Exhibit No:		
Issue No:		Iatan 1 & 2 Prudence
Witness		Walter P. Drabinski
Type of Exhibit		Direct Testimony
Sponsoring Party		Missouri Retailers Association
Case No:		ER-2010-0355/0356
Date Testimony Prepared		November 17, 2010

MISSOURI PUBLIC SERVICE COMMISSION

CASE NO: ER-2010-0355/0356

DIRECT TESTIMONY OF

WALTER P. DRABINSKI
VANTAGE ENERGY CONSULTING LLC.

ON BEHALF OF

MISSOURI RETAILERS ASSOCIATION

NP

*"**_____**" Designates Highly Confidential Information.*

Certain Schedules Attached to This Testimony Designated "Confidential", Also Contain Such Highly Confidential Information. All Such Information Should Be Treated Confidentially.

Vantage Energy Consulting, LLC

Management Consulting and Energy Services

Direct Testimony of Walter P. Drabinski
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A. BACKGROUND AND PURPOSE OF TESTIMONY

BACKGROUND

Q. Please state your name, Company and business address.

A. Walter P. Drabinski, Vantage Energy Consulting LLC., 21460 Overseas Hwy, Cudjoe Key, Fl 33042.

Q. What is your occupation?

A. I am the President of Vantage Energy Consulting LLC (Vantage), a management consulting firm that provides services to the regulated utility industry. On this assignment I have the capacity of Project Director for Vantage.

Q. Please describe your educational background and professional experience.

A. My education includes a BS in Electrical Engineering from the State University of New York at Buffalo in 1972 and an MBA from The Wharton School (University of Pennsylvania) in 1984. My experience totals 38 years, including 10 as a utility company manager and 28 as a management consultant specializing in utility issues.

Q. Please expand upon your background in the energy industry.

A. I began my career with Niagara Mohawk Power Company (NiMo). During my first five years with NiMo in upstate New York, I assisted in the construction/conversion of 2,000 MW of power plants. During construction, my primary responsibilities included review of operational design considerations, monitoring of construction, and acceptance testing of all electrical power

systems, including load metering and transmission telemetry control systems, and many other systems. During this period, I also assisted in the integration of the transmission system and new generation with the New York Power Pool. After construction completion of the 850 MW Oswego 5, I became Electrical Maintenance Supervisor, with responsibility for routine maintenance at the Oswego Steam Plant, and outage assistance at two nearby nuclear stations and fifteen local hydro generation stations. During my last five years at NiMo, I was Director of Training and had responsibility for technical training at all fossil, hydro and nuclear plants. During this time, I developed extensive programs on power plant efficiency improvement. I authored, or co-authored, five training manuals on power plant operations, instrumentation, and control as part of an Electric Power Research Institute project.

Q. Describe your career in management consulting.

A. In 1984, I joined a national management consulting firm in New York City and have worked as a management consultant since that time. I formed Vantage Consulting, Inc., in 1990 as a Pennsylvania corporation and operated under that name until 2010 when we incorporated in Florida as Vantage Energy Consulting LLC. Since that time, our firm has worked on almost 150 assignments with utilities, state and federal regulators, and law firms. I have testified over seventy-five times on areas of fuel and energy procurement, deregulation, construction prudence, reliability, performance, and operations.

Q. Have you had other experience with power plant construction and operation as a management consultant?

A. The following summarizes many of my projects related to the Iatan review and prudence analysis.

Power Generation, Construction Management, and Engineering

Kansas City Power & Light Iatan 1&2 – At the request of the Kansas Corporation Commission (KCC) Staff, provided oversight of the $500 million installation of a Air Quality Control System (AQCS) on the existing (KCP&L) Iatan Unit 1 and monitored construction of the $2 billion Iatan Unit 2 coal-fired, supercritical power plant. Reviewed organization, cost, schedule, project controls, contractor performance, contract monitoring, site conditions, and other key attributes associated with a mega-project. Provided regular assessments to the KCC on progress and risks, monitored start-up and acceptance testing, and provided testimony in rate cases for both Iatan 1 and 2.

North West Energy – Mill Creek Station – Monitored the construction of this three-unit, 150 MW combustion turbine power plant for the Montana Public Service Commission. Visited construction site on a regular basis and provided input to the construction team as well as the Montana PSC. Reviewed quarterly reports and testified before the Commission after each report. Provided insight on In-service criteria testing and other key design and operational elements.

Philadelphia Electric Company – Lead Consultant on a retrospective investigation of the Limerick Nuclear Power Plant. Analyzed the Company's financial condition during the construction program and reviewed construction management practices on the project. Prepared testimony for prudence hearings on construction management and financial performance.

Public Service Electric & Gas Co. – Project Manager for a retrospective investigation of the Hope Creek Nuclear Plant. Prepared cost reconciliation that identified reasons for cost overruns. Reviewed construction control tools, productivity results, and analyzed productivity programs for effectiveness. Wrote testimony, answered interrogatories, and assisted in cross-examination of witnesses. Made recommendations on cost tracking systems for future construction projects.

California Independent System Operator – FERC - Project Director on an Independent Operational Audit of the CAISO for the period of October 2001 through October 2002. Analysis involved all aspects of the CAISO interface with power pants and transmission systems in California and the western portion of the U.S. This assignment was performed at the request of the FERC and led to a series of five global recommendations. Shortly after the completion of the audit, Mr. Drabinski testified before the House of Representatives, Subcommittee on Energy Policy, Natural Resources & Regulatory Affairs.

Massachusetts Municipal Wholesale Electric Utility (MMWEC)– Performed analysis on options for equipment upgrades and construction requirements at major power plant and performed limited life extension analysis. Assisted with economic analysis on new generation sources.

PJM Power Plant Arbitration – Provided testimony and technical assistance on arbitration for an independent power plant built in the PJM region. Issues involved interpretation of PJM rules and contractual issues such as commercial operation date and performance guarantees. Assessed operational completion and capability.

St. Vincent Energy Services Ltd. - At the request of the Board of Directors and Prime Minister, Vantage conducted a review of system reliability and fuel procurement for the utility generation sources. Significant findings resulted in a new strategic plan, a reorganization of management and a legal investigation into procurement practices. Made numerous recommendations related to the economics of refurbishment of older units and the construction of new generation sources.

Public Service Electric & Gas – Engagement Manager during a long-term engagement with PSE&G. Specific assignments he directed are listed below.

- Developed a 30-year environmental plan, addressing power generation and environmental strategy.
- Assisted in development of innovative rate strategy for Bergen combined cycle unit.
- Worked on a team of utility employees, lobbyists, legislative staff members and the DOE to develop a program for voluntary reduction of CO_2 and global warming initiatives.
- Reviewed gas procurement strategy for 1300 MW of combine cycle generation.
- Conducted a tactical and strategic alternatives study of the Company's fleet of 158 combustion turbine generation plants.
- Developed a plan for complying with the 1990 Clean Air Act Amendments.
- Assisted in a study of the 1992 Energy Policy Act and prepared a report that illustrated how it would impact company operations.

- Wrote and supported testimony in the area of fossil generation on behalf of the Company in a major rate case.
- Developed protocols for NO_x emission trading within NESCAUM.

Colonial Chemical Company – Assisted in identifying candidates for Selective Non-Catalytic Reduction systems to reduce nitrous oxide emissions from power plants throughout the east coast and Midwest.

Houston Light & Power – Consultant on South Texas Nuclear Project retrospective analysis. Reviewed construction management procedures and developed testimony for rate case.

Public Service Electric & Gas Co. – Project Manager for a review of the Engineering & Construction Department budgeting and approval process for capital projects at PSE&G. Developed flowcharts and improved methods for processing capital budgeting requests.

Honeywell/Allied Signal – Provided strategic assistance and research in development of commercial fuel cell. Conducted market research and facilitated meetings with utilities interested in commercial development.

Operation Project Engineer for Niagara Mohawk Power Corporation. Participated in conceptual system design, construction management, and plant start-up of power plants, transmission lines, switchyards and plant electrical equipment.

- Assisted in design and then installation of new boiler control technology associated with conversion of four – 100 MW units from coal to oil in 1972.
- Provided design review and input on two 850 MW oil fired units (Oswego 5-6).

- Represented utility during acceptance testing, start-up, and turnover of all electrical power systems, auxiliary equipment, and turbine and boiler instrumentation and control systems for the Oswego 5 – 850 MW oil-fired unit which went commercial in 1975.
- Monitored construction of two new switchyards, installation of two-115 KV underground transmission lines and three-345 KV overhead transmission lines.

Power Plant Operations and Fuel Procurement

Louisville Gas & Electric – Project Manager for a comprehensive management and operations review for the Kentucky Public Service Commission. A key element of this audit was the analysis of the Energy Services Company of LG&E Energy, a holding company which was the organizational entity responsible for all regulated generation and non-regulated generation, power marketing, and natural gas transmission activities. This included a special review of affiliated transactions. Acted as Lead Consultant in the areas of power production, fuel procurement, Affiliated Review, Clean Air Act compliance, Energy Policy Act response, and T&D engineering and construction. Assisted in review of strategic planning and power marketing activities. In conjunction with this audit, Mr. Drabinski met with the Commissioners a number of times to discuss issues of industry restructuring and the role the Commission should play.

Kentucky Utilities Company – Project Manager for a comprehensive management and operations review for the Kentucky Public Service Commission. Acted as Lead Consultant in the areas of power production, fuel procurement, transmission operations, and engineering and construction. Provided numerous recommendations to improve

competitiveness of this already low-cost utility. Met with the leadership of the State House of Representatives and Senate to discuss utility competition and industry restructuring.

East Kentucky Power Cooperative – Performed a comprehensive review of all fuel procurement and fuel utilization activities for the Board of Directors. Visited all power plants, coal tipples, and a sampling of mines. Recommendations addressed a broad range of strategic and operational issues.

Dayton Power & Light – Performed a comprehensive review of all fuel procurement and fuel utilization activities for the Public Utility commission of Ohio (PUCO). Visited power plants, coal lab, and other fuel and operations-related departments. Recommendations addressed a broad range of strategic and operational issues.

Pennsylvania Power & Light – Lead Consultant for a comprehensive management and operations review for the Pennsylvania Public Utility Commission. Reviewed all aspects of customer service activities, including CIS and office operations. Also, reviewed system power & engineering, including fuel supply, T&D engineering, environmental, power plant staffing, and plant operations. Reviewed EMF issues and Clean Air Act Amendments compliance planning.

