, line 2 and page 20, line 3 – page 21, line 23)

Q: Was the process through which KCP&L selected the OE unusual within the industry?

A: Only in one respect; by having given Black & Veatch the work to develop the boiler technical specification, KCP&L was able to solicit proposals from two experienced power project engineering firms, both of whom had direct knowledge of the preliminary project definition. Normally one of the proposing engineering firms has that direct knowledge gained from the development of the PDR, while other proposing engineering firms must discern and digest the PDR from the Request for Proposal documents issued

by the owner. In this aspect, KCP&L's decision relative to Black & Veatch's development of the boiler technical specification was extremely beneficial and reasonable on the selection process, resulting in two complete and competitive proposals from two qualified engineering firms. Then, with respect to Iatan Unit 1, KCP&L released Burns & McDonnell to proceed with the engineering for Iatan Unit 1 AQCS in December 2005.

Q: What did Pegasus-Global conclude relative to the Iatan Unit 2 Project definition having been prepared under a General Services Agreement?

A: Development of initial or preliminary project definition is usually done under an Owner's General Services Agreement, as the scope of work is actually defined during the execution of that work. In effect, as the definition is developed and refined the scope of work expands to a point that the remaining scope of work involves the basic or detailed engineering of the actual facility. Basic engineering is the preparation of technical specifications for engineered equipment. Once these technical specifications have been drafted, work beyond that point ventures into facility basic engineering and detailed engineering. Pegasus-Global found that KCP&L employed its current "in house" engineer, Burns & McDonnell, for the development of the initial PDR. This is a standard practice within the industry because using an engineer which is already familiar with an Owner's practices, preferences and procedures save both time and money during the preparation of that initial PDR. Pegasus-Global found the use of the General Services Agreement both reasonable and prudent.

Q: **[redacted]

[redacted]

[redacted]**

A: **[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

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[redacted]

[redacted]

[redacted]

[redacted]**

Q: Did KCP&L retain the Owner Engineer in a timely fashion?

A: Yes. There is a difference between the formal process of negotiating and executing a contract on a project scope of work and the award and initiation of that scope of work by the engineer or contractor. On a mega-project a formal contract agreement will take much longer to negotiate and execute, and take a short period of time than it will take to initiate project work. Simply because the contract is not finalized does not mean that no work is

done to advance that scope of work. It is routine for the two parties to initiate work under a detailed LNTP or a General Service Agreement (GSA) that is necessary in order to advance work while the difficult process of negotiating a contract is pursued.

A contract document is a method by which risk is allocated among the two parties, and no experienced contractor or engineer would rush to execute a contract that it had not at a detailed level examined for every risk allocated to it, if for no other reason than to be sure that the contract price and schedule reflect that risk allocation. As of early 2006 there were still elements of the Iatan Unit 2 Project definition that had not been fully settled, including the delivery method and contracting approach to be utilized for the BOP scope of work. That ultimate decision had a direct bearing on the scope of work to be contained within the Burns & McDonnell contract, and thus the risk which would be allocated to and assumed by Burns & McDonnell.

What was defined was primarily the procurement scope of engineering work and responsibility for that scope was retained by KCP&L. Therefore there was a scope of engineering work available immediately for Burns & McDonnell in support of that procurement effort and that scope of work could be adequately covered under the GSA already in place between KCP&L and Burns & McDonnell. Continuing work under the GSA enabled KCP&L to initiate full activity on procurement of longer lead, engineered equipment supported by Burns & McDonnell's, engineering forces, all while completing the project definition and risk allocation structure as the Iatan Unit 2 specific engineering agreement was negotiated and executed.

Pegasus-Global found that KCP&L's actions to continue to "retain" Burns & McDonnell's engineering services under the GSA enabled KCP&L to move forward with

critical procurement of long lead equipment both reasonable and prudent for a mega-project. Given that there was no delay in the initiation or delivery of Burns & McDonnell's engineering services, there was merely a period when those services were controlled under the GSA until the project specific engineering agreement could be finalized and executed.

Q: What did Pegasus-Global conclude with respect to KCP&L's management of Burns & McDonnell?

A: On any project, and especially on a mega-project, one contractor is in isolation. As presented earlier in this testimony, mega-projects introduce a significant amount of stress among and between engineers, contractors, and suppliers, all of which the owner or its agent must manage. Pegasus-Global found that KCP&L was able to resolve all of those issues and stresses in a timely and efficient manner. Did Burns & McDonnell perform flawlessly? No. But perfection is not the standard for prudent decisions or their execution. KCP&L management had to resolve the issues and stresses which arise throughout the entire execution of a mega-project.

Q: **[redacted]**

A: **[redacted]**

[redacted]

[redacted]**

Q: **[redacted]

[redacted]**

A: **[redacted]

[redacted]

[redacted]

Q: [redacted]

A: [redacted]

Q: Did Pegasus-Global evaluate Iatan Unit 2 engineering status throughout the project period, relative to Procurement and Construction?

A: Yes. Relative to procurement of the major equipment, including the Unit 2 Boiler, the Steam Turbine, other engineered long lead items and the major civil works contract for the foundation, and ultimately, contracting for the BOP construction. These contracts were dependent on the engineering being adequately progressed to support the project. Pegasus-Global discussed KCP&L's contracting approach elsewhere in this testimony. Pegasus-Global concludes engineering progressed adequately to support all of these key project activities. As Steve Jones, KCP&L's Procurement Manager testified, (Jones Unit 2 rebuttal testimony, page 17, lines 1 – 18) by the end of 2006 Burns & McDonnell had provided technical specifications and bid evaluations for the completion of 24 contracts

with a combined value of almost $1Billion and that did not have any delay impact on the project.

Q: How does the status of the Engineering impact on specific Contracts?

A: As noted earlier in this testimony, all mega-projects including the Iatan Unit 2 Project are executed on a fast track sequence basis, the purpose of which is to reduce the overall time of project execution. This sequencing approach requires that both procurement and construction will start and progress before engineering is complete. As an example, as noted earlier, KCP&L authorized preparation of the Unit 2 boiler and turbine generator specifications in late 2005, recognizing that this major equipment must be committed before the plant layout can be finalized and foundation design can be started.

The Boiler contract for Iatan Unit 2 was awarded to Alstom on the basis of a performance specification to enable that scope of work to be executed under an Engineer, Procure and Construct (EPC) delivery method and fixed price contract, where Alstom had full responsibility for engineering, procurement and construction of the equipment purchased. When a contract is awarded on an EPC basis very little detailed engineering is required from the Owner Engineer though performance specifications will be need to be well developed. The Turbine Generator scope of work was awarded as an "engineer and fabricate" delivery method and with a lump sum purchase order contract approach, where Toshiba was responsible for the engineering and fabrication of the Turbine Generator. Again, though minimum detailed engineering is required, well developed performance specifications are required to bid this work and award a contract. Little detailed engineering design can be started prior to having details of the equipment from these two primary project component equipment suppliers. As also noted earlier in this testimony

KCP&L retained Black & Veatch to prepare these two technical performance specifications.

However, construction only contracts, such as the foundation contract with Kissick, require that the detailed engineering and design be complete and the KCP&L procured equipment and materials be available prior to the start of that work. This does not mean the designs are complete for the entire contract scope of work prior to award of the foundation contract, only that those foundation designs are completed and delivered to the foundation contractor as needed to support the planned completion of each foundations.

Based on Pegasus-Global's review of the owner engineer performance and the nature of the contracts awarded, the construction of the Iatan Unit 2 Project was not impeded by Burns & McDonnell's engineering.

Q: **[redacted]**

A: **[redacted]**

[redacted]**

Q: **[redacted]

[redacted]**

A: **[redacted]

[redacted]**

Q: What did Pegasus-Global conclude from review of the Burns & McDonnell scope of work?

A: Pegasus-Global has concluded from review of the Burns & McDonnell contract is that it is normal in the industry for the services being provided and that includes the pricing structure. Specifically, as Vantage notes in its report, the contract included for both qualitative and quantitative incentives, which Pegasus-Global finds to be both reasonable and prudent.

Q: **[redacted]**

A: **[redacted]**

Q: What was your ultimate conclusion relative to KCP&L's management of Burns & McDonnell?

A: Pegasus-Global found KCP&L's management of Burns & McDonnell to be both reasonable and prudent.

Q: Did Pegasus-Global evaluate Quality Management for Iatan Unit 2?

A: Yes.

Q: What did Pegasus-Global find?

A: KCP&L's project management assumed an oversight role of the quality assurance function, as Pegasus-Global would expect of a utility overseeing construction of a project the size and complexity of Iatan. Quality Control was the contractual responsibility of the specific contractors. As quality issues were identified over the course of the Iatan Unit 1 and Unit 2 Projects, KCP&L continually monitored those issues and, consistent with what would be expected, participated in identification of root causes, evaluations of impacts to project cost and schedule, and consistently held responsible contractors accountable.

**[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[83] Iatan Construction Project Quality Control / Quality Assurance Audit, January 2008

[redacted]

Q: What did Pegasus-Global conclude regarding the prudence of KCP&L's management of the quality process for Iatan 2?

A: Based on Pegasus-Global's review, KCP&L management actions with respect to quality assurance were reasonable and prudent.

Q: As part of your review did you evaluate KCP&L's procurement and contract administration programs.

A: Yes.

