

1 This was a major decision which would significantly alter the projects risk profile and
2 KCP&L gave it the time and attention which a decision of such magnitude must have. As
3 the Iatan Unit 2 project was not at a place where work could simply be put on hold while
4 KCP&L worked through this decision and the changes that such a change would entail in
5 accepting the Kiewit propose, KCP&L continued its progress towards full
6 implementation of the multi-prime methodology using its own forces (i.e. continuing to
7 install project control systems and add additional technical specialist staff). Pegasus-
8 Global found that KCP&L's reaction to the receipt of the Kiewit proposal were both
9 reasonable and prudent when considered against the risk profile of the project at that time
10 and the status of the project at that same time.

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

13 **A:** Pegasus-Global found that KCP&L adopted a strategy whereby it could take the time
14 necessary to make a fully informed decision without having to make any immediate
15 decision to accept or reject the Kiewit proposal. ** [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]**

19 As noted above, KCP&L had to gain time to conduct and conclude its evaluation of the
20 risks and opportunities afforded by the Kiewit proposal without halting progress on the
21 project and while keeping the Kiewit option open. The opportunity to meet all three

⁶¹ Schiff Hardin Report, February 28, 2007, page 4

1 conditions cited above presented itself in the form of the need to update project estimates
2 as the amount of project detailed engineering increased. One of the tasks identified within
3 the Kiewit proposal was the preparation of a detail construction cost estimate.

4 ** [REDACTED]

5 [REDACTED]

6 [REDACTED] ** By February 16, 2007

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

10 During that same period KCP&L continued to pursue its project work as planned under
11 the original multi-prime execution methodology. KCP&L continued to prepare and
12 release bid packages for equipment, materials and BOP construction work and continued
13 to recruit line staff positions which were needed to perform both project management and
14 contract administration functions for those procurement awards made during that period.
15 Work which was underway on site was directly managed and controlled by KCP&L
16 during that period of time.

17 As the estimate update was concluded, KCP&L's examination of the decision to change
18 the BOP delivery methodology under the Kiewit proposal had been completed and
19 KCP&L initiated focused negotiations with Kiewit for the award of the BOP scope of
20 work. On May 17, 2007 Kiewit submitted a revised cost proposal for the BOP scope of
21 work which in effect would place Kiewit in control of the majority of the BOP work

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1 (thereby shifting a significant portion of the execution risk from KCP&L to Kiewit).

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8 Pegasus-Global found that KCP&L's actions and decisions in consideration of the Kiewit
9 proposal were based in a thorough examination of the contemporaneous information and
10 project status and were ultimately both reasonable and prudent.

11 **C. CONTRACT MANAGEMENT AND ADMINISTRATION PROCESSES AND**
12 **DECISION MAKING, INCLUDING PROJECT CONTROL SYSTEMS AND**
13 **CHANGE MANAGEMENT**

14 **Q: As part of your review did you evaluate KCP&L's contract management and**
15 **administration processes and decision-making?**

16 **A: Yes.**

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

19 **A: Yes. Contract Administration is simply ensuring that a contractor complies with the terms**
20 **and conditions of its contract under the facts and circumstances at the time and that the**
21 **final product of that contract is fit for its intended purpose. As the Contract Administrator**

⁶² Schiff Hardin Report, May 23, 2007, pages 1-3

1 KCP&L was solely responsible to ensure that the engineer/designer, construction
2 contractors, equipment vendors, and material suppliers engaged to execute a scope of
3 work met the conditions of their contract agreement and that the ultimate product of that
4 contract agreement was fit for its intended purpose. In short, KCP&L as the Contract
5 Administrator of the Iatan Project was responsible to (1) make sure that the engineer,
6 construction contractors, vendors and suppliers did what they had been paid to do and (2)
7 to make sure that the engineer, contractors, vendors and suppliers are paid for the work
8 completed per the terms and conditions of the contract. KCP&L's responsibility cannot
9 ensure that each of these parties will live up to their obligations but can mitigate the
10 consequences consistent with the project's needs and the facts and circumstances as I
11 explained earlier in **Section III** of this testimony.

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

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

- 14 • Contract Enforcement;
- 15 • Waivers of Provisions and Conditions;
- 16 • Specification Interpretation;
- 17 • Budget Development and Cost Management;
- 18 • Schedule Management;
- 19 • Quality Assurance;
- 20 • Production Surveillance;
- 21 • Change Management;
- 22 • Payment Management;

- 1 • Penalty Management (i.e. imposition of liquidated damages);
- 2 • Warranty Enforcement;
- 3 • Subcontractor Management;
- 4 • Contract Breach;
- 5 • Resolution of Disputes;
- 6 • Project Termination; and
- 7 • Project Closeout.