Centerior Companies (Cleveland Electric Illuminating Company and Toledo Edison) – Project Manager on audit of electric fuel procurement practices and procedures for the Public Utilities Commission of Ohio in 1991. Responsibilities included the review of fuel procurement planning, long-term contracts, and spot procurement. Made recommendations regarding coal contracts, interstate wheeling arrangements, and coal transportation costs. Testified twice regarding results of audit report.

Monongahela Power (Allegheny Power Systems) – Performed a comprehensive review of all fuel procurement and fuel utilization activities for the PUCO. Visited power plants, coal lab, and other fuel and operations-related departments. Recommendations addressed a broad range of strategic and operational issues.

American Electric Power Company – Project Manager on audit of electric fuel procurement practices and procedures of two AEP subsidiary companies, Ohio Power Company and Columbus Southern Power Company in 1989 and 1990 for the Public Utilities Commission of Ohio. Responsibilities included the review of affiliated mines (surface and deep mines) and fuel procurement planning, long-term contracts, and spot procurement. Made recommendations on strategic planning, purchasing policies, contract analysis, and marketing programs. Testified on four occasions regarding results of audits.

West Texas Utilities – Project Manager for a comprehensive management and operations review for the Texas Public Service Commission. Acted as a Lead Consultant in the areas of power production, fuel procurement, and customer services.

El Paso Natural Gas Company – Lead Consultant on a productivity improvement project. Performed an in-depth review of all positions in operating divisions and reorganized operating divisions into profit centers. Developed procedures for in-house vs. outside construction decisions, construction scheduling, and cost data collection. Developed a manpower planning model for restructuring responsibilities and staffing levels. Implemented a workforce management program at gas processing plants, compressor stations, and throughout the gathering system.

Western Kentucky Gas Company – Lead Consultant for a management and operations audit of the customer services function for the Kentucky Public Service Commission. Developed plan for consolidating offices, resulting in significant changes in providing customer service.

National Gas and Oil Company of Ohio – Lead Consultant on audit of fuel procurement practices for the PUCO in 1986. Reviewed purchasing practices, storage activities, sales practices and policies and procedures. Made recommendations on strategic planning, purchasing policies, and marketing programs.

East Kentucky Power Cooperative, Inc. – Performed as a subcontractor on a review of the bidding process for a series of combustion turbines. Analysis included reviews of individual proposals and the bidding process.

Ohio Electric Co. /Ohio PUC – Lead Consultant on a prudence review of the Beaver Valley Power Station. Areas reviewed included CAPCO organization and financing, construction management, project accounting, compatibility of prudence standards, and compliance with Yellow Book standards.

PURPOSE OF TESTIMONY

Q. Which projects does your testimony address?

A. My testimony will address the overall prudence of construction on the Iatan 1 Air Quality Control System (AQCS) and Iatan 2 plant construction.

Q. What is the purpose of your testimony?

A. My testimony addresses four areas. First, I will address the overall management of the projects and the impact it had on cost and schedule. I will

summarize our analysis of project management, including decision making, staffing, budget processes, scheduling, procurement, and other fundamental elements that are the foundation of a properly managed project. This analysis is performed in order to provide the Commission with an independent view of how this project was planned and implemented. Second, I will provide high-level cost reconciliation. This will give the Commissioners a sense of how Iatan 1 increased in cost from $400 Million to almost $500 million and the Iatan 2 project grew from $1.1 billion to almost $2 billion in cost during a six-year period. The third part of the testimony will identify decisions, actions and inactions by KCP&L management and others, that we believe were unreasonable and led to unnecessary and imprudent costs on the project. Fourth, I will develop a detailed estimate of the actual amount of imprudent expenditures and recommend the exclusion of these costs from recovery in rate base.

Q. What was the extent of your involvement on the Iatan project?

A. Vantage was retained by the Staff of the Kansas Corporation Commission in early 2008 to review the progress of construction of both Iatan 1 and 2. Our analysis included reviews of thousands of documents, including all project reports, special studies and audits, cost and schedule analysis reports and data, Board of Directors minutes, regulatory filings and all testimony submitted by KCP&L witnesses related to Iatan. Vantage had access to all Data Requests submitted by KCC and Missouri regulators as well as other interveners. Our consultants, with assistance from the KCC Staff, contacted state regulatory commissions with on-going construction programs to gather cost and schedule

information, as well the Department of Energy, Energy Information Agency and the U.S. Bureau of Labor Statistics.

B. PROJECT HISTORY

Q. What purpose does the project history provide?

A. The following tables provide a visual and chronological history of the costs, schedule, design, regulatory, permitting, and major project management decisions associated with the Iatan project. The cost growth overview is intended to provide a synopsis of each major cost and schedule reforecast, with our assessment of the reasons for changes. Unit 2 cost estimates from major reforecasts are provided to give a view of how and when KCP&L recognized increased costs and schedule changes.

Iatan 2 has had seven separate cost estimates prepared to-date.[1] Additionally, there have been four different completion dates set for the project. The April 2004 Project Definition Report (PDR) (Schedule WPD-1), was a definitive evaluation performed by Burns & McDonnell (B&McD) for KCP&L. This estimate used an iterative process with estimates from manufacturers for equipment costs and B&McD's broad experience to provide an estimate with a 95% probability of cost certainty within 10%. A detailed analysis of this PDR and its updates is provided later in this testimony. The Scale-up of the 2004 PDR was completed at the end of 2005 and published in January 2006. This was the real starting cost estimate as it addressed the size increase, design modifications,

[1] / Only six estimates are included in the table below. The Indicative Estimate of May 2006 WA identified, however, Vantage does not have details on this estimate.

commodity inflation and a higher level of contingency. According to the Cost Control System developed by Mr. Jones and included as Schedule SJ2010-1 in his direct testimony in Missouri, this was the basis for future cost refinements. Vantage has concluded that this is the real starting cost for the Iatan 2 project.

The December 2006 Control Budget Estimate (CBE) (Schedule WPD-2), was developed after a number of major contracts were awarded and at a point where major engineering was complete. The CBE was scheduled for completion in August 2006, but was delayed due to difficulties in understanding certain cost increases, such as the turbine building "**[redacted]**" The May 2008, (Schedule WPD-3), July 2009, (Schedule WPD-4), and March 2010 (Schedule WPD-5), reforecasts reflect changes in budget/schedule due to KCP&L's inability to meet previous cost estimates and schedules.

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	4/04 PDR	1/06 Scale-up Cost Stipulation	4/06 Partner Closing	12/06 Update CBE	5/08 Update CBE	3/10 Update CBE
[redacted]						

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April 2004 PDR - This estimate was prepared by B&McD, and is contained in a PDR dated August 2004. This was a preliminary estimate prior to issuance of any requests for proposals or bids, however, it was based on an iterative process for cost definitions using estimates received from suppliers, local labor costs and B&McD's experience. At the time this estimate was prepared the size of the unit, KCP&L's share of the unit, and steam temperature of the unit were not known. This estimate, less transmission costs included in the estimate, was utilized to determine KCP&L's potential share of the unit cost. At that time, the summer of 2005, KCP&L's share was calculated as 500MW of an 800MW unit.

January 2006 Scale-Up or Stipulation Estimate - This estimate, also prepared by B&McD, as indicated scaled the prior estimate up to an 850MW unit, and included a provisional acceptance date of 6/01/2010. This estimate included design changes, commodity cost increases, inflation adjustments, and increased contingency.

April 2006 Partner Closing - Beginning in early 2006, B&McD continued to refine their estimate of project costs to reflect a higher operating temperature and various other components as the project became more defined. Market conditions, labor cost and availability, material cost and availability, continued to be evaluated in order to better estimate the project and a contingency amount. The estimate evolved over the course of the year 2006 as more contracts and procurements were finalized.

May 2006 Indicative Estimate – In the Cost Control System, KCP&L states that after the Scale-up, issues impacting the overall cost estimate were reviewed

and vetted by the Project Team. These issues included review of: (1) re-pricing of certain commodities to match current market pricing; (2) appropriate contingencies for certain line items with inherent risk; (3) potential and known impact of market forces including scarcity of supply and tight labor market; (4) labor incentives and other wage issues; and (5) owner costs. The Indicative Estimate that KCP&L produced was the result of this process. On May 5, 2006, the Indicative Estimate of "**[redacted]**", excluding Allowance for Funds Used during Construction (AFUDC), was presented to the Board of Directors. This Indicative Estimate represented Burns & McDonnell's best approximation of the Project's cost. This estimate includes substation and transmission upgrades but does not include AFUDC. Since the presentation of the Indicative Estimate, Burns & McDonnell has prepared a Probabilistic Cost Estimate (PCE) analysis that models the likelihood of individual line items in the budget exceeding or coming under the Indicative Estimate. There is no indication that this estimate was shared with the Regulators.

December 2006 CBE[2] - This budget was prepared by B&McD in conjunction with KCP&L. The development of this budget was delayed from August 2006 until December 2006 due to difficulties in developing cost estimates for balance of plant activities. This budget was reviewed in detail and vetted by KCP&L construction management, Schiff Hardin, Ernst and Young, and the KCP&L

2/ There are a number of documents and dates that refer to evolving budget estimates during the mid-2006 to mid-2007 period. The December 2006 CBE, the November 2006 updated PDR and June 2007 PDR documents are all done in the same timeframe with constantly updated data and estimates.

Executive Oversight Committee (EOC). At the time this budget was prepared, engineering was about 20% complete and over $1 billion in contracts had been awarded.

May 2008 Update CBE - This budget revised the previously approved CBE to reflect progression on engineering, and was prepared by a team from KCP&L with input from contractors, including B&McD. Schiff Hardin conducted an independent review of the reforecast, including the process utilized to develop the reforecast of the CBE. The budget was reviewed and vetted by construction management and the KCP&L EOC.

January 2010 Update CBE – In a January filing to the SEC, KCP&L indicated that the cost and schedule of Iatan 2 has changed.