Q: Can you define what you mean by Contract Administration as you have applied it in your testimony?

A: Yes. Contract Administration is simply ensuring that a contractor complies with the terms and conditions of its contract and that the final product of that contract is fit for its intended purpose. As the Contract Administrator KCP&L was solely responsible to ensure that the engineer/designer, construction contractors, equipment vendors, and material suppliers engaged to execute a scope of work met the conditions of their contract agreement and that the ultimate product of that contract agreement was fit for its intended purpose. In short, KCP&L as the Contract Administrator in the Project was responsible to (1) make sure that the engineer, construction contractors, vendors and suppliers did what they had been paid to do and (2) to make sure that the engineer, contractors, vendors and suppliers are paid for the work completed per the terms and conditions of the contract.

Q: What are the primary functions of a Contract Administrator?

A: A Contract Administrator is directly responsible for, among other things, the following:

- Contract Enforcement;
- Waivers of Provisions and Conditions;

- Specification Interpretation;
- Change Management;
- Payment Management;
- Penalty Management (i.e. imposition of liquidated damages);
- Schedule Management;
- Quality Assurance;
- Warranty Enforcement;
- Subcontractor Management;
- Production Surveillance;
- Contract Breach;
- Resolution of Disputes;
- Project Termination; and
- Project Closeout.

Q: Why was KCP&L the Contract Administrator on the Iatan Unit 2 Project?

A: Because KCP&L "held" all of the contracts and procurement agreements directly, with no allocation of its responsibilities to a third party, such as, an independent Project Manager, Construction Manager or General Contractor. Initially all contracts and procurement agreements were by and between KCP&L the respective engineer, vendor, supplier or contractor, KCP&L was solely responsible to ensure that those parties all lived up to the terms and conditions of their respective agreements.

Q: As all the Contracts and Procurement Agreements were held directly by KCP&L initially; does that mean that KCP&L's role as the Project Contract Administrator changed during the course of the Project?

A: Yes. In the fall of 2007 KCP&L engaged Kiewit as the GC for the BOP work on Iatan Unit 2 as discussed earlier. That significantly reduced KCP&L's role as a Contract Administrator during the actual construction of the Project. With the engagement of Kiewit and the assignment of many of the contractors, subcontractors, vendors, and suppliers agreements to Kiewit, Kiewit became the Contract Administrator for those contracts and agreements assigned as well as the Contract Administrator for those contracts or agreements executed between Kiewit and subcontractors, vendors and suppliers subsequent to the execution of the Kiewit GC contract on November 8, 2007.

Q: Did KCP&L retain any Contract Administration Responsibilities after the engagement of Kiewit?

A: Yes. KCP&L was responsible for the following major project contracts:

- Burns & McDonnell – Engineering;
- Toshiba – Turbine Generator Supplier;
- Alstom –Steam Generator and Environmental Controls EPC; and
- Kiewit – General Contractor Balance of Plant

In addition KCP&L had contract administration responsibility for other service suppliers such as Schiff Hardin, E&Y, and others. However, the four contracts cited above were the primary project scope of work contractors over which KCP&L had direct contract administration responsibilities.

Q: When did KCP&L's Contract Administration Responsibilities begin?

A: In the summer of 2004 when Burns & McDonnell was engaged to work with KCP&L to develop the first PDR for the Iatan Unit 2 Project and throughout 2005 as Burns & McDonnell began preparation of the critical long lead procurement specifications for the

turbine generator and boiler systems. The first major equipment award was made to Toshiba for the turbine generator on March 16, 2006, with the formal contract agreement executed on April 14, 2006. That contract represented one of the first major contracts awarded on the project. The next major equipment award was made for the boiler island equipment to Alstom on April 28, 2006 under a LNTP as the formal contract was not executed until August 11, 2006. In essence, with those two awards KCP&L's major contract administration responsibilities began in earnest. **[redacted]**

Q: Did KCP&L have the policies, procedures and personnel in place to discharge those Contract Administration functions in 2006?

A: Yes. KCP&L solicited, awarded and administered the first contracts awarded in 2006 following its corporate level supply chain policies, procedures and processes. As the initial procurements were all for long lead equipment, the KCP&L Corporate supply chain policies, procedures and processes were appropriate for awarding and administering the work awarded and contracted for at that time. KCP&L was actively recruiting and adding project specific staff positions beginning in February 2006 and continuing into 2007, however, early on KCP&L enlisted staffing support from both Burns & McDonnell and Schiff Hardin to assist in both the development of the project execution plans and the procurement efforts which were the dominant contract administration tasks during 2006. The flow and pace of procurement through 2006

increased, as would be expected, with the majority of major equipment procured prior to the end of the first quarter of 2007 and the initiation of construction procurement beginning in the last quarter of 2006.

Beginning in the summer of 2006, with increasing project specific staffing on board, KCP&L began drafting project specific policies, procedures and processes, building upon the Supply Chain contract procurement and administration policies, procedures and process already in place. Pegasus-Global found that by the first quarter of 2007 all of the major contract administrative policies, procedures and processes were in place to enable KCP&L to effectively and efficiently administer the contracts awarded for the execution of the Project.

KCP&L was actively recruiting for the line staff positions necessary to use those policies, procedures and processes in administering the project contracts throughout 2006 and into 2007. Pegasus-Global found that the staffing was keeping up with the contract administrative needs through 2006; however, by the end of 2007 as procurement of major construction contract work was being initiated, a full complement of line staff had not been hired to administer all of the construction contracts contemplated. KCP&L's efforts to recruit that line staff were underway, however the market conditions for qualified and experienced staff were extremely tight at that time. This difficulty, in part led to KCP&L's decision to change its BOP construction execution methodology from multi-prime contractors to a GC, Kiewit, as indicated earlier in this testimony. That decision relieved KCP&L of the burden and risk of administering multiple construction contractors during the execution of the Project.

Q: Prior to the change in BOP Construction Execution Methodology and the Contract with Kiewit, did KCP&L administer those Contracts awarded reasonably?

A: Yes. Pegasus-Global found that KCP&L actively monitored execution under each contract awarded per the terms and conditions of those contracts. For example:

- Toshiba submitted their second invoice for payment on June 30, 2006. However, KCP&L's review of that invoice and the contract revealed that Toshiba had failed to meet the payment conditions of the contract that required certain submittals be made to trigger that payment. KCP&L notified Toshiba that the invoice would not be paid but would be held until the required submittals had been received. Once the required submittals were received KCP&L made the scheduled payment (August 2006).
- In late July 2006 Toshiba notified KCP&L that the engineering of the turbine generator would take longer than specified within the contract agreement. **[redacted]**
- **[redacted]**

[redacted]

[redacted]**

In every instance examined KCP&L acted as Pegasus-Global would expect a contract administrator to act. Specifically, KCP&L always responded in writing to any submittal or notification by a contractor; KCP&L always cited to the contract conditions and provisions in formulating its response; and, KCP&L always took allowable actions commensurate with the situation without automatically resorting to the default position of rejecting outright a contractors position or request.

Q: How did KCP&L's Contract Administration role change once Kiewit was awarded the BOP Scope of Work as a General Contractor?

A: KCP&L's contract administration role did not change in regards to the Burns & McDonnell, Toshiba, Alstom, and Kiewit contracts described above. In addition, its contract administration role relative to any equipment, material or construction contract not assigned to Kiewit under the BOP General Contractor contract remained the same. However, for those contracts or purchase orders assigned to Kiewit under the BOP GC contract, and the equipment, material and construction subcontracts awarded and administered by Kiewit under its role as the general contractor, the contract administration role shifted from KCP&L to Kiewit. For all practical purposes KCP&L's role during the BOP construction was one of coordination and execution oversight. Major contract coordination remained with KCP&L as indicated above. Thus KCP&L's responsibility under all four of those contracts was to administer all of those contracts in a coordinated manner in that by each contractor achieving its contractual responsibilities

none of the other contractors suffered a cost or schedule impact to its own scope of work. KCP&L was the only party in a position to coordinate those distinct scopes of work in such a way as to achieve project goals and objectives.

KCP&L's execution oversight role relative to the BOP scope of work was one of monitoring the critical elements of the project (cost, schedule, quality, and safety) to ensure that construction progress on the project was commensurate with achievement of those ultimate goals. In the event that KCP&L believed that the project primary goals were threatened under the BOP scope of work, it had the affirmative obligation to notify Kiewit of that perceived risk so that Kiewit could take appropriate action to remove or mitigate the risk.

Q: Was KCP&L's Contract Administration after the award of the BOP GC Contract to Kiewit Reasonable?

A: Pegasus-Global found that KCP&L had been proactive in monitoring the contractual scopes of work in an effort to mitigate any threats to the project goals as quickly as possible. Further, KCP&L continued its strict adherence to contract terms and conditions in discharging all of its contract administration duties and responsibilities. KCP&L has shown the ability to exercise flexibility in its administration of the contracts when simply enforcing the contract provisions may have established a barrier to the effective or efficient execution for the project. For example: KCP&L has adopted a "facilitated dispute resolution" process by which contractual disputes which arise between KCP&L and any of its contractors is moved into a process by which an independent facilitator is engaged in an effort to resolve the dispute immediately rather than imposing the contractual dispute resolution provisions contained within the contracts it holds.