8 **Q: Why was KCP&L the Contract Administrator on the Iatan Project?**

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

15 **Q: When did KCP&L’s Contract Administration Responsibilities begin?**

16 A: In the summer of 2004 when B&McD was engaged to work with KCP&L to develop the
17 first PDR for the Iatan Unit 2 project and throughout 2005 as B&McD began preparation
18 of the critical long lead procurement specifications for the turbine generator and boiler
19 systems. The first major equipment award was made to Toshiba for the turbine generator
20 on March 16, 2006, with the formal contract agreement executed on April 14, 2006. That
21 contract represented one of the first major contracts awarded on the project. The next
22 major equipment award was made for the boiler island equipment to Alstom on April 28,
23 2006 under a LNTP as the formal contract was not executed until August 11, 2006. In

1 essence, with those two awards KCP&L's major contract administration responsibilities
2 began in earnest. ** [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]**

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

9 A: Yes. KCP&L solicited, awarded and administered the first contracts executed in 2006
10 following its corporate level supply chain policies, procedures and processes. As the
11 initial procurements were all for long lead equipment, the KCP&L Corporate supply
12 chain policies, procedures and processes were appropriate for awarding and
13 administering the work awarded and contracted for at that time. KCP&L was actively
14 recruiting and adding project specific staff positions beginning in February 2006 and
15 continuing into 2007. KCP&L utilized staffing support from both B&McD and Schiff
16 Hardin to assist in both the development and execution of project plans and the
17 procurement efforts which were the dominant contract administration tasks during 2006,
18 and during the actual execution phases of the project which continued throughout the
19 entire project life cycle. The flow and pace of procurement through 2006 increased, as
20 would be expected, with the majority of major equipment procured prior to the end of the
21 first quarter of 2007. The initiation of construction procurement began in the last quarter
22 of 2006.

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

8 KCP&L was actively recruiting for the line staff positions necessary to use those policies,
9 procedures and processes in administering the project contracts throughout 2006 and into
10 2007. Pegasus-Global found that the staffing was keeping up with the contract
11 administrative needs through 2006; however, by the end of 2006 as procurement of major
12 construction contract work was being initiated, a full complement of line staff had not
13 been hired to administer all of the construction contracts contemplated. KCP&L's efforts
14 to recruit that line staff were underway; however, the market conditions for qualified and
15 experienced staff were extremely tight at that time. This difficulty, in part led to
16 KCP&L's decision to change its BOP construction execution methodology from multi-
17 prime contractors to a GC, Kiewit, as indicated earlier in this testimony. That decision
18 relieved KCP&L of the burden and risk of administering multiple construction
19 contractors during the execution of the Project.

20 **Q: Did KCP&L administer those contracts awarded reasonably?**

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

1 • Toshiba submitted their second invoice for payment on June 30, 2006. However,
2 KCP&L's review of that invoice and the contract revealed that Toshiba had failed
3 to meet the payment conditions of the contract that required certain submittals be
4 made to trigger that payment. KCP&L notified Toshiba that the invoice would not
5 be paid but would be held until the required submittals had been received. Once
6 the required submittals were received KCP&L made the scheduled payment
7 (August 2006).

8 • In late July 2006 Toshiba notified KCP&L that the engineering of the turbine
9 generator would take longer than specified within the contract agreement.

10 ** [REDACTED]

11 [REDACTED]

12 [REDACTED] **

13 • ** [REDACTED]

14 [REDACTED]

15 [REDACTED]

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED] **

20 In every instance examined KCP&L acted as Pegasus-Global would expect a Contract
21 Administrator to act. Specifically, KCP&L always responded in writing to any submittal
22 or notification by a contractor; KCP&L always cited to the contract conditions and
23 provisions in formulating its response; and, KCP&L always took allowable actions

1 commensurate with the situation without automatically resorting to the default position of
2 rejecting outright a contractors position or request. This latter KCP&L practice was
3 beneficial to the project as a whole and the relationship would continue. These actions by
4 KCP&L are an example of KCP&L using the best of industry practices in their contract
5 administration.