PROJECT TIMELINE

Major Project Activities	Date	Description
Early Iatan Project Activities		
Merchant Plant Plans.	Early 1990's	KCP&L and Black & Veatch (B&V) enter into partnership to develop Iatan 2 as a Merchant Power Plant.
Assign Development Rights.	1995	KCP&L assigns development rights and partnership for Iatan 2 to KLT Power.
Sell KLT Power.	1998	KLT Inc., sells KLT Power but retains the development rights and partnership for Iatan 2.
KLT sells partnership interest.	1999	KLT Inc., sells the partnership interest to KCP&L. KCP&L dissolves the partnership with B&V regarding Iatan 2.
KCP&L assigns development rights.	2001	KCP&L assigns development rights for coal expansion at the Iatan site to Great Plains Power (GPP) an affiliate of Great Plains Energy.
GPP enters into development agreement with Babcock & Wilcox and Burns & McDonnell.	2001	Plans generated to build a number of unregulated units.
Begin air permitting process.	Late 2002	B&McD engaged to support conceptual design, plant layouts, etc.
Comprehensive Energy Plan (CEP).	2003-2004	Begin development of CEP, including coal plant.
2004		
Begin Iatan 2 plant layout for permitting.	Early 2004	B&McD asked to produce Project Definition Report (PDR).
Initial budget estimate complete.	Q3	Unit 2 estimated cost of $1,175M based on a scale-up of the Unit 1 costs with associated escalation assuming an 800 MW capacity, supercritical Unit. Estimated scheduled completion 11/1/2009.
Project Definition Report completed.	September 9, 2004	Burns & McDonnell provided Mr. John Grimwade of KCP&L a copy of the Iatan Phase 1 Development Project Definition Report (PDR) Project 35966.
RFP for Steam Turbine sent.	10/27/04	Received proposals from GE and Toshiba. Short listed Toshiba.
2005 **		
[redacted]	[redacted]	[redacted]

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Major Project Activities	Date	Description
		[redacted] **
Project Control.	Summer 2005	In the summer of 2005, the CEP Projects were placed under the control of the Senior Vice President of Supply, Steven Easley.
Permit application.	5/05	Submitted permit application for Iatan 2.
Stipulation for Agreement Submitted to KCC.	4/05	All major parties reach agreement on stipulation.
KCC Approves construction of Iatan.	8/05	Order issued.
Schiff Harden begins formal work.	Fall 2005	In the fall of 2005, Schiff was brought in to review the CEP Projects, schedules and procurement options, the Senior Management Team that ultimately composed the EOC had a number of important meetings.
Contracting Options.	September 29, 2005	Project team and Schiff Hardin presented various contracting options for the CEP projects.
SCR RFP.	11/1/05	RFP's sent to seven qualified boiler suppliers on November 1, 2005, for boiler and SCR systems. Alstom Power Inc., and Babcock & Wilcox Company (B&W) were the only vendors that responded.
Selection of Owner's Engineer.	11/7/05 – 1 Qtr 2007	On November 7-8, 2005, Black & Veatch and B&McD were interviewed for Owner Engineer responsibility. Considerations included capabilities regarding coal-fired power plant design, commercial and project execution, project risks and mitigation, and recent coal-fired plant experience. KCP&L's team recommended B&McD. Contract was prepared for signature on 1/1/07, but discussion over terms for bonus structure delayed signing until March 2007.
B&McD announcement.	12/05	Public announcement of B&McD to provide engineering support of the Iatan projects. (Note, while this was announced publicly, no action was taken until late in 2006 and contract was not signed until early 2007); full notice to proceed major components projects (target 1/1/06, actual 3rd qtr 06).
AQC RFP.	12/30/05	RFP's sent to eight qualified Air Quality Control System (AQCS) suppliers on December 30, 2005 for Unit 1 and Unit 2 Air Quality Control System. AQCS includes a Selective Catalytic Reduction (SCR) equipment, fabric filter bag-house,

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Major Project Activities	Date	Description
		wet FGD scrubber system and new larger capacity induced draft fans.
2006		
Air Permit for Unit 1 & 2.	1/31/06	Missouri Department of Natural Resources (MDNR) issued permit. Sierra Club appealed.
Issued Limited Notice To Proceed (LNTP) to Alstom and B&W.	2/26/06	6-8 week contract negotiations projected. Targeted selection was April 15, 2006.
AQCS RFP Response.	3/24/06	Alstom Power Inc. and Babcock & Wilcox Company (B&W) were only vendors responding, with response for AQCS as well as combined Unit 2 Boiler and AQCS .
SCR Design and RFP.	3/29/06	Unit 1 SCR system design specifications contracted to B&McD. RFP to qualified bidders sent on March 29, 2006. Responses due April 21, 2006.
Steam Turbine Award.	4/13/06	Based on analysis by KCP&L, B&McD and Schiff Hardin, Toshiba was selected and contract was signed on April 13, 2006.
Project Scale-up and Budget Estimate.	Q1	Scale-up (from 800 to 850 mw) Budget Estimate complete. Unit 2 estimated cost of $1,343M with a scheduled completion date of 6/1/2010.
Engineer selection for Unit 2 specifications.	Q1	Black & Veatch selected to provide specifications of Iatan Unit 2 boiler, steam turbine, and selective catalytic reduction system. Specifications were to include a once-through pulverized coal supercritical boiler. Burn sub-bituminous coal to achieve maximum steam flow of 6,246,000 lbs/hr at supercritical conditions of 3853 psig, 1085 degree Fahrenheit superheat and reheat.
Partner Closing Budget Estimate complete.	Q2	Unit 2 plant construction estimate increased to $1,467M with a scheduled completion date of 6/1/2010.
ACQS and Steam Generator Award.	Q3	Unit 1 AQCS and Unit 2 Steam Generator and AQCS Engineer-Procure-Construct (EPC) contract awarded to Alstom for ** [redacted] .**
Audit Support.		Ernst & Young contracted by KCP&L to audit the project management and control activities.
Project Team.		Unit 1 Project Director (Brent Davis) position established. Procurement and Commercial Manager (Steve Jones) position established. Project Control Manager (Terry Foster) position established. Charged with scheduling and cost control of both projects.
Permitting.	7/16/06	All necessary permitting was completed.

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Major Project Activities	Date	Description
Project Team.	Q4	Project team now numbers more than 40 people. All key leadership positions now filled. Start-up manager is only position not in place, but not critical yet.
		Issues in the day-to-day management of the Alstom contract had become apparent to the EOC, including some communication issues between Alstom and Burns & McDonnell.
Control Budget Estimate complete.	Q4	Unit 1 AQCS estimated cost $376.8M with scheduled completion date of 9/19/08. Unit 2 plant estimate $1,685M with a scheduled completion date of 6/1/2010.
2007		
ALSTOM Meeting	02/07	In February of 2007, ALSTOM's management and most of the members of the EOC met at ALSTOM's offices in Knoxville, Tennessee (the "Knoxville Meeting") to discuss the key issues that had arisen between or among ALSTOM, Burns &McDonnell, and KCP&L.
Owner Engineer Contract.	Q1	Awarded Owner Engineer contract to B&McD for **[redacted].**
Permitting.	3/17/07	Sierra Club and Concerned Citizens of Platte County (CCPC) entered into a collaboration which resolved disputes among parties and contained certain environmental undertakings regarding additional wind generation, energy efficiency and other matters. Limits on emission of nitrogen oxides, sulfur dioxide, and sulfuric acid mist at Iatan Units 1 & 2 were agreed to. Sierra Club has agreed to dismiss its appeal.
Kiewit Contract.	First half 2007	In January 2007, management authorized Burns & McDonnell to share information regarding design of the BOP work, quantities of work and scope of supply. Kiewit and Burns & McDonnell met for most of January 2007 and Kiewit's team received the necessary information. Executive Oversight Committee (EOC) asked Kiewit to make a formal presentation to the EOC. That presentation occurred on April 16, 2007. Kiewit provided a proposal on May 13, 2007, in which it identified multiple scenarios under which it would be willing to contract for the work, including whether Kiewit would be responsible for procuring engineered materials. Kiewit's

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Major Project Activities	Date	Description
		proposal was vetted by the project team and by Schiff, and on June 8, 2007, Kiewit was issued limited notice to proceed, under which it began. KCP&L signed contract with Kiewit in November of 2007 for a total cost of ** [redacted] **
Project cost – First Qtr 2007.	Q1	Note that as of end of March, 2007, KCP&L stated that Unit 1 Contingency of $19.2M of original $25.7M had been expended and $220M contingency on Unit 2 increased to $225M. Unit 2 contingency had increased as several contracts were awarded below budget.
Project Team.	Q2	VP of Construction position established. Dave Price starts in May 2007. Project Team now numbers over 60.
Project Execution Plan (PEP).	Q3	Project Execution Plan issued. Outlines the basic plans and strategies upon which both the Unit 1 AQCS and Unit 2 Plant projects are executed.
Project Organization.	Q4	Construction Management organization established on November 6, 2007.
Schedule Issue.	Q3	KCP&L reports that the Unit 1 AQCS schedule may not be met. Construction issues during the planned outage could impact this schedule.
Schedule Progress.	Q3	KCP&L estimates 84% of Unit 1 procurement and 70% of Unit 2 procurement complete.
Project Controls.	Q2	Skire System provided to assist in the change order and invoicing control and management process. Provides on-line real time access to augment the cost control process.
Project Efficiently.	Q3	Project Schedule Performance Index (SPI) is 0.92 which indicates that project is 8% behind the baseline schedule. Cost Performance Index (CPI) is 1.05 which indicates Project's contractors are working efficiently. Project is 38,000 man-hours behind schedule due to issues with engineering and obtaining vendor data needed for design. It was noted that this work is not on critical path.
2008		
Tiger Team.	Q1	Unit 1 AQCS Tiger Team Report issued recommending a rescheduling and extension of the Unit 1 outage required to make the AQCS modifications. Resulted in 30-day delay in the overall project schedule.
Cost Reforecast issued.	Q2	Unit 1 AQCS cost estimate increased by [redacted], representing a [redacted] increase and a schedule delay of 30 days. The Unit 2 plant construction cost estimate increased by