An audit of KCP&L's primary contract control records, including cost, schedule quality and safety records and documents, indicates that KCP&L has reasonably administered the contracts for which it was responsible.

Q: What does Pegasus-Global conclude regarding KCP&L's Contract Administration?

A: KCP&L was prudent and their decision making process functioned as required. The use of facilitated negotiation is a technique that is in the forefront on contract administration.

Q: Has Pegasus-Global reviewed the Alstom Settlement Agreement executed with KCP&L on January 13, 2010?

A: **[redacted]

[84]Settlement Agreement Regarding Iatan Unit 2, January 13, 2010, Between KCP&L and Alstom

[redacted]**

[85] Settlement Agreement Regarding Iatan Unit 2, January 13, 2010, Between KCP&L and Alstom, Article C, page 7-9

Q: **[redacted]**

A: **[redacted]**

Q: **[redacted]**

A: **[redacted]**

[86] Settlement Agreement Regarding Iatan Unit 2, January 13, 2010, Between KCP&L and Alstom, Article A, page 1

[redacted]

[87] Settlement Agreement Regarding Iatan Unit 2, January 13, 2010, Between KCP&L and Alstom, Article B, page 2-5

[redacted]

- [redacted]

- [redacted]

[redacted]**

Q: Was this transition to system using turnover milestones to complete construction unusual from that practiced throughout the power industry?

A: No. By the summer of 2009 the project was entering a transitional phase from construction to startup testing and commissioning. Such transitions are not immediate, they are gradual as systems are finished and turned over to the group responsible to start and test those systems. The transition occurs as the construction schedule moves from being driven by construction activities to being driven by the plant commissioning team's preferred sequence for system completion and turn over. In July 2009 Alstom, Kiewit and KCP&L negotiated and set the system CTO date milestones and began tracking the

system progress by schedule fragnets established for each of those systems (see earlier testimony above). It is normal within the power industry to make a transition to a system turnover driven finish from a bulk construction phase. It is also normal for the parties to engage in a detailed examination of the turnover packages, the work remaining to complete construction, the preferred sequence of systems turnover, etc., and then to negotiate the final schedule to achieve those CTO dates.

Q: **[redacted]**

A: **[redacted]**

Q: **[redacted]**

A: **[redacted]**

[redacted]

[88] Settlement Agreement Regarding Iatan Unit 2, Alstom Power, Inc. and KCP&L, January 13, 2010, Articles B.1.a through B.1.c, pages 2-3

[redacted]

[redacted]**

Q: **[redacted]

[redacted]**

A: **[redacted]

[redacted]**

Q: What was your overall conclusion relative to the Alstom Settlement Agreement of January 13, 2010?

A: Pegasus-Global found that KCP&L followed the procedure and processes for resolution of disputes by negotiating omnibus settlements which were balanced, addressing the issues and concerns of both parties without resorting to a formal, adversarial claims process. Pegasus-Global found that KCP&L acted reasonably and prudently in negotiating and executing the Alstom Settlement Agreement of January 13, 2010.

Q: Has Pegasus-Global reviewed the Kiewit Settlement Agreement executed with KCP&L on November 20, 2009?

A: Yes. **[redacted]

[redacted]**

As has been discussed elsewhere within this testimony, KCP&L had adopted a process by which it refined its project cost estimate on a continuing basis throughout the execution of the project. At each point in that process KCP&L's goal was to increase the accuracy of the estimate based on the improved project definition, actual project status to date and increased certainty as to the work remaining to be executed. As has also been addressed earlier in this testimony, this process is normal within the power industry, especially insofar as estimating and cost control of mega-projects is concerned.

Q: Does Vantage address the Kiewit Settlement Agreement within its testimony?

A: **[redacted]**

Q: Do you agree with Vantage's findings and conclusions?

A: **[redacted]

- [redacted]

[89] Amendment to Contract for General Construction Services for the Balance of Plant for Unit 2, Kiewit Power Constructors Co., and KCP&L, November 20, 2009, Article 4.1, page 13

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]**

Q: Based on the project records and interviews, did Pegasus-Global evaluate the disallowance Vantage recommended?

A: Yes. Pegasus-Global conducted a detailed examination of Vantage's disallowance testimony in an attempt to understand the amount of the recommended disallowance and to determine the processes by which Vantage arrived at those disallowance figures. In general Pegasus-Global found that Vantage's disallowance testimony to be inconsistent and unsupported as there are several different "disallowance paths" presented within that testimony. Beginning at page 135 of its testimony, Vantage presents a number of alternative cost disallowance scenarios, including the following:

- Comparison with Similar Power Projects;
- Comparison with Trimble County Unit 2;
- Analysis of Budgets and Cost Reforecasts; and
- Review of Purchase Orders and Change Orders.

Pegasus-Global examined each of those Vantage disallowance categories in depth.

Q: Has Pegasus-Global undertaken any analysis regarding similar power projects executed at the same time as Iatan?

A: Yes.

Q: Has Pegasus-Global considered the Kansas Statute regarding plant cost comparisons?

A: Yes. Pegasus-Global considered the K.S.A.66-128g(3) which states: "*a comparison of the final cost of the facility under construction to the final cost of other facilities constructed within a reasonable time before or after construction of the facility under consideration*" and section (6) of that statute which states: "*a comparison of any overruns in the construction cost of the facility under consideration with any cost overruns of any other electric generating facility constructed within a reasonable time before or after construction of the facility under consideration.*"[90]

Q: What process did Pegasus-Global undertake in performing the total plant cost comparisons?

A: Pegasus-Global reviewed information that was publically available from sources including consultant research regarding coal-fired power plant construction costs, the CRS report for Congress on Power Plants: Characteristics and Costs, Fitch ratings for Iatan 2, reports prepared for the National Coal Council and the Department of Energy, reports by the U.S. Carbon Sequestation Council, Reports prepared for the Center for Energy and Environmental Policy Research, individual scholarly research papers, testimony prepared by officers of Louisville Gas and Electric Company and Kentucky Utilities Company in its application for adjustments in base rates, information prepared by the National Energy Technology Laboratories, various presentations made at Energy Conferences in the U.S. reports prepared for the Nuclear Energy Institute, and studies prepared for specific coal fired power plants that also use comparative information. These would be the types of information that would be available to utility executives to use when new estimates of the cost of a plant were evaluated or adapted. Pegasus-Global

[90] Kansas Statute 66-128g (2009); downloaded from http://kansasstatutes. lesterama.org/Chapter_66/Article_1/#66-128g on 7/19/2010

reviewed all these materials to determine what measures would allow Pegasus-Global to perform the comparisons as outlined in the KS statute. For cost comparison purposes, Pegasus-Global used dollars per kilowatt (kW) as power plant costs are often discussed in $/kW. The following factors were considered when Pegasus-Global performed its comparative review:

- Timing of the plant construction;
- Type of coal plant constructed;
- Type of fuel to be used;
- Size in MW of plant to be constructed; and
- Issues faced by other coal plants that were noted to have increased final costs.

Q: Why did Pegasus-Global identify factors for consideration when performing the cost comparisons?

A: Capital cost estimates can be misleading unless it is clear what assumptions stand behind them. Power plant capital costs have several components. Published information on plant cost often does not clearly distinguish which components are included in the estimate, or different analysts may use different definitions. The capital cost components are:

- Engineering, procurement and construction cost-the primary costs for building the plant. It includes the cost of designing the facility, buying the equipment and materials, and construction. In multi-unit power generating facilities, it is important to carefully consider "common" costs that would benefit more than one power generating unit;

- Owner's costs-these are any construction costs the owner handles outside the engineering, procurement and construction contracts and could include arranging for the construction of transmission and fuel deliveries to a power plant; and
- Capitalized financing charges-a plant developer incurs financing charges while a power plant is being built. This includes interest on debt and an imputed cost of equity capital. Until the plant is operating these costs are capitalized, that is, become part of the investment costs of the property for tax, regulatory, and financial analysis purposes.

The total cost of a power plant should include all capital costs, contingencies and financing costs. Total project costs may also include escalation to inflate costs to the value of the year in which the dollars will be spent. However, new power plant costs are also often referred to as overnight costs. Overnight costs literally represent the cost to complete a construction project overnight. It usually includes the costs of engineering, procurement and construction costs and owner's costs, but is net of financing costs and does not account for inflation or escalation. This overnight cost is often used so as to allow for comparisons without needing to factor in financing and escalation for an attempt to normalize costs.

Thus, it is important to understand what the costs include before making comparisons. Because there is a wide variation in costs depending on what factors are considered in identifying which specific plants might be possibly used in a plant comparison analysis and/or how to read reports relative to industry averages. "Common" costs should also be considered. All of the factors that are listed above can swing the cost/kW significantly and without putting that cost/kW into context, the cost comparison may be mixing apples

and oranges, thus resulting in any analysis that does so, meaningless and not useful for the purpose in which it was intended.

Q: In summary, what did Pegasus-Global determine from its review and analysis of the information?

A: Based on the analysis of the information Pegasus-Global reviewed, Pegasus-Global determined that the Iatan Unit 2 total plant cost is comparable to other coal plants of its size, type of fuel used, and the time period in which it was constructed. Pegasus-Global also determined that the cost overruns experienced by Iatan Unit 2 were comparable to other cost overruns that were being experienced by similar plants as described in the above testimony and were the result of similar issues faced by the Iatan Unit 2 Project.