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

8 A: KCP&L's contract administration role relative to any equipment, material or construction
9 contract not assigned to Kiewit under the BOP General Contractor contract remained the
10 same. Kiewit was responsible under its contract to coordinate the work of all of the BOP
11 contractors, including those with contracts directly with KCP&L; however, KCP&L
12 remained responsible for the contract administration of those contracts which it held
13 directly.

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

15 A: KCP&L was prudent and their decision making process functioned as required.

16 **Q: As part of KCP&L's contract administration processes and decision making, did**
17 **you evaluate the Project Control Systems that were in place on the Iatan Project?**

18 A: Yes.

19 **Q: What are project controls?**

20 A: "Project Controls" is a general term of art within the construction industry which denote
21 those systems used by management to enable it to measure progress toward a project
22 objective, evaluating the work remaining to be completed to achieve that project
23 objective and reporting the status information gathered to project management in a timely

1 manner enabling project management to take necessary corrective action to achieve the
2 project objective. There are three steps to project control processes; measuring,
3 evaluating and correcting/modifying.⁶³ Within the construction industry the three
4 predominant project objectives which are measured are cost, schedule/progress and
5 quality. Other control systems exist for other project management process
6 responsibilities, such as, contract administration (i.e. invoice review and approval),
7 regulatory compliance (i.e. safety), materials management, etc. However, those control
8 systems are focused on the administrative process elements of the project and not the
9 primary project cost, schedule/progress, and quality objectives of the project. For the
10 purposes of Pegasus-Global's prudency evaluation of Iatan Project, Pegasus-Global
11 examined the following project control processes:

- 12 • Cost Control;
- 13 • Schedule/Progress Control;
- 14 • Change Control; and
- 15 • Quality Management.

16 Each of these four project elements and the development and use of the respective control
17 processes and systems are examined in greater detail elsewhere within this testimony.
18 The key elements of any project control system is that it enables project management to
19 monitor/measure current project conditions against a set plan, it enables project
20 management to evaluate that data within the context of future plans, and it provides
21 project management with contextual information from which corrective actions can be

⁶³ Project Management, Kerzner, Wiley & Sons, Sixth Edition, 1998, Chapter 5.1, page 226

1 formulated by project management. While there are various "packaged control systems"
2 available within the industry, project control systems are, to lesser or greater extents,
3 always customized to conform to the project conditions, and to meet the project
4 manager's and project owner's needs.

5 **Q: Please discuss the Project Controls in effect for the Iatan Project?**

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

20 **Q: Did KCP&L have project control systems in place for cost, schedule/progress, and**
21 **quality management during the Iatan Project?**

22 A: Yes. As with project delivery methodologies, project controls are developed to meet the
23 conditions of the project and the needs of project management. To develop controls

1 systems before setting the project conditions or defining the management needs at both
2 the corporate and project levels often leads to disconnects between the output of those
3 control systems and the input required by project and corporate management. This is
4 particularly true of mega-projects during which project management faces some unique
5 challenges, such as, off-shore procurements, long lead equipment purchase, transport and
6 installation, multiple contracting entities, multiple construction contractors and
7 engineering input sources, and the like. In early 2006, when the project delivery
8 methodology was clarified, KCP&L and its advisor Schiff Hardin initiated an
9 examination of KCP&L's needed control systems. That examination noted that the
10 development of the controls systems and staffing of the senior project management
11 positions were linked; as the team which would rely on those systems to manage and
12 control the Iatan Project, that senior project management staff needed to be directly
13 involved in the development of those project control systems; in other words, customize
14 the project controls consistent with the changing project circumstances which would
15 enable the PMT to assure reasonable maintenance of the project's goals.

16 By October 2006, KCP&L had secured the experienced staff necessary to develop and
17 implement project specific control systems and process for the Iatan Project. That staff
18 immediately worked to enhance the KCP&L Iatan Project control systems for cost,
19 schedule/progress, and quality management. By December 2006, those enhanced control
20 systems had been completed and installed within the Iatan Project. In January 2007, the
21 first Monthly Progress Report was issued using those systems as a basis for the Iatan
22 Project progress reporting.