NP

Major Project Activities	Date	Description
		$215.7M, which represents a 13% increase. No schedule delay is anticipated.
Crane Accident.	5/23/08	Manitowoc crawler crane used for placing SCR sections on Unit 1 collapses. Replacement crane installed with work around schedule.
Project Team Reorganization.	Q3	VP of Construction changed (Carl Churchman), implementing a philosophical change in how KCP&L manages this project. Goal is to drive accountability down to each contractor and establish a "Code of Construction" to enable this. Organization changes are currently being made to address this new approach.
Unit 1 Outage Started.	10/18/08	Outage started on time, with projected breaker closed near the end of 2008.
Unit 1 Outage Completion.	12/9/08	Due to issues associated with the boiler economizer casing cracks, outage completion was rescheduled to Jan. 26, 2009.
2009		
Alstom/Kiewit Productivity.	Early 2009	As the Iatan Unit 1 project was winding down in early 2009, concerns increased regarding the status of the Iatan Unit 2 Project. At that time, the Project Controls data showed that neither Alstom nor Kiewit were earning enough man-hours on a weekly basis to meet the key schedule dates. Early in the first quarter of 2009, Alstom and Kiewit were each approximately 2-3 months behind schedule and, based on then-current trends, it was anticipated that they could fall even farther behind very quickly. It would not have been possible for each contractor to come up with a separate plan as to how they were going to recover the schedule, and establish work-arounds to already missed dates that would have created uncertainty to both the schedule and the budget.
Alstom Performance.	Spring 2009	In the spring of 2009, when issues arose that had the potential to threaten the success of Iatan Unit 2, Mr. Curran and KCP&L senior management re-engaged Mr. Marks in a resolution process.
Boiler tube materials issue.	05/09	KCP&L reports that cracking of the T-23 material in the high temperature boiler water wall tubes at the membrane welds.
Control Budget Estimate update	07/09	The contingency in the CBE is reduced from $164M to $79M, but the projected

Major Project Activities	Date	Description
issued		budget remains at $1,900M. Project completion is rescheduled to July 31, 2010.
2010		
Boiler first Fire on Oil.	03/10	Unit 2 boiler fired on oil, 4 months behind original schedule.
Project cost and schedule reforecast issued.	04/10	KCP&L issues a reforecast of the project cost with a $77M increase from $1,900M to $1,977M and a rescheduled in-service date from June 2010 to December 2010.

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C. PRUDENCE DEFINITION

MISSOURI PRUDENCE REQUIREMENTS

Q. Discuss the prudence factors as applied in Missouri and indicate how you have applied them in your testimony.

A. Based on my understanding of the key prudency decisions that have been issued by the Missouri Public Service Commission, I have determined that the prudence standard I typically use in my prudency evaluations is appropriate. I attempt to judge the reasonableness of the Company's actions/decisions based on the circumstances present at the time the action/decision was taken. In order to do this, I review the reasonableness of the information and assumptions that the utility used to arrive at its conclusion as well as the process used. The information and assumptions must be considered in the context of the time the decision was made. This is accomplished by examining the sources of the information used, reviewing the process used to make a decision, as well as comparing the information and assumptions used by the utility relative to that used by other utilities making similar decisions during the same time frame. The decisions and actions of the utility can be judged prudent, if the utility relied on reasonable, credible information and assumptions to make its decision; if the utility utilized a robust process that incorporated the best information and most knowledgeable personnel to make timely decisions; and if the information, assumptions and processes used by the utility compared favorably to that used by other utilities making similar decisions in the same time frames. This is certainly not an exact science and involves some subjectivity on the part of the

reviewer, however a careful, thorough and thoughtful review can lead one to the development of reasonable prudency determinations.

Key Conclusions

Q. What do you consider the initial budget, based on early estimates and changes in unit size and design?

A. We have concluded that the first estimated cost for the Iatan 2 units was based on the January 2006 Scale-up. This $1.343 billion estimate represents an update of the 2004 PDR that recognized the increase in size from 800 MW to 850 MW, design revisions, increases in commodity costs, and increased contingency. My testimony will provide additional detail on the validity of the 2004 PDR and the effort that went into the scale-up estimate.

Q. What schedule do you consider to have been in place and what drove that schedule?

A. While the 2004 PDR proposed a 53 month project, with a start in July 2005 and completion in September 2009, this schedule became unrealistic once the approval process by the Missouri and Kansas Commissions was delayed until the summer of 2005. The schedule proposed in 2006 recognized an August 2005 project start and completion in June 2010. This schedule was driven by three issues. First, contracts for energy and capacity were expiring in June 2010 for some partners and the new unit would be needed. Second, completion by June 2010 would assure large, profitable off-system sales during the 2010 summer,

and finally, KCP&L indicated they were committed to meeting the dates they provided to the Missouri and Kansas Commissions in their settlements.

Q. When did KCP&L management first learn that the project costs would rise significantly above the $1.343 billion budget estimate developed as part of the scale-up ?

A. In early 2006, KCP&L senior management briefed the Missouri and Kansas Commission Staffs about the project and reiterated the $1.343 billion Scale-up estimate. However, internally KCP&L Construction Management (CM) Staff and Schiff Hardin were beginning to realize that costs were out of control. A Schiff Hardin report from April 17, 2006, on pages 3 & 4:

"**[redacted]

NP

[redacted]**"

Q. How much money had KCP&L committed to major contracts by April 2006?

A. Very little. While B&McD had been selected no contract had been signed. The Alstom and Toshiba bids were being evaluated, but no contracts had been signed.

Q. Did KCP&L notify the Commission in Missouri or Kansas about the potential difference in estimates between March 31st and April 17th?

A. No.

Q. Did KCP&L share the Indicative Estimate it completed in May with the Commissions?

A. No. The indicative estimate was completed and presented to the KCP&L Board of Directors, however, there is no evidence it was presented to the Commissions.

Q. Was the Definitive Estimate, scheduled for completion by August 1, 2006 according to the Cost Control System, completed and presented to the Commissions in August 2006?

A. No, it was not presented to the Commissions until December 2006.

Q. How much money had been committed in contracts by December 2006 when the CBE was presented to the Commission?

A. Approximately $1 B had been committed to the project by KCP&L management December 2006.

Q. Are there any examples of imprudent actions or inactions that led to large cost increases?

A. Later in this testimony I will discuss the "turbine building bust" and the cost of the unintended consequences of the decision to add a de-aerator to the project. Evidence shows that the cost of the enlarged turbine building was at least $106 million and perhaps over $200 million. This was part of the reason for the large increase in balance of plant costs.

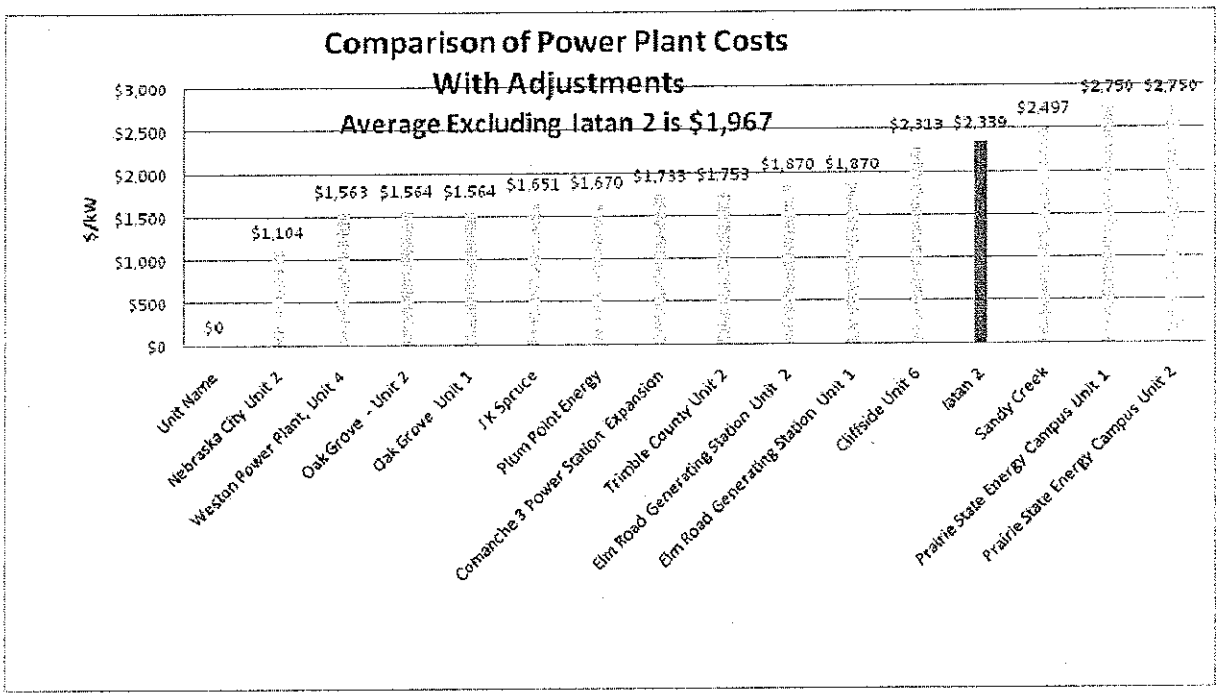
Q. How does Iatan 2 compare with other, similar power plants constructed during the same timeframe?

A. Vantage, as part of our testimony regarding Iatan 2 in Kansas, was required to develop a comparison relative to other power plants. Mr. Ken Roberts of

Schiff Hardin also developed a comparison. Between December 2009 when Mr. Roberts filed his direct testimony, and today, this comparison has gone through an iterative process. This process including determining which size and technology to include, which timeframe to use, how to adjust for labor differences and in one case how to normalize for common cost differences. In Schedules WPD-6&7 I provide a full description of the comparison. Our results indicate that Iatan was one of the more expensive projects built during that period as seen in the table below.

Adjusted Plant Costs

Unit Name	$/kW
Nebraska City Unit 2	$1,104
Weston Power Plant, Unit 4	$1,563
Oak Grove - Unit 2	$1,564
Oak Grove - Unit 1	$1,564
J K Spruce	$1,651
Plum Point Energy	$1,670
Comanche 3 Power Station Expansion	$1,733
Trimble County Unit 2	$1,753
Elm Road Generating Station Unit 2	$1,870
Elm Road Generating Station Unit 1	$1,870
Cliffside Unit 6	$2,313
Iatan 2	**$2,339**
Sandy Creek	$2,497
Prairie State Energy Campus Unit 1	$2,750
Prairie State Energy Campus Unit 2	$2,750
Longview Power	$2,857
Average of all but Iatan 2 ($/kW)	$1,967
Iatan 2 ($/kW)	$2,339
Differential ($/kW)	$372
Capital Cost Differential ($ million)	$316



Q. What is the total difference between Iatan 2 and the average of the fifteen plants in the study group?

A. Based on an adjusted analysis that takes into account open shop labor cost differences and some adjustments for common cost, we conclude that Iatan was $316 million higher than the average.