Q: Can Pegasus-Global provide some examples of the information you reviewed which confirm your findings that the Iatan Unit 2 total plant cost and its overruns were comparable to similar plants being constructed in the same period?

A: Yes. Several academic institutions, research organization and government agencies have conducted analyses of the cost of electricity from various generating options. In May 2006, Black and Veatch made a presentation regarding building new baseload generation in the Midwest. While no specifics on total plant cost numbers were provided, Black & Veatch did note that coal plant costs were increasing due to 1) price escalation on commodities such as steel, copper and alloy, 2) AQCS equipment was an extremely tight market due to ongoing retrofit work, 3) boiler prices were increasing, and 4) the E&C industry was very "tight" with a limited number of capable players.[91] In January 2008, the Brattle Group, under contract to Connecticut Light and Power and United

[91] May 11, 2006 Black & Veatch MMEA Presentation, "Building New Baseload Generation in the Midwest; slide 20

Illuminating, published an Integrated Resource Plan (IRP) for the state of Connecticut. The IRP assumed the overnight capital costs for a supercritical pulverized coal (SCPC) plant to be $2,214/kW.[92] The Nuclear Energy Institute (NEI) prepared a model in 2010 from cost estimates from recent regulatory filings for projects that provides an EPC cost for a SCPC of $2250/kW and a total cost (includes EPC cost, owner's costs, and financing) of $2400/kW.[93] An April 2008 presentation at the Energy Information Administration (EIA) 2008 Energy Conference indicated that the cost of a new pulverized coal boiler, including financing costs would in the range of $2500-$3500/kW.[94] Synapse Energy Economics prepared a report in July 2008 entitled "Coal-Fired Power Plant Construction Costs", which compared a number of coal plants, including the cost overruns that had been experienced to date. The report gave the following findings and conclusions:

> *"Construction cost estimates for new coal-fired plants are very uncertain and have increased significantly in recent years. The industry is using terms like "soaring", "skyrocketing", and "staggering" to describe the cost increases being experienced by coal plant construction projects. In fact, the estimated costs of building new coal plants have reached $3500 per kW, without financing costs, and are still expected to increase further. This would mean a cost of well over $2 billion for a new 600 MW coal plant when financing costs are included. These cost increases have been driven by a worldwide competition for power plant design and construction resources, commodities, equipment and manufacturing*

[92] January 1, 2008 Integrated Resource Plan for Connecticut, The Brattle Group, Table C.2, page C-4
[93] Nuclear Energy Institution February 2010 White Paper "The Cost of New Generating Capacity in Perspective", page 12
[94] EIA Presentation by J. Heller, April 8, 2008, "New Baseload Coal Generation: Warts and All", Slide 17

capacity. Moreover, there is little reason to expect that this worldwide competition will end anytime in the foreseeable future....As recently as 2005, companies were saying that proposed coal-fired plants will cost as little as $1500/kW to $1800/kW. However, the estimated construction costs of new coal plants have risen significantly since then".[95]

Similar increases were noted in several of the materials reviewed. For instance, in the report done for the National Coal Council in 2004, the total plant cost of a SCPC plant in 2003 dollars was only $1,290/kW with the total capital requirement being $1,490/kW.[96] However, as noted in the Congressional Research Service (CRS) Report for the U.S. Congress dated November 13, 2008, construction costs for power plants have escalated at an extraordinary rate since the beginning of the decade and that the cost of building a power plant increased by 131% between 2000 and 2008. Costs were reported as increasing by 69% just since 2005. The factor cited for the cost increases were:[97]

- *High prices for raw and semi-finished materials, such as iron ore, steel and cement.*
- *Strong worldwide demand for generating equipment. China, for example, is reportedly building an average of about one coal-fired generating station a week*
- *Low value of the dollar.*
- *Rising construction labor costs, and a shortage of skilled and experienced engineering staff.*

[95] Synapse Coal Fired Power Plant Construction Costs, July 2008, page 1
[96] Opportunities to Expedite the Construction of New Coal-Based Power Plants, National Coal Council Report, Library of Congress #2005920127, page 27
[97] Congressional Research Service (CRS), Report for Congress, "Power Plants: Characteristics and Costs", November 13, 2008, page 18

Nine SCPC coal plants ranging from 580MW to 1000MW were studied in the November 2008 CRS Report with COD projected in 2012 or 2013. The average overnight cost per kW was $2,519 and the rounded average was $2500/kW.[98]

The Center for Energy and Environmental Policy Research (a joint center of the MIT Department of Economics, MIT Energy Initiative, and Sloan School of Management) prepared an update on the cost of nuclear power in May 2009 that compared nuclear to the cost of coal.[99] Included within the May 2009 update was a decision of the 2003 MIT Future of Nuclear Power study that was performed, which estimated that for a 1,000MW pulverized coal burning plant, in 2002 dollars the cost would be $1,300/kW capital cost. In 2007, MIT prepared a Future of Coal study which evaluated a broader set of coal-fired designs, including supercritical pulverized coal, and had a standardized overnight cost range of $1,280kW to $1,360/kW in 2005 dollars. This MIT study analyzed four SCPC plants whose overnight cost estimates ranged from just under $2,000/kW to just over $3,000kW. The MIT study noted that its central estimate of $2,300/kW was very close to the EPRI (2008) figure of $2,450/kW for a conventional supercritical pulverized coal plant.[100]

The capital costs estimates are consistent with other research that has been performed on the cost of constructing SCPC coal plants.

For example, Black & Veatch prepared a study for Florida Power & Light in January 2007 which screened level overnight capital costs for four coal technologies. The

[98] Congressional Research Service (CRS) Report for Congress, "Power Plants: Characteristics and Costs", November 13, 2008, page 73 - 75

[99] Center for Energy and Environmental Policy Research, "Update on the Cost of Nuclear Power", by Yangbo Du and John E. Parsons, May 2009, pages 22-23

[100] Center for Energy and Environmental Policy Research, "Update on the Cost of Nuclear Power", by Yangbo Du and John E. Parsons, May 2009, pages 27-28

estimate was based on Black & Veatch's proprietary estimating templates and experiences. Black & Veatch noted that capital cost estimates for all power generation technologies were exhibiting considerable upward trends and that market pricing of technology components, coupled with commodity and labor demand worldwide, was rapidly escalating capital costs. 2006 dollars indicated the cost of a SPC coal plant, exclusive of owner cost or escalation to be $1,540/kW. However, Black & Veatch projected a 2012 cost based on the same assumptions to be $2,925/kW.[101]

The DOE's EIA provides publically available documentation for the National Energy Modeling System (NEMS) model which it uses to project future energy trends for the United States. EIA's documentation includes the assumptions made by EIA regarding the capital and operating costs of system to generate electric power. In the May 2010 U.S. Carbon Sequestration Council Report, 2008 dollars are provided for a number of new power plants, including pulverized coal.[102] The overnight cost per kW was $2223. As noted in this report:

> "*The general trend is that prices* [for aluminum and copper] *were stable for several years prior to 2003, then rapidly escalated through mid-2008 (typically doubling earlier costs) then declined through early 2009 before recovering somewhat in the last half of 2009. Power plant cost estimates based on price behavior to 2004 did not anticipate this jump in construction material costs, and there is no certainty regarding where future commodity prices will stabilize, or if they will stabilize.*

[101] Black & Veatch, January 2007, Clean Coal Technology Selection Study, Final Report, Table 1-5, page 1-6
[102] May 2010 U. S. Carbon Sequestration Council, "Prospecting for Power: The Cost of Meeting Increases in Electricity Demand, page 14

A 2009 analysis by CERA [Cambridge Energy Research Associates] *concluded that power plant capital costs had more than doubled between 2000 and the third quarter of 2009."*

Q: What is Pegasus-Global's conclusion relative to the current cost of Iatan Unit 2 versus its original plan cost in comparison to similar plants being constructed?

A: The current **[redacted]** of Iatan Unit 2 is comparable to other similar coal plants being constructed in the same period. The cost overruns are also comparable to other SCPC plants constructed over the same period for similar reasons. Pegasus-Global notes that other utilities have made similar comparisons in their cost per kW comparisons and found similar results. For example, Paul Thompson, Sr. Vice President Energy Services of Louisville Gas and Electric Company and Kentucky Utilities, in his testimony regarding an adjustment of base rates regarding Trimble County 2, noted that the current market estimate was between $2,400-$3,000/kW.[103] Further, Fitch, in its March 2009 rating on the MJMEUC series 2006A and 2006B for the Iatan Unit 2 Project assigned a rating "A" noting that: "*The Project has experienced some delays and cost overruns that have increased the original estimated installed cost of $1,738 per kilowatt (kW) to the current estimate of $2,245 per kW. While this increase in the total project cost is notable, the projected "all-in" cost of power production is still competitive for the region.*"[104] It is Pegasus-Global's determination that the information available to KCP&L during the course of the Iatan Unit 2 Project for its decision making process and decisions made demonstrates that the decisions made by KCP&L were consistent with the industry

[103] Testimony of Paul W. Thompson, January 29, 2010, Ky PSC, Case No. 2009-00548 and 2009 – 00549, page 7
[104] Business Wire, March 9, 2009, "Fitch Rates Missouri Joint Municipal Electric Utility Commission Revs "A"

information available to it and that the cost per kW and the cost overruns experienced by the Iatan Unit 2 Project are comparable with those in the industry.