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

3 A: No. In the case of KCP&L, as with many other utilities in the country, there had not been
4 significant generation construction for a number of years. As a result, an advanced and
5 mature project control system for complex projects was not maintained as would have
6 been done in previous periods when a number of complex projects were initiated over a
7 compressed time period. When the Iatan Units 1 and 2 projects were started, the use of
8 existing project controls was reasonable as a starting point. By mid 2006, KCP&L had
9 issued the CEP Construction Projects Cost Control System and was developing metrics
10 for tracking engineering status and procurement.⁶⁴ Weekly Project team meetings had
11 commenced during this time as well as the development of contract administration
12 functions and the KCP&L Project Controls team. Further enhancement of the project
13 control tools were developed in response to the E&Y risk analysis performed in late
14 2006, such as, Plan-of-the-Day meetings and establishing the Change Order process.
15 Earned value metrics were agreed upon with B&McD in November 2006, approximately
16 the same time the CEP EOC Committee Monthly meetings started, which further allowed
17 weekly reporting to management in order to provide it with information from which
18 decisions could be made, again consistent with reasonable and prudent decision making.
19 With the Project Controls team in place and the base tracking tools established, KCP&L
20 was then positioned to finish the development of the Level 3 schedule. This was a

⁶⁴ ** [REDACTED] **

1 reasonable and prudent ramp up of systems and personnel based on the status of the Iatan
2 Project at the time.

3 As the Iatan Project progressed the need for changes and enhancements was recognized,
4 and necessary changes were made. For example, in 2007, project controls data from
5 B&McD was provided through the project Document Locator System, thus ensuring
6 transparency in the information that was shared all across the Iatan Project parties. In this
7 regard, KCP&L's PMT began development of the Project Execution Plan (PEP) in
8 January 2007, involving all the Iatan Project team participants, including contractors.
9 Software was being assessed to track contract administration and cost management with
10 the Project Controls team establishing protocol for policing contractor schedule updates
11 against the detailed level 3 schedule by February 2007. KCP&L expanded its earned
12 value reporting to other contractors at this time, including, for example, Kissick.
13 Accordingly, with more project controls tools in place, KCP&L also during this time
14 began reconciling actual costs and accruals with its project tracking.

15 KCP&L, in its oversight role of the Iatan Project, continued to refine how the earned
16 value information was reported, and requested additional data from B&McD and its
17 contractors in order to verify the data being reported in the earned value reports. By the
18 first quarter of 2008, after a detailed evaluation of the various control systems and
19 tracking, KCP&L had implemented the selected Skire software system to track Requests
20 for Information (RFIs) and changes for the Iatan Unit 2 project. KCP&L had also begun
21 to track performance through the use of Cost Performance Indices (CPI) and Schedule
22 Performance Indices (SPI). A risk matrix had also been developed which tracked various

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

3 Q: ** [REDACTED]
4 [REDACTED] **

5 A: ** [REDACTED]
6 [REDACTED]
7 [REDACTED]
8 [REDACTED]
9 [REDACTED]
10 [REDACTED]
11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]
16 [REDACTED]
17 [REDACTED]
18 [REDACTED]
19 [REDACTED] **

20 For example, a number of
21 process controls were refined and/or adapted from what was learned on the Iatan Unit 1
22 project 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

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1 Iatan Unit 2 project start-up team replicate the Iatan Unit 1 project process for the Iatan
2 Unit 2 project CTO packages.

3 In summary, Pegasus-Global found that the evolution of the project controls for the Iatan
4 Project and the decision making processes were reasonable and prudent.

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

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

- 13 • **Planning and organization.** Throughout 2006 KCP&L was finalizing its project
14 execution plans, which generally included:
 - 15 ○ setting the project delivery methodologies, development of the contract
16 approaches;
 - 17 ○ working with advisors to formulate the project organization structure and
18 staffing plans;
 - 19 ○ working with advisors to enhance project management, control and reporting
20 processes and systems;
 - 21 ○ recruiting and hiring experienced staff to fill both project and construction
22 management roles identified with the assistance of its advisors; and

1 o identifying the critical data interface points between project management and
2 corporate level within KCP&L.

3 • **Procurement.** Early in 2006, based on operational specifications, KCP&L with
4 the assistance of B&McD and Schiff Hardin, identified and initiated procurement
5 of long lead engineered equipment, such as, the turbine generator (awarded to
6 Toshiba) and boiler island (awarded to Alstom). Pegasus-Global found that
7 KCP&L had strong, comprehensive procurement processes, systems and staff in
8 place at a corporate level to execute procurement which enabled it to execute
9 those procurement functions effectively and efficiently throughout 2006. The
10 procurement management and control systems in place enabled KCP&L to
11 effectively monitor, evaluate and control the procurement activities executed
12 throughout 2006 and beyond.