Q. Were there any other interesting observations from this study?

A. Yes, only one of the fifteen plants in the group used a Multi Prime contract approach. Fourteen plants used EPC. Further, the plant that did use Multi-Prime hired an independent construction manager.

Q. Did you conduct any other comparisons with any specific power plants?

A. Yes. In addition to the analysis comparing power plants built in the same period, Vantage did an in-depth comparison of Iatan 2 and Trimble County 2.

Vantage believes the Commission will find this comparison enlightening as it shows two companies and their decisions under very comparable circumstances. Supporting data and testimony are provided in Schedule WPD-7. the following table shows a summary of the analysis.

Project	Iatan 2	Trimble County Unit 2
Developer	KCP&L	EON, IMEA, IMPA
Location	Weston, MO on Missouri river	Trimble County, KY on Ohio River
State	MO	KY
Fuel	Coal	Coal
Technology	PC Supercritical	PC Supercritical
Construction Start	Dec-05	Jul-06
Construction Finish	Late 2010	Mid-2010
Construction Method	Hybrid EPC/Multi-prime	EPC Bechtel
Size (MW)	850	760
Actual Cost	$1,988	$1,161
Unadjusted Cost per KW	$2,339	$1,528
Adjustment for Common Costs Installed with Unit 1		$96
Open Shop Adjustment (6%)		$75
Cost Basis ($000, 000) TC2	$1,988	$1,333
Adjusted Cost per KW	$2,339	$1,754
Source of Cost	March 2010 Reforecast	2010 Rate Case
Cost/kW difference with Adjustment	$585	
Cost/kW difference without Adjustment	$811	
Projected Price Differential when adjusted for size, Open Shop and common	$497,387,971	
Projected Price Differential when no adjustments are made.	$689,513,158	
Project Definition Report	B&M since 1990's. Prepared Project Definition Report in 2003-04	B&M did preliminary estimate in 2002
Owner Engineer	B&M selected in Nov. 2005 as Owner	Cummins and Barnard Engineering from Michigan
Commission Approval	Jul-05	Nov-05
Bid for Services	Issued RFP for Owner Engineer in October 2005, Decided on Multi-Prime Construction Management in November 2005.	Issued bid in early 2005 for EPC. Three months for initial bids. Detailed negotiations on scope, schedule, price and other commercial terms then proceed through remainder of 2005. Limited notice to proceed in early 2006 timeframe.
Major Equipment Types	Alstom Boiler and AQCS, Toshiba Turbine Generator	Duscon-Babcock Boiler, Hitachi Turbine Generator, Siemens AQCS
Commercial Operation:	Late 2010	Scheduled for commercial operation in June 2010.

From Drabinski Exhibit WPD-8 Reference Testimony of Paul Thompson, LGE, Case No. 2009-00548 on January 2010; John Voyles, December 2004) and Roberts KCC Exhibit page 164)

Q. What was your overall conclusion based on in the Trimble County 2 Comparison?

A. The comparison is very telling. Two companies, in the same time frame, facing similar construction issues, take different paths to complete their projects. Even after adjustments, the prorated cost for Iatan 2 is $497 million more.

Q. Can you discuss some of the poor management decisions that led to cost overruns and schedule issues?

A. A significant part of our analysis addresses poor management decisions made during the period of 2005 through the middle of 2007. Vantage will demonstrate how KCP&L Management's decision not to proceed with any activities in 2005 until after the Comprehensive Energy Plan (CEP) was approved, against the advice of its experts, created a schedule crisis which led to other poor decisions. During the 2006 to 2007 period, Vantage will demonstrate that KCP&L Management was not ready or able to begin this project with the resources, assets and systems needed to ensure success. These problems were highlighted by significant turnover of Project Management, poor morale and disputes between various factions, delays in implementing needed management systems, an underestimate of the number of Construction Management personnel needed, poorly structured contracts, and final recognition that a single contractor, Kiewit, was required to complete the Balance of Plant work (BOP).[3]

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[3]/ Balance of Plant work refers to all work not associated with the Boiler and related Air Quality Control System (AQCS).

These factors led to delays in engineering, loss of schedule float in many areas and ultimately schedule compression, delays and additional, imprudent costs.

Q. Did KCP&L undertake excessive risk in deciding how to manage and schedule Iatan?

A. Our analysis will show that the decision to force a scheduled completion date of June 2010 drove KCP&L to decide upon a Multi-Prime project management approach. The risk of this approach was well known at the time and ultimately, linked to much of the cost overruns on the project.

Q. Was the decision to select a Multi-Prime approach imprudent?

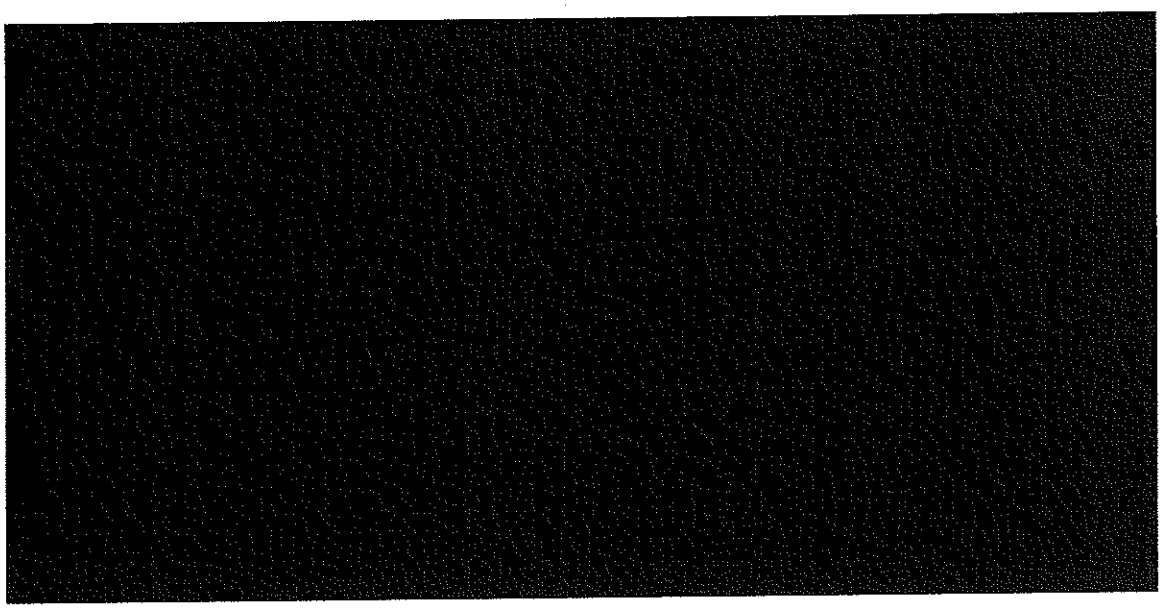
A. KCP&L argues that the decision to use a Multi Prime approach was prudent. It was based on analysis and input from Schiff Hardin, B&McD and senior management at KCP&L The Company documents the process, the pros and cons, and the risks that needed to be considered. Given the documentation and process, one could conclude that the decision was reasonable and not in itself imprudent.

However, I do not believe it is a clearly prudent decision. First, it went against the industry trend at the time. Of the sixteen projects we reviewed, fourteen used EPC. The only project, other than Iatan, to use Multi-Prime hired an Independent Construction Manager. Second, KCP&L did not have a qualified CM staff to undertake a project with this level of complexity and risk. KCP&L was not prepared to implement the project controls needed to meet the

schedule constraints. Finally, the input from both Schiff Hardin and B&McD is suspect since both firms had much to lose if an EPC was selected. Therefore, Vantage concludes that regardless of whether the Commission judges the Multi-Prime decision to be prudent or not, the lack of appropriate and timely management action following that decision was clearly imprudent and led to significant cost increases and schedule impacts. Much of my testimony provides the underlying support for this conclusion.

Q. Finally, can you tell us where the budget was most impacted by the issues you describe above?

A. The cost overruns manifest themselves in Balance of Plant (BOP) and Project Overheads. The graph below illustrates these cost increases. While there are some approximations in this graph, even with some error, it illustrates the issue. **[redacted]** Construction and Owner Indirects and Other increased from $211.5Million to $385.4 Million or 59%, **[redacted]**



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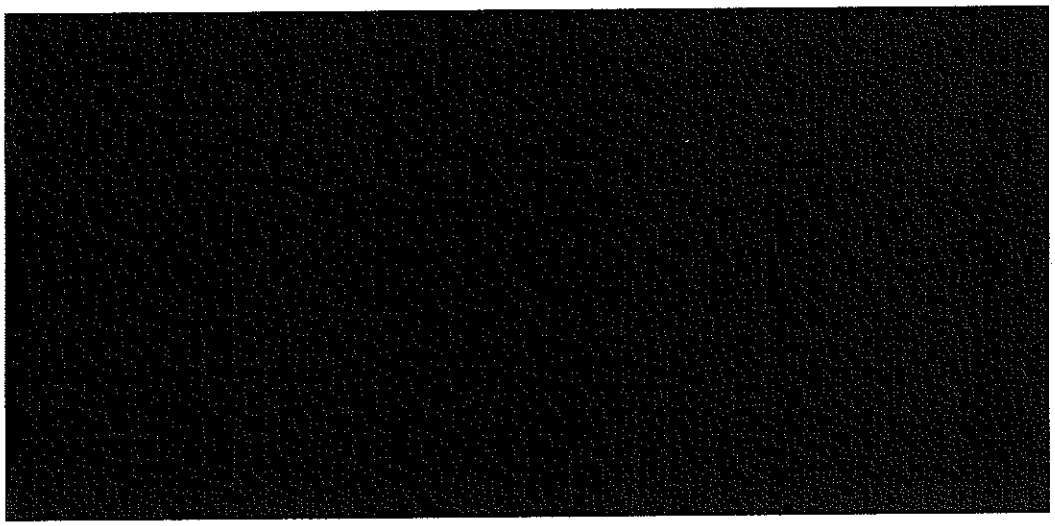
D. IATAN UNIT 1 PRUDENCE DISALLOWANCE

Q. Did you perform a prudence analysis of Iatan Unit 1?

A. Vantage was retained by the Kansas Corporation Commission to analyze the management of KCP&L as it related to construction of ACQS at Iatan 1 and to determine if any of the costs were imprudent. Mr. Drabinski prepared a report for the KCC Staff on our findings and then submitted direct testimony in March 2009 and an amended summary in June 2009. The purpose of the amended summary was to include feedback from KCP&L on our quantification of R/Os. In it, we remove certain costs, acknowledge costs that KCP&L accepted and then provide a total. The original and revised testimony are provided as Schedule WPD-8.