Q: Please describe Pegasus-Global's findings and conclusions relative to Vantage's testimony with respect to its Comparison with Similar Power Projects?

A: **[redacted]**

Q: Does Pegasus-Global have any disagreements with the manner in which Vantage conducted its power plant comparison study?

A: Yes. Pegasus-Global's examination of Vantage's "Comparison Factor Disallowance" identified five basic flaws in Vantage's comparative power project study:

- Vantage apparently attempted to select only EPC delivery methodology plants for its comparison (Vantage table at pages 142 – 143).[105] This implies that either there were no power projects which utilized a delivery methodology other than EPC executed during that period or that every plant that was delivered following an EPC methodology other than EPC was eliminated for selection into the comparative sample by Vantage. Pegasus-Global seriously questions the sources of the comparative power project data cited by Vantage. The data used in any comparative study must be reliable, timely and accurate if the comparative study is to be statistically valid. Of the 15 plants selected by Vantage for comparison purposes 11 cited a news article, a trade publication or a press release as the source from which the data was obtained (Vantage Table at pages 142 – 143). Scores of plants described in press releases are never built, and of those that are, a great percentage never achieve schedule, output, or $/kW projection. The information and data contained is such sources is questionable and should not be acceptable as a reasonable basis from which to conduct a meaningful comparison between different power projects or from which to calculate a rate base disallowance.
- Vantage used a very limited database of comparative information as a basis for its power project comparisons (Vantage table at pages 142 – 143. Pegasus-Global found the elements which Vantage used as its basis of comparison to be both too limited and overly broad.

[105] Vantage identified the Weston 4 project as an EPC contract with Washington Group. However, an August 15, 2008 press release identified the delivery methodology as multi-prime, noting that "We believe the MP allowed for better and tighter control cost as we negotiated fixed-price contracts for equipment and erection.", Power magazine, August 15, 2008

- Vantage did not provide any comparison to the individual scopes of work for each of the power projects it selected for its comparable sample. There is no differentiation in the Vantage comparable list of green-field, stand-alone units and units with common elements or structures. Pegasus-Global found the lack of any detailed scope of work element made the power project comparison by Vantage superficial and unreliable.
- Vantage failed to normalize the contextual conditions within which the comparative power projects were executed. There are a huge number of contextual factors which can impact the cost of executing a mega-project due both the complexity of mega-projects and the extended time frame over which they are built. The difference of even one year in the schedule of two mega-projects can have a significant impact on cost and/or schedule within which those two mega-projects are executed. For example: using Vantage's data on commodity price for the Power Wire and Cable commodity provides one example of the impact that even a single year's difference can have on the cost to execute a power mega-project (Vantage Exhibit WPD-20A graphic at page 79). According to Vantage in June 2005 the base index of Power Wire and Cable was at approximately 115; by June 2006 the base index of Power Wire and Cable was at approximately 170, an increase of approximately 55 points on Vantage's scale. According to the Vantage graphic, that one year represented the single biggest jump in the Power Wire and Cable index over the entire period between June 2006 and June 2009. The same graph shows the single biggest drop in the Power Wire and Cable commodity occurred between June 2008 and approximately March 2009, when the index

dropped approximately 185 to 135, a drop of approximately 50 points. Those variations, over a relatively short period of time when compared against the period it takes to execute a mega-project from initiation to completion, can have a significant impact on a projects total cost. For example, if Iatan Unit 2 procured the bulk of its Power Wire and Cable between June 2007 and June 2008, it would have paid significantly more for that commodity than a project which procured its Power Wire and Cable between June 2008 and June 2009. Pegasus-Global found that Vantage did not normalize the project conditions in order to insure that contextual conditions were not a factor during the power project comparison nor did Vantage identify the assumptions and basis used for the total plant costs identified on the table shown on page 142-143 of the Vantage Report.

At page 137 of its testimony Vantage warns "*that it is difficult to get timely and accurate information and therefore all numbers must be looked at with some reservation*" (Vantage at page 137, lines 11 – 13). Pegasus-Global completely agrees. **[redacted]**

Q: Does Pegasus-Global agree with Vantage's conclusions that its comparative power project cost analysis is an appropriate basis for disallowance of costs incurred for the Iatan Unit 2 Project?

A: No. For all of the reasons cited above Pegasus-Global does not find the comparative power project analysis conducted by Vantage an appropriate basis for determination of KCP&L imprudence or quantification of any rate base disallowance. The Vantage

analysis is flawed as it does not compare to other plant $/kW costs conducted by government analysis, university research, and other nationally-known energy power plant consulting firms. Pegasus-Global believes that to use the statement that some power projects cost more than other power projects as a basis to find a utility imprudent negates the requirement to develop a nexus of causation under which disallowances are directly linked to the actual decisions made and actions taken by a utility during the execution of the project. The power project comparative analysis conducted by Vantage does not directly establish that there was any imprudent action or decision by KCP&L which was responsible for the difference in cost between Iatan Unit 2 and any other project on Vantage's table as shown on page 142-143 of the Vantage testimony. **[redacted]**

Q: Please describe Pegasus-Global's findings and conclusions relative to Vantage's testimony with respect to its Comparison with Trimble County Unit 2?

A: Vantage selected Trimble County Unit 2 as a direct comparison to Iatan Unit 2 noting that the two plants and the two projects were "*in the same region, with similar project time frames and schedules*" but questioning how the two projects "*could have such different results*" (Vantage at page 144, lines 3 – 5). While Vantage addressed the comparison in terms of "*the same region*" and "*with similar project time frames and schedules*", Vantage said nothing about the projects having similar project risk profiles, similar scopes of work, similar physical limitations or conditions, similar regulatory environments, etc. The risk profile of the average mega-project generally run from

hundreds to thousands of separate elements and no two mega-project risk profiles are ever exactly the same; it is the totality of the project's risk profile as it evolves over the entire life of a mega-project which influences the course of that projects ultimate cost, schedule and quality.

That is precisely why hindsight should not be used in any evaluation of prudence. To conclude that if KCP&L had employed an EPC delivery methodology it would have been completed at the original budget or at a lower cost and it would have finished on the original schedule, ignores five years of actual project execution during which the risk profiles for both the Iatan Unit 2 Project and the Trimble County Unit 2 Project changed continuously. If the initial risk profiles of Iatan Unit 2 and Trimble County Unit 2 were placed side by side it is likely that they would have many risk elements in common, and just as many risk elements that are different. Even those risk elements shared in common would likely have different quantitative evaluations as to likelihood of occurrence and total impact in the event of occurrence, which again would make direct comparison between the two projects problematic at best. However, even if the two initial risk profiles were exactly identical, from almost the first day of the execution of each of those projects the risk profiles would evolve along different paths for a multitude of reasons spanning from issues as simple to understand as actual bad weather to issues as difficult to understand as commodity negotiated price breaks set at certain quantity plateaus by different suppliers for the same materials. Further, prudence is judged from the decision-making process and whether the decision made at a point in time was reasonable and prudent based on what information was known or should have been known at the time. Nowhere in the Vantage testimony regarding the comparison on Iatan Unit 2 to Trimble

County Unit 2 does Vantage discuss the decision making process of the two utilities nor what information was available to the two utilities in context of the respective risk profiles in arriving at the decision made which then resulted in cost and schedule impact. Vantage's "simple answer" is not helpful from a prudence perspective without evidence of a direct nexus of causation between the decision to select a project delivery methodology and the ultimate cost of the plant.

Q: Is this different from the plant comparison?

A: **[redacted]**

Third, Pegasus-Global's examination of Vantage's "Trimble County Unit 2 Comparison Factor Disallowance" identified the following flaws in Vantage's analysis and conclusions in comparing Iatan Unit 2 with Trimble County Unit 2:

- Trimble County 2 did not include common systems. Trimble County 1 was built in the 1990s as part of a multi-unit development. This is important because all the common systems and structures needed for a second unit were built at this time. Per Vantage's testimony exhibit WPD-7, the direct files testimony of John

Voyles, Vice President of Regulated Generation of LG&E Energy Services, regarding Trimble County 2 testified that, "The Trimble Station was originally developed as a multi-unit site and much of the full plant infrastructure was installed at the time of construction of TC1. ...These systems were built to handle the operation of multiple units with little or no modifications. The Companies can take advantage of these existing systems and infrastructure that would otherwise need to be developed and constructed. This significantly reduces the construction costs over having to ...develop a generating station in its entirety at a "greenfield" site." (Vantage Ex. WPD-7, Voyles testimony, KY PSC December 9, 2004, page 2, lines 11-22). Vantage did not report the full testimony of John Voyles and has given no indication that it has verified the Trimble County 2 plant costs. Vantage fails to include these common costs in the $/kW of Trimble County 2 to the $/kW of Iatan Unit 2, thus overstating the cost comparison between the two plants.

- Trimble County may in fact burn a different type of coal that Iatan Unit 2 or a blended coal. Specifically, as John Voyles also testified in his December 9, 2004 testimony to KY PSC, "The design fuel selection was focused around utilization of Kentucky coals and other regional bituminous high sulfur coals...TC2 will use the same Number 2 fuel oil for startup as is presently used for TC1. The primary fuel will be high sulfur coal: however a new coal blending system will be added to the existing coal handling system during construction of TC2 that will provide capability for burning blends of coal..." (Vantage Ex. WPD-7, Voyles testimony, KY PSC, December 9, 2004, page 4, lines 20-21, page 9, lines 1-4). Vantage makes no indication as to whether the costs for a new coal blending system have

been included in the $/kW cost nor any indication as to how the use of local Kentucky coal versus the transport of Powder River Basin coal would have on the cost of Trimble County 2 versus the cost of Iatan Unit 2.