Q. What was your proposed total level of disallowance for Iatan 1 and what R/Os were identified to be imprudent in whole or part?

A. I concluded that a total of $13.9 million of Iatan 1 was imprudently expended. This is based on the following R/O analysis from my supplemental testimony of 5/29/09 in Kansas. **



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Q. This analysis was completed over one year ago. Do you still believe your quantification is accurate given your recent work on Unit 2?

A. Yes.

E. SUMMARY OF ANALYSIS

Q. Can you provide a summary of your evaluation of KCP&L Management and its engineers, and contractors on the Iatan 2 project?

A. The analysis in this testimony and the associated schedules will demonstrate that KCP&L management, during the period of 2005 to mid 2007, made inappropriate decisions and did not provide adequate control of the Iatan project resulting in conditions that led to schedule impacts and cost overruns which were the basis for later project cost adjustment and schedule delays. Some specific examples are provided in the following testimony.

- Decision to Not Consider an EPC[4] Approach – KCP&L would have the Commission believe that the decision to use a Multi-Prime approach[5] was made in November 2005. In fact, by November 2005, having never considered a different approach, KCP&L had no choice but to accept the Multi-Prime approach if it was to maintain the possibility of meeting its completion date. The EPC approach was never seriously considered, even in the 2004 PDR, in spite of the fact EPC was a widely utilized project delivery methodology in the industry at the time. B&McD proposed the Multi-Prime approach in the 2004 PDR and again in late 2005 when it was being formally considered. Had management started looking for potential EPC contractors in January 2005, before final approval of the CEP, the time required to develop and negotiate a contract would have been adequate. Further, while KCP&L claims the EPC would have been more expensive, this has not proven to be the case. In our analysis of sixteen coal-fired power plants of similar vintage, only KCP&L utilized the Multi-Prime approach. The other fifteen were EPC. We would note that eight of these plants started construction after Iatan. Therefore, it would have been reasonable and prudent to give the EPC approach more consideration as a cost-effective means of project delivery. In retrospect, it is clear that the EPC approach

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[4]/ EPC refers to an approach in which a single firm or group of firms is hired to perform all engineering, construction and procurement. Generally the EPC organization has the greatest level of risk for cost and schedule.

[5]/ A Multi-Prime approach requires that the owner and owner's engineer manage and support multiple contractors. On Iatan, KCP&L Construction Management (CM) staff would have needed to manage 12 to 15 separate contracts for all balance of plant work.

would reduce risk and eventual costs compared to the Multi-Prime approach selected by KCP&L. This is particularly true since KCP&L was not prepared to manage such a project. KCP&L justifies its selection of Kiewit in a document titled "Recommendation to Award BOP to Kiewit", Schedule WPD-9.

- **Turnover in the overall Project Manager position between 2005 and 2008.** – Depending on definitions, there have been as many as five individuals with direct responsibility for managing Iatan. Until mid-2008, when Carl Churchman was appointed as Vice President – Construction, there was a lack of direction, inadequate controls, procedures and accountability. By early 2007, the relationships/communications between the on-site Project Management team, the technical, legal, and engineering support personnel and the major contractors were so poor that an outside consulting firm was hired by KCP&L to conduct a management effectiveness study. This study, performed by Strategic Talent Solutions (STS), (Schedule WPD-10), [redacted][6] The study not only supports my conclusions in this testimony, but also reinforces my opinions, recommendations, and testimony regarding prudence and disallowance of costs for Iatan 1 and certain Unit 1/Unit 2 common costs.

[6]/ See Drabinski Direct Testimony in Iatan 1 case, Docket No. 09-KCPE-246-RTS.

- **Delays in Implementing Professional Advice.** - Schiff Hardin, B&V and B&McD provided advice to the KCP&L Board of Directors and Senior Management on the need to accelerate many elements of the project. History shows that most key dates were missed because KCP&L did not take reasonable steps to act on the advice of KCP&L's retained experts.
- **Delay in Selection of Owner Engineer and Completion of a Contract.** – B&McD supported KCP&L throughout the development of the CEP, including the production of the initial Project Definition Report in 2004 and its revisions. However, for some reason in October 2005 (most likely as an attempt to provide an appearance of actually seeking more than one engineer's input/bid), KCP&L decided to solicit competitive bids for an Owner Engineer and evaluated both B&McD and B&V. In November 2005, B&McD was again "selected" as the Owner Engineer. As a result, the task of developing and completing a contract with B&McD was further delayed and was not finalized until January 2007. There is also substantial evidence that shows B&McD had a conflict of interest in its role as KCP&L's engineer. B&McD recommended the Multi-Prime approach in the 2004 PDR and in the November 2005 decision process, a decision that assured it of significant work as the Owner's Engineer when an EPC approach could have been more cost-effective for KCP&L but may have resulted in the EPC contractor selecting a different engineer than B&McD. Further, B&McD provided staff augmentation in areas of performance evaluations where independent criticism of B&McD might have been warranted, including authoring many

reports that seemed to exclude serious criticism of their engineering related performance and timeliness.

- **Engineering Performance Targets.** – Did not address the real-time needs of the project. "** [redacted] **"

- **Conflict of Interest by B&McD** – KCP&L put B&McD into a position of serious conflict of interest in a number of instances. First, B&McD was asked to provide its opinion on EPC versus Multi-Prime project approach. Under an EPC approach, B&McD would have had a much smaller role and significantly lower revenue than the Multi-Prime approach it recommended. This concern was well known to KCP&L Management and Schiff Hardin personnel ** [redacted]

7/ See Schiff Hardin report summary included in Exhibit WPD-20.

[redacted] [8] **

Later, in its role of providing construction management personnel for the project, its own employees had responsibility for preparing project reports that could require criticism of B&McD.

- **Underestimation of the size of the Project Team required** – The original Project Manager seriously underestimated the number of Project Management personnel that would be required to complete this project under the Multi-Prime project method. The result was that the Project Team and Senior Management realized that they could not manage the ten to fifteen contractors needed and had to agree to hire Kiewit Corporation in 2007 to take responsibility for the Balance of Plant responsibility, originally

[8] / See document provided in response Q1R1_JG_RE November 23rd Presentation 20051122 HC-P/pdf which is included in Schedule 12

under KCP&L's direct control. Even with Kiewit, the size and cost of the Construction Management group increased considerably.

- **Delays in Project Management Decisions or System Implementation**. - Major cost and schedule control systems were delayed until the project was well underway resulting in poor control of costs and productivity. Audits of construction, engineering, safety, procurement and other key activities were not initiated until mid-2007, after the major failings of management were discovered.
- **Control and oversight of the Alstom contract was inadequate for much of the project**. – While this was a fixed price contract, the poor productivity of Alstom's workforce created significant construction problems and necessitated significantly higher levels of oversight by KCP&L than originally anticipated. ** [redacted] ** Further, the unexpectedly large workforce created logistical, space, transportation and access problems which had direct and indirect impacts on cost.

[redacted] **Decision to hire Kiewit** – In late 2006, it became apparent to KCP&L Construction Management (CM) team and Senior Management that it could not effectively manage a Multi-Prime project. While the decision to hire Kiewit became inevitable, the delay, from late 2005 to early 2006 ** [redacted]

[redacted] ** The analysis will show that the initial contract, when adjusted for work moved to other contractors, was approximately"** [redacted] **"

- **Initial schedule compression decisions**. – KCP&L Management made the decision to set a June 2010 completion date, despite the fact that approval for the project was a year later than anticipated. The 2004 PDR schedule called for start of construction in January 2005 and commercial operation in November 2009. Actual constructions started in January 2006 and the commercial operation date was accelerated to June 2010, or eight months later, compressing the schedule by four months. Current completion is expected in late 2010 or early 2011.

SCHEDULE IMPACT

Q. What was the impact on schedule of all of the management failures and poor decisions identified above?

[9] / See Downey Direct Testimony, pages 26 - 31

A. There are two elements to the schedule changes on this project. The original plan called for construction to start in early 2005, with completion in November 2009 as shown in the 2004 PDR. Clearly the delay in approval of the CEP made this schedule untenable, given that KCP&L did not appear to be willing to take the risk of moving forward with engineering and decisions on project management approach without the CEP approval. Once the CEP was approved, a new completion date of June 2010 was established and this remained in place until late-2009 when it became obvious that construction performance would not support this date. Since then, the completion date has slipped to August 2010 and is now targeted for late 2010 or early 2011.

It is the schedule slippage from June 2010 to some uncertain time in the future that is questionable. KCP&L's decision to utilize a Multi-Prime approach was based on meeting this aggressive schedule and its associated budget. Evidence will show that with the exception of a few days of delay due to unforeseen circumstances, the costs associated with most of the schedule were not reasonable. Mr. Davis in his testimony discusses the advantages and disadvantages of Multi-Prime contracting method. When asked about the advantages of Multi-Prime contracting he states: [10]

"The primary benefits to a (M)multi-prime contracting strategy can include the following: if the project is well run, a (M)multi-prime project is potentially less costly due to eliminating additional contractor profit, overhead and maybe

[10]/ Brent Davis Direct Testimony, Pages 10-11

excess contingency depending on the pricing method used; the owner's project team has greater degree of control of schedule and progress and retains the ability to determine the scheduling priorities; the owner's project team has significant control of key data regarding the project's progress and can instill a high level of transparency over the work; and the owner's engineer functions on the owner's behalf, and is an important advocate in maintaining control over the design and construction process." And regarding disadvantages, he says: "The most significant downside is that the owner accepts greater risk due to accepting full coordination of construction work and responsibility for design. The owner also takes on risk for the availability and quality of the labor force, safety and site management, materials management and project controls."

Vantage agrees with these statements. In particular, we agree with the statement that it is the owner that accepts the greater risk and incumbent with their decision, the owner must bear the risk of the increased costs of failure to meet their own expectations.