- The construction of Trimble County 2 involved non-union labor.[106] The use of non-union labor can substantially reduce the labor costs of constructing a power plant. Vantage fails to disclose this fact and does not quantify the savings in the Trimble County 2 total cost from the use of non-union labor.
- Vantage has not accounted for potential claims in the Trimble County 2 $/kW price. Records indicate that potential claims are pending which could affect the total price and in-service date of the plant.[107]

The above factors alone demonstrate that Vantage's comparison of Iatan Unit 2 to Trimble County is not a true comparison of similar plants.

Q: **[redacted]**

A: **[redacted]**

[106] November 16, 2007 letter from Illinois Municipal Electric Agency and Indiana Municipal Power Agency to Chairman, Kentucky State Board on Electric Generation and Transmission Siting Re: Joint Application of the Illinois Municipal Electric Agency and the Indiana Municipal Power Agency of Approval to be a 25% Partner in the Construction of a 750 Megawatt Addition to the Existing Trimble County Facility in Trimble County, Kentucky

[107] IMEA Board of Director's Meeting, Minutes of February 19, 2009, page 2, IMEA Executive Board Meeting, Report of January 27, 2010, page 2-3

[redacted]

[redacted]**

Q: **[redacted]

[redacted]

[redacted]**

A: **[redacted]**

Q: **[redacted]**

A: **[redacted]

- [redacted]

- [redacted]

[redacted] ** Pegasus-Global found that the 2004 PDR estimate was never identified as, or intended to represent a firm, fixed cost for execution of the Iatan Unit 2 Project. In fact, Burns & McDonnell had specifically noted that the cost estimate contained within the 2004 PDR was a "Feasibility Grade Capital Cost Estimate".[108] The American Association of Cost Engineers, International (AACEI) classifies estimates in relation to expected accuracy level using a 5 Classification Scale. After reviewing the estimate produced within the 2004 PDR Pegasus-Global determined that the estimate was a AACEI Class 4 estimate, used primarily for feasibility studies and generally based on between 1% and 15% design definition (engineering completed at the time), factored costs for equipment (average of vendor non-binding basic costs), and parametric modeling of other costs (statistical averages of labor, etc.).[109] As a Class 4 estimate the accepted accuracy range is from 30% low to 50% high. **[redacted] ** Using the AACEI factors, Pegasus-Global found that the 2004 PDR estimate was not a detailed project estimate and was therefore is not an acceptable base estimate from which to calculate a total project cost increase for the Iatan Unit 2 Project.

[108] PDR, August 2004, Section 1.1 page 1.2
[109] AACE International Recommended Practice No. 18R-97, *Cost Estimate Classification System, As Applied in Engineering, Procurement, and Construction for the Process Industries*, page 2, 2005

Q: In Pegasus-Global's opinion, which of the cost estimates represent the baseline budget estimate for the Iatan Unit 2 Project?

A: The Control Budget Estimate (CBE) issued in December 2006 represents the first baseline control budget for the Iatan Unit 2 Project. The CBE was based upon an estimate completed by KCP&L and Burns & McDonnell, with assistance from other KCP&L advisors.

Q: Why does Pegasus-Global believe the Control Budget Estimate of December 2006 is the first baseline budget for the Iatan Unit 2 Project?

A: Pegasus-Global reviewed the December 2006 CBE estimate and determined that it conformed to the factors used in an AACEI Class 3 estimate. According to AACEI, Class 3 estimates typically form the initial control estimate against which actual cost will be monitored. According to AACEI Class 3 estimates use more deterministic estimating methods rather than stochastic methods used in Class 4 and 5 estimates. Pegasus-Global found that the estimate performed in 2006 was based in part on actual locked in costs for two of the primary pieces of engineered equipment, the turbine generator and the boiler island. The boiler island was awarded on a fixed price contract approach and the turbine generator was on a lump sum price for provision of the turbine equipment. **[redacted]** In addition, once those two decisions were made, the work on the detailed project definition was progressed to the point where the total definition (engineering) had increased significantly from the project definition which existed prior to the 2004 PDR estimate. The 2006 CBE estimate included unit costs for commodities and estimates of commodity quantities based on preliminary engineer. After

review, Pegasus-Global determined that the 2006 CBE estimate was an AACEI Class 3 estimate and therefore an acceptable estimate from which to establish the first Iatan Unit 2 control budget.

Q: **[redacted]**

A: **[redacted]**

Q: **[redacted]

[redacted]

[redacted]**

A: **[redacted]

[redacted]

[redacted]

[redacted]**

Q: **[redacted]

[redacted]**

A: **[redacted]

[redacted]

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[redacted]

[redacted]

[redacted]

[redacted]**

Finally, Pegasus-Global's examination of the estimates and reforecasts in question reflect what would be expected for a mega-project the size and complexity of the Iatan Unit 2 Project in that design is evolutionary practically throughout the entire life of the project. Because of the extended execution time, mega-projects such as Iatan Unit 2 are also subjected to significant shifts in project and industry conditions, over which the owner may have little or no control. For that reasons no one in the industry, including AACEI, the authority that promulgates the most widely referenced industry guidance on project cost estimating and control, speak of estimates in terms of ascending levels of accuracy as a project moves toward final completion. Pegasus-Global found nothing in the estimates or the reforecasts which would indicate that changes in the estimates were a result of imprudent decisions made or actions taken by KCP&L.

Q: Did Pegasus-Global review Vantage's testimony with respect to its assertions relative to Purchase Orders and Change Orders?

A: **[redacted]**

Q: **[redacted]

A: **[redacted]

[redacted]

[redacted]**

Q: What is your ultimate opinion regarding Vantage's disallowance recommendations?

A: For all of the reasons identified throughout this testimony, Pegasus-Global disagrees with all four of Vantage's disallowance recommendations.

Q: Does that mean that Pegasus-Global recommends that there be no disallowance from the Iatan Unit 2 rate base?

A: No. Based upon Pegasus-Global's independent review of the Iatan Unit 2 Project, Pegasus-Global has concluded that certain costs are not appropriate for inclusion in the rates because Pegasus-Global found that they were caused by imprudent decisions. These disallowances are discussed in detail in the following section.

Q: During Pegasus-Global's review of the Iatan Unit 2 project costs did Pegasus-Global identify any issues which Pegasus-Global found to have been imprudent and which resulted in costs which you believe should not be borne by Kansas ratepayers?

A: Yes. Pegasus-Global identified two issues which when examined within the contemporaneous structure of the project at their respective times were found to be imprudent. **[redacted]**

Q: **[redacted]**

A: **[redacted]**

[110] Letter Thomas Kelly, Alstom to Brent Davis, KCP&L, January 20, 2009
[111] Letter, Carl Churchman, KCP&L to Steve Iyer, Alstom, January 20, 2009
[112] Contract between KCP&L and Alstom Power, Inc. for Engineering, Procurement and Construction Services for the Pulverized Coal-Fired Boiler at Iatan Generating Station Unit 2, August 10, 2006, Article 8.1, page 17

[redacted]

[113] KCP&L Strategic Infrastructure Investment Status Report, First Quarter 2009, Section 6.3.1, pages 25 – 26, May 2009

[redacted]

[114]Letter Thomas Kelly, Alstom to Brent Davis, KCP&L, January 20, 2009

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Q: **[redacted]

[redacted]**

A: **[redacted]

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[115]*E-mail, David White to Myra Burgess, February 22, 2010
[116] Letter, Carl Churchman, KCP&L to Andre Aube, Kiewit, October 21, 2009

[redacted]

[redacted]**

Q: **[redacted]

[redacted]**

A: **[redacted]

[redacted]

Q: Have you personally reviewed Staff and Staff consultant testimony regarding prudence?

A: I have.

Q: Is there anything in that testimony that would cause you and Pegasus-Global to change your mind and recommend additional disallowances.

A: No, nothing at all. Everything raised by the Staff and Vantage was already considered by Pegasus-Global as part of its comprehensive review.

Q: What is your overall assessment of KCP&L's management of Iatan Unit 2?

A: Iatan Unit 2 is a mega project, costing over $1 Billion and taking 5 or more years to complete. Mega projects are complex technically, and managerially, and things go wrong, or not as planned. As Pegasus-Global would expect, things went wrong and not as planned on Iatan Unit 2, but this is not evidence of lack of prudence. To the contrary,

Pegasus-Global believes that KCP&L was prudent, that they had a solid plan, developed the necessary organization and controls, made good decisions from practical and available options, managed the contractors and the processes, and, perhaps most importantly, measured their performance and made changes when appropriate. With the two exceptions already noted, this was a prudently managed project.

Q: Does that conclude your testimony?

A: Yes, it does.