COST IMPACT

Disallowance Summary

Q. Please provide a proposed summary of your disallowances based on the analysis Vantage performed.

A. First, let me state that calculating disallowances is not an exact science. The logs of purchase orders and change orders do not have descriptions tagging costs as imprudent. Claims by subcontractors for extra costs must be analyzed,

in detail, to discern amounts attributed to compression, schedule delays, re-work, re-stacking and other costs associated with imprudent managements and its impact on the project. In many cases, KCP&L reached global settlements which addressed numerous claims, making discrete, granular analysis difficult. There is no direct correlation between the initial claims and the settlement amount. Therefore, Vantage has used a number of measures to determine the impact on cost of imprudent decisions. We present these here with detail and references to analysis which support our positions. Vantage then proposes an amount of disallowance which we believe is both warranted and conservative.

The following summary is presented based, first on a global basis, and then in a more granular manner as we dissect specific costs. There are four different amounts presented in the following table. The first uses a group of 16 similar power plants, built in the same time frame as Iatan 2. The second analysis compares Iatan 2 with Trimble County 2 which has many similar characteristics to Iatan 2. The third method utilizes an analysis of the PDRs and cost reforecasts to assess the reasonableness of changes proposed. Finally, we analyze specific purchase orders and change orders to identify costs that resulted from imprudent activities.

Later in the testimony, we will describe the process used in calculating each estimate. We caution too much reliance on the first two comparisons. While they help to provide perspective, there are many differences between plants that ultimately justify differences in cost. Our analysis of cost estimates also requires some understanding of how the estimates were developed and the context in

which this development occurred. At every point in time at which a new cost/schedule estimate is developed, the construction management personnel are only looking at the future, they do not consider mistakes of the past. Therefore, our effort requires that we take into account the expectations at each point in time, as well as our understanding of the results other projects are achieving.

	Adjusted Values
Comparisons with Similar Power Plants	**$ mil**
Comparison to 15 Similar Plants	$316
Comparison to Trimble County 2	$497
Analysis of PDRs and Cost Reforecasts	$247
Analysis of Specific Contracts, Purchase Orders, change Orders and Other Cost Drivers	$231

Details on each of the amounts provided in this summary are provided in Section H of this testimony.

F. ANALYSIS OF PROJECT

PROJECT MANAGEMENT STRATEGY

Q. Please discuss the decision KCP&L made to use a Multi-Prime contracting strategy on the Iatan project.

A. The decision to enact a Multi-Prime strategy may have been the most important decision on the project, and ultimately the one most responsible for the cost increases incurred.

Managing large complex power generation construction projects such as the Iatan Unit 1 and 2 projects, requires a contracting approach that will ensure control of all aspects of engineering, procurement and construction. Engineers must be driven to meet schedule targets. The engineering organization must have adequate resources to not only meet critical path requirements, but to maintain optimum float on other areas of the project so as to minimize risk should problems arise. The Project Management team must be assembled early and be staffed with experienced personnel, preferably individuals who have worked on similar projects previously. The team must institute comprehensive project control systems very early. Schedules and contractor productivity must be monitored from project inception until completion and in a level of detail that permits root cause analysis. Disagreements and conflicts between engineering and contractors must be addressed quickly to mitigate finger pointing and

schedule impacts. Conflicts between contractors that must sequence access to work space, such as Alstom and Kiewit, need careful coordination and oversight.

Q. How did KCP&L approach this question?

A. KCP&L considered two contracting strategies, along with some variations. With the EPC contracting strategy, the Owner Engineer's (OE) role would be to develop the EPC specification, provide assistance to KCP&L in bidder selection, respond to questions by bidders, and assist in evaluation of proposals. Post award, the OE would assist KCP&L in ensuring that the EPC contractor adhered to the contract and that material and equipment was being procured as expected.

The OE's role in a Multi-Prime project is much broader. The OE actually provides the preponderance of engineering on the project. The sequence and number of contracts is determined by the OE and owner. In the Iatan project, a "fast track" approach was required in which design is produced in early packages for early construction start on certain scopes of work while the remaining design is completed, placing greater risk on the owner's project management team and its engineer.

At a November 23, 2005 meeting,[11] KCP&L, with assistance and suggestions from B&McD and Schiff Hardin, (Schedule WPD-13) considered alternate strategies for contracting the Iatan project, ultimately recommending the Multi-

[11]/ Exhibit WPD-13 - Iatan 2 Coal Project – Preferred Contracting Methodology Discussion – November 23, 2005. Also September 29, 2005 Schiff Harden Presentation to KCP&L Executive Team

Prime method to Senior Management. Some key points in the presentation are listed below.

- Under Primary Objectives: First one was to demonstrate successful argument of prudency through effective execution and management of the project;
- Under Project Status: The presentation stated:
  - project definition was completed as part of the planning process;
  - schedule becoming tight due to extended time required to receive regulatory approvals, permits and demand for equipment;
  - project cost is projected at $1,530/kW, up from $1,432 in Regulatory Plan.
- Schedule comparison identified four alternative contracting strategies, each with a separate schedule, (Schedule WPD-14):
  - normal EPC Schedule indicated 164 week construction schedule and project completion on 11/20/10;
  - accelerated EPC Schedule indicated 156 week construction schedule and project completion on 7/26/10;
  - Multi-Prime Contract Schedule indicated 164 week construction schedule and project completion on 5/22/10;
  - Open Book EPC Schedule was also discussed, (however the details were not included in the copy of the presentation provided to Vantage).
- The Multi-Prime methodology was recommended as the better method of insuring success in meeting primary objectives. With the following caveats:

- the Multi-Prime approach has the highest probability for providing the lowest cost option however, the success for meeting the prudency objective requires a strong project management team and project controls.

Q. Did you draw any conclusions or insights from the two presentations?

A. First, in the **[redacted]

[redacted]**

Simply stated an EPC approach may have resulted in the same schedule they are currently on, and the sound advice and warnings of Schiff Harden regarding the risks of Multi-Prime were not adhered to.

Q. What was the prevalent strategy for similar power plants being built in the same timeframe as Iatan?

A. B&McD indicated, in a study of construction activity, that 20 of the 25 projects reviewed in 2004 used the EPC approach[12]. Vantage discovered that of the sixteen units used in our industry comparison, only Iatan 2 and one other project used a Multi-Prime approach.

Q. What would B&McD's role have likely been had KCP&L decided to solicit an EPC contractor?

A. Unless, B&McD was part of the EPC team, it would have had a diminished role on the project. Instead of being responsible for design of all systems, it would have only provided external oversight for KCP&L.

12/ Statement made in 2004 PDR.

MANAGEMENT ACTIONS THAT IMPACT THE PROJECT

SENIOR MANAGEMENT TURNOVER

Q. Describe the problem with turnover in senior project management personnel and explain why this had a major impact on many of the subsequent problems you detail.

A. Turnover in the Project Manager position during 2006 and 2007, at both officer and functional levels, was significant and one of the fundamental root causes for problems late in the project. Without consistent leadership of a reasonable quality and experience level to set a tone for the project, a complex project such as Iatan 2 becomes rudderless. The following Table details the turnover of senior project management positions. It is clear that responsibility for decision making was both lacking and also changing at a point in time when direction, project control systems, policies, and leadership were most needed. "**

Title	2004	2005	2006	2007	2008	2009	2010
[redacted]							

**"

Q. How involved was the KCP&L Board of Directors early in the project?

A. Vantage reviewed the minutes of Board of Director meetings for the 2005 to 2008 period and found minimal discussion of key issues. Often there were months between specific references to the Iatan project. (Schedule WPD-15)

DISSENTION AMONG THE PROJECT TEAM

Q. Was there dissention, poor communication and dysfunctional management at the highest project management levels?

A. Yes. There is a significant body of evidence that shows the level of dysfunction and open animosity among the KCP&L Project Management Team as well as between various contractors. For example, 2006 meeting notes indicate that the Project Director, Grimwade, disagreed over how a number of

contracts should be structured.[13] By early 2007, the atmosphere between the Project management team on-site, technical, legal and engineering support and the major contractors was so poor that an outside consulting firm was hired to conduct a management effectiveness study. This study discovered a broad range of very serious issues. The following is a summary from a report titled "Construction Project Effectiveness – KCP&L – May 2007" by an outside auditor. (Schedule WPD-10).

"**[redacted]

[13]/ Reference weekly meeting minutes from SH, Exhibit WPD-19.

[redacted]

[redacted]

• [redacted]

[redacted]**"

The report offered a number of sound recommendations. There is no evidence that STS was retained to implement any of its recommendations and there were no follow-up audits to verify changes.

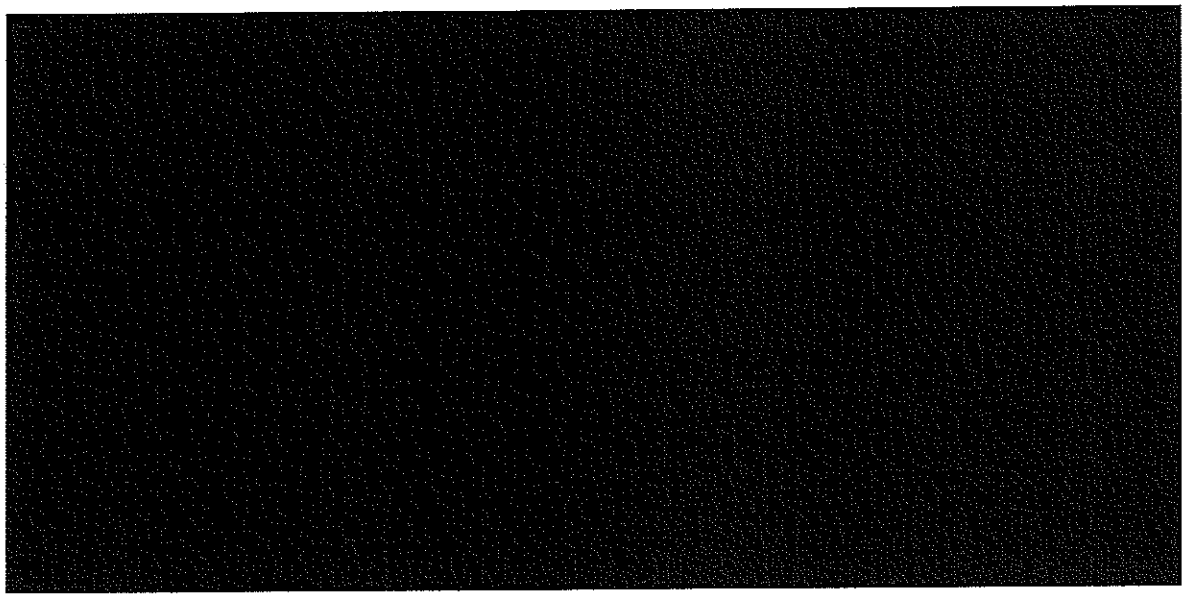
INADEQUATE CONSTRUCTION MANAGEMENT STAFFING

Q. Did KCP&L appropriately anticipate the number of construction management personnel it would need for the project?

A. No. KCP&L significantly underestimated the number of construction management personnel it would need for the Iatan 1 & 2 projects. Executive Management decided to use the Multi-Prime approach on this project knowing full well that it would require significant construction and project management

support in order to be successful. Despite not having an active and significant construction program for many years, Management seemed to believe that it could manage this complex project with a minimum level of staff. Further, it was apparent that there were very few KCP&L employees with direct experience constructing power plants. This required hiring personnel, as either new KCP&L employees or as contractors, for this assignment only. The revised Control Budget Estimate (CBE), in May 2008 showed an increase of"** [redacted] **" Schedule WPD-16 below[14] illustrates the initial staffing plan from 2006 and subsequent changes in 2008 and 2009. Had a sufficient number of qualified construction management staff been available from the onset, risk of mismanagement would have been significantly reduced, as evidenced by the overall improvement following the substantial management changes in 2008-2009."**

[14]/ Data Request Vantage IR010.