BEFORE THE STATE CORPORATION COMMISSION
OF THE STATE OF KANSAS

In the Matter of the Application of Kansas City Power & Light Company to Modify Its Tariffs to Continue the Implementation of Its Regulatory Plan	)))	Docket No. 10-KCPE-415-RTS

AFFIDAVIT OF KRIS R. NIELSEN

STATE OF WASHINGTON)
) **ss**
COUNTY OF KITTITAS)

Kris R. Nielsen, being first duly sworn on his oath, states:

1. My name is Kris R. Nielsen. I am Chairman and President for the firm of Pegasus-Global Holdings, Inc. Kansas City Power & Light Company engaged the services of Pegasus-Global Holdings, Inc. to provide certain services in connection with the Iatan construction projects.

2. Attached hereto is my Rebuttal Testimony on behalf of Kansas City Power & Light Company in the above Docket.

3. I have knowledge of the matters set forth therein. I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded, including any attachments thereto, are true and accurate to the best of my knowledge, information and belief.

Kris R. Nielsen

Subscribed and sworn before me this 19th day of July, 2010.

Notary Public

My commission expires: July 12, 2012

Exhibit 7 (KRN-7) Kris R. Nielsen

Selected Representative Engagements

Exhibit 7 (KRN-7)

Kris R. Nielsen

Selected Representative Engagements

Selected Risk Management Engagements:

- Wisconsin Public Service Company, WI, USA
- La Paloma Combined Cycle Plant, Bakersfield, CA, USA
- Rio Madeira Dam and Hydro Electric Plant, Brazil
- Ontario Ministry of Transportation – Risk Management Evaluation of The Rapid Transit Program for Metro, Canada
- GAPP Analysis for Foster Wheeler Energy, LTS, Foster Wheeler Emergia, Foster Wheeler Italiana, and Foster Wheeler PTL. Investment Group on a variety of construction projects, worldwide
- GAPP analysis to evaluate all Babcock Power, Inc. – Corporate processes and procedures relative to their current operations, USA
- SMUD – Combined Cycle Plant CA, USA
- Crossroads Cogeneration Plant, FL, USA

Selected Construction Claims Engagements:

- Covert Combined Cycle Plant MI, USA
- Red Hills Coal Fired Power Plant MS, USA
- Baytown Bridge, TX, USA
- Kewaunee Nuclear Plant – replacement steam generators
- Conoco Cogeneration Plant, TX, USA
- Elsta Cogeneration Plant, Terneuzen, The Netherlands

- Rabigh Combined Cycle Power Plant, Saudi Arabia
- Ave Fenix Power Plant, Argentina
- Merilectrica Gas Turbine Plant, Columbia
- PP9, Saudi Arabia

Selected Risk Management Papers and Presentations:

Invited, Keynote and Featured Presentations

- Panel Member, "The Engineers Responsibility for Risk Management," *International Symposium on Social Management Systems, Annual Conference for the Society of Social Management Systems*, Ying Chang, Hubei, China, March 9 - 11, 2007
- "Risk Management Techniques Evolving Project Management Tools For All Seasons," The Third Civil Engineering Conference in the Asian Region (The 3rd CECAR), Seoul, Korea, August 16 - 19, 2004
- "How Risk Management is Causing an Evolution in Project Management Consulting," 2003 Special Lecture Series, Kochi University of Technology, Kochi, Japan, November 21, 2003
- "Energy Development and Risk," *Alternative Energy and Environmental Futures,* Boston University, Boston, Massachusetts, April 10, 2002
- "Construction Risk Management Simplified," *University of Wisconsin*, Madison, Wisconsin, March 26 - 27, 2001
- "Principles and Practices of Effective Risk Management," *University of Wisconsin*, Madison, Wisconsin, April 14 - 15, 1999

- "Construction Risk and Application to AusAID Projects," AusAID, Canberra, Australia, August 21, 1998
- "Risk Allocation in Design-Build and BOT Projects," Civil Engineering International Conference on Asian Infrastructure, Sustainable Development and Project Management, Manila, Philippines, February 19 - 20, 1998
- "What are Today's Emerging Risks?" Identifying, Minimizing and Quantifying Construction Risk and Disputes, London, England, October 31 – November 1, 1996
- "Risk Management Analysis Techniques for Projects with Significant Environmental Issues," co-authored with P. Galloway, ASCE-SAS Second Regional Conference and Exhibition, Beirut, November 16 – 18, 1995
- "Overlooked Risks-A Project Risk Manager's Experience," World Conference on Construction Risk, Singapore, October 5 - 6, 1995
- Co-presenter, "Project Risk Management-A Necessity for Today's Engineered Projects," *Tarumanagara University*, Jakarta, Indonesia, May 2, 1994
- "Anticipating Problems: Project Risk Assessment and Project Risk Management," Chapter 6, "*Collaboration Management, New Project and Partnering Techniques*," edited by H. Schaughnessy, John Wiley & Sons 1994
- "Project Risk Management," *Panama Canal Commission*, Panama, April 20 - 22, 1994
- "Project Risk Management-Preventative Medicine for Your Project," *Resolving Disputes in Construction Contracts through ADR Techniques*, Geneva, Switzerland, November 12 - 13, 1992

- "Project Risk Management," *Alternative Power in New England Conference Book*, Farmington, Connecticut, November 7 - 8, 1989
- "Managing Risk on CM Projects," Proceedings of CM Forum 84 Conference, Construction Management Association of America, Madison, Wisconsin, May 31, 1984

Publications

- "Some Practical Thoughts-Risk Allocation Regarding Airport Projects in China," *IPBA Conference: Risk Allocations on Airports Session*, Beijing, China, April 23, 2007; also published on the Society of Social Management Systems (SSMS), Internet Journal, 2007
- "Force Majeure-Managing This Project Risk," *Inter-Pacific Bar Association, 4th Annual Conference*, Singapore, May 3 - 6, 1994
- "Risk Management Lessons from Six Continents," *Journal of Management in Engineering,* Volume 22, No. 2, pp. 61, April 2006
- "Project Risk Management-Achieving Goals," co-authored with P.D. Galloway, 11th INTERNET World Congress on Project Management, Florence, Italy, June 16 - 19, 1992

Conference Presentations

- "De-Mystifying and Repositioning the Risks Between IOCs, NOCs and E&C Contractors," The International Construction Superconference, London, United Kingdom, September 4, 2008
- "Large-Scale Railway Projects – Mitigating the Risks," Panel Chairman, Inter-Pacific Bar Association, Los Angeles, CA, USA, April 29, 2008

- "Experienced Based Recommendations on Risk Allocations for Both Owners and Contractors," Practical Strategies for Successful International Projects, São Paulo, Brazil, November 20 - 21, 2006
- "Risk-Based Processes that Assure Anti-Corruption Processes and Promote Transparency and Governance in Resource Extraction Industries," co-authored with Patricia Galloway; *International Conference on Infrastructure Development and the Environment*, Aguja, Nigeria, September 10 - 15, 2006; *Society of Social Management Systems (SSMS), Internet Journal*, 2007
- "Case Study Summaries: Talk vs. Practice-or the Truth vs. Practice on Risk Management Usage by Contractors and Owners," *Construction Institute Regional Conference,* Chicago, Illinois, June 15 - 16, 2006
- "Risk Management Lessons from Six Continents" ASCE Pipeline 2004 Conference, San Diego, California, August 2, 2004
- "Execution Risk Management in Design-Build Infrastructure Projects," Proceedings of the Construction Institute Atlantic Coast Construction Conference, Tysons Corner, Virginia, May 12 - 13, 2004
- "Risk Identification and Allocation," Global Construction Superconference, London, United Kingdom, November 5 - 6, 2001
- "Project Risk is Not Generic and Can be Improved during Conception to Birth of a Project," Infrastructure 2000, San Francisco, California, June 7, 2000
- "Risk Management in the International Marketplace" International Markets Conference, The International Steering Committee of the American Consulting Engineers Council, Washington, D.C., June 5 6, 2000

- "Dealing with Risks on Nuclear Waste Sites," The Environmental Superconference, Washington, D.C., April 28 - 29, 1999
- "Management Approaches to Construction Risk on Infrastructure Projects in Latin America," The Latin American Market, The Fourth Annual Conference, Turnberry Isle Resort & Club, Aventura, Florida, November 17 - 19, 1998
- "The Essence of Construction Risk," Minimizing Risks in Construction Projects and Resolving Construction Disputes, Hong Kong, September 28 - 29, 1998
- Moderator, "Minimizing Risks on International Projects by Developing and Maintaining Effective Project Documentation," Worldwide Infrastructure Partnerships, New York, New York, June 24, 1998
- "Structured Risk Identification and Allocation as a Component of Construction Program Management: A Process that Knows No Boundaries," *ASCE Washington, D.C. Convention, Session: International Contracting Practices*, Washington, D.C., November 11, 1996
- "Panel of Experts-Risks Most Overlooked," World Conference on Construction Risk III, Paris, France, April 25 - 26, 1996
- "What are Today's Emerging Risks?," Seminar on Emerging Risks in Construction: How to Minimize, Manage & Avoid Disputes, New Orleans, Louisiana, May 10 - 12, 1995; Indian Wells, California, October 19 - 21, 1994
- "Project Risk Management: Concepts and Applications," Seminar on Emerging Risks in Construction: How to Minimize, Manage & Avoid Disputes, New Orleans, Louisiana, May 10 - 12, 1995; Indian Wells, California, October 19 - 21, 1994