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DELAY IN IMPLEMENTING KEY PROJECT CONTROLS

Q. Please explain why project controls and monitoring systems must be implemented early in a project like Iatan 2.

A. Iatan 2 had a very compressed schedule, with only about 54 months from the start of construction until commercial operation. Site and civil engineering, and selection of the major equipment suppliers and key contractors, were all being expedited in order to ensure adequate time for design engineering, procurement and construction. The decision to use a modified Multi-Prime project management method made the need for project controls even more critical. When KCP&L decided to take responsibility for managing as many as a dozen subcontractors and integrating their efforts with those of Alstom, Toshiba, and B&McD, it accepted the responsibility for implementing tools to track schedule, performance, cost, conflicts and safety.

Q. Did KCP&L, B&McD, the Owner's Engineer, and the other organizations hired by KCP&L to support the project, implement the appropriate systems in a timely basis?

A. During 2006 and early 2007, KCP&L failed in selecting, developing and implementing the tools necessary to manage this project. Further, B&McD also failed in developing scheduling expertise, quality control and document review procedures when needed. It should be noted that KCP&L's witnesses defend its practices and cite numerous systems that were installed. However, the evidence shows that almost all of these systems were not implemented and functioning until the project was well underway. Our investigation and analysis looked at all of the major systems, the timing of their installations, and the results of external audits that addressed their effectiveness. The following examples illustrate our findings.

- Skire System was implemented June 2007. There were many problems with the original application of the Skire system. The Change Order module and Cost Management and Document Control modules were significantly modified and reinstalled in April 2009. During the development period the project management and controls were not integrated and done manually.
- The overall project scheduling system was implemented utilizing a Primavera Critical Path Method, resource loaded scheduling system, utilizing Earned Value Management techniques. **[redacted]**

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- The Iatan Construction Project Controls Plan was not issued until August 20, 2007.

Q. Mr. Jones, in his testimony, states on page 3 that "The Cost Control System was developed in the second quarter of 2006 with the intention of providing guidelines for the CEP projects and he attaches a copy of it as his Schedule SJ2010-1. What is the purpose of this document and how well does it describe specific cost controls for Iatan 1 and 2?[15]

A. According to Section 1.0 - Overview, the document describes the governance considerations, management procedures, and cost control protocols for the CEP Projects. The next paragraph goes on to state "KCP&L's Cost Control System consists of three major areas: 1) Project Definition, Development, and Contracting Strategy; 2) Project Controls; and 3) Corporate Governance." These three areas are further defined: **

[redacted]

[15] / This testimony uses excerpts from the Cost Control System document. We suggest that the reader review the entire document if there is confusion as to the sections we include in this testimony.

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[redacted]**

Q. Do you have any observations based on these descriptions?

A. Yes. First, the Project Definition and Contracting Strategy are largely related to KCP&L's system-wide evaluation of alternative energy requirements and while it does address project specific requirements, the document does not identify many specific solutions, only strategies. One very interesting statement in the first sentence of the Project Controls description is the requirement that they be established at the start of the project. This clearly was not the case for the Iatan Project.

Q. What does the Cost Control System say about development of a Control Budget Estimate?

A. First, let me present some of the key language from the document. Section 5.3.2 deals with Cost Controls and Part B addresses the Control Budget. Under Section 1. General it states: **

[redacted]

[redacted] **

B. DEVELOPMENT OF PROJECT ESTIMATE

1. Commitments to Commission

KCP&L has committed to establishing a Definitive Estimate by August 1, 2006. KCP&L and its external consultants have been refining the basis for the cost estimate. On May 5, 2006, KCP&L prepared an Indicative Estimate for Iatan 2. This estimate was ** [redacted] ** for Unit 2 only. The Project Team is currently engaged in two critical steps regarding the cost estimate: (1) finalizing the Definitive Estimate; and (2) establishing a control budget for detailed tracking of the Iatan Project's costs.

2. Background of Estimate Preparation

In August 2004, Burns & McDonnell developed a Project Definition Report (PDR) for Iatan 2 that included as a component a cost estimate. The PDR approximated the project budget at $1.146 B ($1,432/kW), including KCP&L costs of ~$132m including fuel inventory, KCP&L indirect expenses, and contingency (8% or ~$85m). This estimate did not include transmission or substation upgrades and AFUDC. The plant configuration, as described in the August 2004 PDR, called for an 800 MW facility.

In November 2005, the budget was revised to include costs associated with an increase in plant size to 850MW. The total project cost was adjusted to $1,540/kW. This estimate did not include transmission or substation upgrades and AFUDC. Thereafter, issues impacting the overall cost estimate were reviewed and vetted by the Project Team. These issues included review of: (1) re-pricing of certain commodities to match current market pricing; (2) appropriate contingencies for

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certain line items with inherent risk; (3) potential and known impact of market forces including scarcity of supply and tight labor market; (4) labor incentives and other wage issues; and (5) owner costs. The Indicative Estimate that KCP&L produced was the result of this process. On May 5, 2006, the Indicative Estimate of $1.467 B, excluding AFUDC, was presented to the Board of Directors. This Indicative Estimate represented Burns & McDonnell's best approximation of the Project's cost. This estimate includes substation and transmission upgrades but does not include AFUDC. Since the presentation of the Indicative Estimate, Burns & McDonnell has prepared a Probabilistic Cost Estimate (PCE) analysis that models the likelihood of individual line items in the budget exceeding or coming under the Indicative Estimate. That analysis, as well as other reviews of the Project estimate internally and by external consultants, is due for review prior to the presentation of the Definitive Estimate, which is currently set for August 1, 2006.

Q. First, regarding the Control Budget Estimate, what observations have you made?

A. By KCP&L's own statements, the CBE was to be completed by August 1, 2006 based on information known at that point. Instead it was not provided to the Commission until December 2006, after almost $1 billion in contracts were committed. Further, the Indicative Estimate provided to the KCP&L BOD was never provided to the Commissions.

Q. KCP&L witnesses have testified extensively about the lack of value in the Project Definition Report from August 2004 and its update in November 2005. Does the

Cost control system provide a better view of how valuable the PDR and its update was?

A. Yes, the text in "Background of Project Estimate Preparation" clearly shows that the PDR was the basis from which further estimates were derived. It provides a clear delineation of the cost development process and at no time suggests that the PDR was of no substantial value.

DELAYS IN IMPLEMENTING PROFESSIONAL ADVICE

Q. You indicated earlier that KCP&L Senior Management did not always follow the key advice of the experts it hired. Please explain.

A. KCP&L has expended significant sums on technical experts for the Iatan project. "**[redacted]**" However, at times management simply disregards key advice. This is true with regard to the need to expedite key activities, to address project management problems and overall project productivity. In reaching this conclusion, Vantage has read thousands of pages of reports, audits, studies, meeting minutes, facilitation activities, settlement summaries and public documents. Let us be clear, we are not suggesting that management simply did nothing. The Company's witnesses have described many actions taken to rectify problems and implement controls. What the evidence shows is that from early 2005 when approval of the CEP was imminent, until mid-2007 when the crisis was finally identified and acted upon by senior management, valuable time was

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lost. Management had a firm reluctance to change the scheduled completion date until forced to do so in 2009 when no level of effort would enable the project to recover its lost productivity, resulting in inordinate amounts of money being spent to try to recover lost schedule. What follows are examples that illustrate the delays in management decision making. **

[redacted]

16/ See Schedule WPD-1, 2004 PDR April 2004 Project Definition Report.

17/ See Schedule WPD-14 Schiff Hardin Presentation to BOD, 11/23/05

18/ See Schedule WPD-19 Schiff Hardin Report Summary.

19/ See Schedule WPD-20 Schiff Hardin Report Summary.

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[redacted]

• [redacted].**”

20/ See Schedule WPD-20 Schiff Hardin Report Summary.

SCHEDULE PERFORMANCE

SCHEDULE ANALYSIS

Q. Please summarize the results of the analysis Vantage did on project schedule impacts resulting from issues described above.

A. Our analysis concludes that there were a number of significant adverse impacts resulting from mismanagement during 2006 and early 2007. The main issues are summarized below. This is followed by a Table that highlights the slippage in schedule that was recognized in February 2010. Please note the cost and schedule forecast issued in April 2010, reflects some of the realities of these results.

- The delayed start of engineering and the procurement of major equipment and services have negatively impacted the overall project schedule by 2 to 4 months.
- B&McD's poor support of the civil engineering work had a negative impact on the associated activities as well as the remaining activities.
- Alstom's continued substandard support of the project schedule, and KCP&L's failure to keep Alstom on-track, has resulted in significant compression costs and overall project schedule delays. **[redacted]**
- In late 2009, KCP&L stated that to maintain the then current in-service date of 7/29/10, KCP&L may need to reduce the quality of the startup process, which may negatively impact the quality of the overall project. (Note: this

has now been recognized as a major risk and the start-up schedule has been redefined and the schedule has changed again.)"**