- "International Construction Projects-Managing Risk in the Field," *World Conference on Construction Risk*, Paris, France, April 28 - 29, 1994
- Co-presenter, "Project Risk Management & Reviewing and Analyzing Damages" *Seminar on Managing Risk and Minimizing Disputes in Construction Contracts*, Hilton Head Island, South Carolina, October 6 - 8, 1993
- "Project Risk Management-Achieving Goals and Minimizing Disputes," *Construction Superconference*, San Francisco, California, December 3 - 4, 1992
- "Risks and Liabilities of Specifications," American Society of Civil Engineers Specialty Conference, San Diego, California, February 1981

Selected Construction Claims Papers and Presentations:

Invited, Keynote and Featured Presentations

- "Quantifying the Damages," Minimizing Risks in Construction Projects and Resolving Construction Disputes, Hong Kong, September 28 - 29, 1998
- "Construction Scheduling: Preparation, Liability, Claims and Damages," Panama Canal Commission, June 12 - 16, 1995
- "Standard Construction Contracts," Construction Disputes-Analysis and Management, Winnipeg, Canada, November 1 - 5, 1993
- "Construction Disputes: Framing the Management Issue," Construction Disputes-Analysis and Management, Winnipeg, Canada, November 1 - 5, 1993
- "Disruption / Productivity Cost Claim Analyses," co authored with P. Galloway, Construction Disputes - Analysis and Management, Winnipeg, Canada, November 1 - 5, 1993

- "CPM Scheduling Delay: Window Analysis, Concurrency and Proof," co authored with P. Galloway and M. Ramey, Construction Disputes-Analysis and Management, Winnipeg, Canada, November 1 - 5, 1993
- Co-presenter, "Schedule Delay Analysis," *WASHTO Annual Conference*, Oklahoma City, Oklahoma, June 23 - 24, 1993
- "International Contract Administration Issues: Project Documentation, Dispute Proofs, Programmes and Productivity," Training Workshop on International Construction Contracts and Contractor Claims, The International Development Law Institute (IDLI), Rome, Italy for the Finnish International Development Agency (FINNIDA), Helsinki, Finland, October 13 - 16, 1992
- "Overcoming Schedule Delay-Analyzing and Resolving this Project Nemesis," co-authored with P. Galloway, *IIR National Construction Conference* in Sydney, Australia, August 28 - 29, 1991
- "Schedule Delay Concurrency Issue Analysis & Proof," co-authored with P. Galloway, *International Cost Congress*, Paris, France, April 1990
- Co-program Leader and Papers, "Schedule Delay: A Productivity Analysis," Kentucky Transportation Cabinet and Kentucky Transportation Center Critical Path Method Scheduling Course, Lexington, Kentucky, December 1989
- "The Techniques of Analysis and Pricing of Damages that Flow from a Construction Failure," co-authored with P. Galloway and R.F. Jacobsen, *Construction Failure and Disaster Superconference*, New York, New York, March 23 - 24, 1988

- "Damages: The Cost Impact from Failures," *Failures Handbook*, Albert Dib, Editor, Clark Boardman, 1985

Publications

- "Force Majeure-Managing This Project Risk," *Inter-Pacific Bar Association, 4th Annual Conference*, Singapore, May 3 - 6, 1994
- "International Contract Administration Issues: Project Documentation, Dispute Proofs, Programmes, Productivity," co authored with P. Galloway, IDLI, Rome, Italy, December 12, 1991
- "International Construction Dispute Proofs," co-authored with P. Galloway, *Nordnet '91 Transactions: The Practice and Science of Project Management*, Trondheim, Norway, June 3 - 5, 1991
- "Schedule Delay Concurrency Issue Analysis & Proof," co authored with P. Galloway, The International Construction Law Review, Volume 7, Part 4, October 1990, pp. 386 - 401
- "Evaluating the Contractor's Right to Finish Early," co authored with P. Galloway, Project Management Institute Book of Proceedings, Calgary, Canada, October 1990
- "Proof Development for Construction Litigation," co-authored with P. Galloway, *The American Journal for Trial Advocacy*, Volume 7, No. 3, Cumberland School of Law of Samford University, Birmingham, Alabama, Summer 1984, *Yearbook of Construction Articles,* Volume 4, Federal Publications, 1985
- "Calculation of Lost Profits from Lost Business Opportunities," co authored with J. Galeno, Transactions of the Eighth International Cost Engineering Congress

and 28th Annual Convention of the American Association of Cost Engineers, Montreal, Quebec, Canada, June 26, 1984

- "Construction Failures: Litigation, Experts and Damages," Manual for American Bar Association/American Society of Civil Engineers Conference on Construction Failures: Legal and Engineering Perspectives, Houston, Texas, October 1983
- "Schedule Control for Professional Construction Management Projects,", 1981
- "Construction Claims," American Association of Cost Engineers, Atlanta Section, September 1978

Conference Presentations

- "New Ways to Build and Manage Projects-Understanding International Claims," The Associated Owners and Developers' 2004 National Conference, Atlanta, Georgia, September 27, 2004; New York, New York, October 1, 2004; Miami, Florida, December 3, 2004
- "Claims Identification & Management," Foster Wheeler Law Department Conference, Warren, New Jersey, October 23 - 24, 2001
- "The Essence of Construction Risk," Minimizing Risks in Construction Projects and Resolving Construction Disputes, Hong Kong, September 28 - 29, 1998
- "Proving Damages-The Techniques of Analysis and Pricing of Damages that Flow from Physical or Performance (Breach) Failures," co authored with P. Galloway, Seminar on Emerging Risks in Construction: How to Minimize, Manage & Avoid Disputes, New Orleans, Louisiana, May 10 - 12, 1995; Indian Wells, California, October 19 - 21, 1994

- Co-presenter, "Project Risk Management & Reviewing and Analyzing Damages" *Seminar on Managing Risk and Minimizing Disputes in Construction Contracts*, Hilton Head Island, South Carolina, October 6 - 8, 1993
- "Early Completion Claim Analysis and Expert Delay Analysis," Seminar on Construction Issues Facing the Public Transportation Industry, Sacramento, California, April 28 - 30, 1993
- "Project Risk Management-Achieving Goals and Minimizing Disputes," *Construction Superconference*, San Francisco, California, December 3 - 4, 1992
- "Construction Economics as a Litigation Proof Tool," *Conference Manual on Construction Dispute Proofs*, Princeton, New Jersey, September 1982; Lake Buena Vista, Florida, May 1983; Minneapolis, Minnesota and Denver, Colorado, April 1984; Tampa, Florida and Boston, Massachusetts, May 1984; Seattle, Washington, July 1986; New Orleans, Louisiana, April 1988; New Orleans, Louisiana, April 1989; Scottsdale, Arizona, March 1990; New Orleans, Louisiana, May 1990; San Antonio, Texas, April 1991
- "Productivity Analyses as a Proof Tool," *Conference Manual on Construction Dispute Proofs*, Minneapolis, Minnesota and Denver, Colorado, April 1984; Tampa, Florida and Boston, Massachusetts, May 1984; Seattle, Washington, July, 1986; New Orleans, Louisiana, April 1988; New Orleans, Louisiana, April 1989; Scottsdale, Arizona, March 1990; New Orleans, Louisiana, May 1990; San Antonio, Texas, April 1991
- "Construction Proof Concepts," *Conference Manual on Construction Disputes Proofs*, Princeton, New Jersey, September 1982; Lake Buena Vista, Florida, May

1983; Minneapolis, Minnesota and Denver, Colorado, April 1984; Tampa, Florida and Boston, Massachusetts, May 1984; Seattle, Washington, July, 1986; New Orleans, Louisiana, April, 1988; New Orleans, Louisiana, April 1989; Scottsdale, Arizona, March 1990; New Orleans, Louisiana, May 1990; San Antonio, Texas, April 1991

- "Construction Proof Concepts," "Construction Economics," "Proving Damages," and "Productivity Delay Damages Case Illustration," *State of Florida Department of Transportation Construction Disputes Seminar*, Tallahassee, Florida, August 1989
- "Window Analyses: An Innovative Concept to Schedule Delay Analysis," co-authored with P. Galloway, *Project Management Institute*, Philadelphia, Pennsylvania, October 1984
- "Preparing for the Utilities' Future An 'Attack Plan' for Minimizing Disallowable Costs In Outage and Future Capital Construction," co authored with P. Galloway, American Association of Cost Engineers, 8th Annual Mid Winter Symposium Transactions, New Orleans, Louisiana, February 1986; Project 2, 5th Annual Outage Symposium Proceedings, Cambridge, Massachusetts, May 1986
- Co-presenter, "Calculation of Lost Profits from Lost Business Opportunities," Eighth International Cost Engineering Congress, Montreal, Quebec, Canada, June 26, 1984
- "Schedule Delay: A Productivity Analysis," co authored with P. Galloway and J. Leverette, Project Management Institute National Convention Proceedings, Houston, Texas, October 1983

- "Construction Claims Damages Quantification," *Federal Publications Construction Contract Litigation Seminar*, October 1977
- "Construction Claims Litigation," Conference Manual, MCI Symposia, Inc. Chicago, Illinois, 1976
- "Construction Delay Claim Analysis," "Life-¬Cycle Costing," "Construction Economics," Conference Manual on Profitable Construction Cost Estimating in Today's Economy, presented in ten cities in 1976

NIELSEN EXHIBIT 8
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