13 • **Engineering.** B&McD was awarded the Owner's Engineer scope of work and
14 continued working on the development of the primary project operational
15 specifications in support of long lead procurement of engineered equipment. The
16 initial scope and schedule for detailed engineering was developed and limited
17 detailed engineering was initiated and partially for foundation work in part based
18 on equipment load and size data supplied by the engineered equipment suppliers,
19 Toshiba and Alstom. KCP&L was monitoring the progress of engineering based
20 on B&McD's internal controls reporting system (see additional detail of these
21 control systems elsewhere in this testimony).

- 1 • **Construction.** Actual construction on site for the Iatan Project was initiated at the
2 beginning of September, 2006⁶⁵ when Kissick mobilized to site to execute
3 foundation work. While there was other site preparation work (i.e. demolition, site
4 grading, facility preparation) initiated in the latter half of 2006, Kissick
5 represented the primary project construction activity on the project at that time.
6 Pegasus-Global determined that the project control systems in place at KCP&L at
7 the corporate level were adequate to monitor and control Kissick's work and the
8 work being done in preparation of the site for full scale construction.

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

19 **Q: Can you explain the process that KCP&L used in reporting the information gained**
20 **through its project controls on the Iatan Project?**

65 ** [REDACTED] **

1 A: From a process standpoint, KCP&L project control staff managed the day-to-day inputs,
2 which it maintained in a repository of project control information, updating it on a daily
3 basis to ensure it was constantly tracking every opportunity or risk associated with the
4 project. The rest of the Project Team and its staff also had inputs on a daily basis and
5 would provide those inputs to one central repository within the Project Controls area.
6 Monthly project control information was gathered, reviewed, evaluated, trended,
7 analyzed and then summarized into a monthly Project Status Report. The purpose of the
8 Iatan Project Status Reports was to document activities or potential project issues, overall
9 project progress, and progress on the various phases of the project, engineering,
10 procurement and construction. The Project Status Reports were prepared with the input of
11 a number of project personnel, including the engineering leads, procurement personnel,
12 and cost and schedule personnel.

13 The CEP EOC was the primary recipient of the Project Status Reports, although they
14 were shared with the Joint Owners and senior management. Monthly cost reports were
15 also provided to the CEP EOC and the Joint Owners that provided information on
16 contingency status, cash flow, accruals, budget transfers, project to date costs and
17 Estimate at Completion (EAC).⁶⁶ KCP&L provided information in its quarterly reports to
18 both the Missouri and Kansas Commissions that included contractor earned value man-
19 hours, trends against the Provisional Acceptance Date, engineering complete,
20 construction complete, safety incidents, CPI, SPI, contingency use, procurement, budget

⁶⁶ ** [REDACTED] **

1 and other events including the hire of new personnel, Tiger Team efforts, and facilitation
2 efforts with Contractors.

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

4 A: Pegasus-Global found that the project controls in use during the execution of the Iatan
5 Project were reasonable within the context of the project status during which those
6 controls were used and enhanced by KCP&L. Pegasus-Global would expect prudent
7 project management to initiate a review of the project control processes and systems in
8 place as soon as possible once the project definition was advanced to the level that the
9 review could provide specific data as to the control systems and processes needed to
10 effectively and efficiently manage and control the Iatan Project. Pegasus-Global found
11 that KCP&L, with detailed input from its advisors, assessed its then-current project
12 control processes and systems in a timely and through manner, then initiated efforts
13 specifically intended to address the enhancements needed to those control processes and
14 systems. Pegasus-Global found KCP&L's actions and decisions relative to the
15 development and installation of project control processes and systems during 2006 and
16 into 2007 to be prudent.

17 **Q: **** [REDACTED]
18 [REDACTED]
19 [REDACTED] **

20 **A: **** [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]

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9

[REDACTED]

10 **Q: What did you conclude with respect to Iatan Unit 2 project Cost Management?**

11 A: Pegasus-Global found the evolution of the Iatan Unit 2 project cost management
12 decisions and the decision making process was reasonable and prudent for the reasons
13 described below.

14 **Q: Please describe the development of the Project Budget for the Iatan Unit 1 project.**

15 A: The development of the budget for the Iatan Unit 1 project progressed from an initial
16 high level estimate in the 2002 time frame to a detailed estimate first developed in spring
17 2006 and updated as necessary in following periods. This development is consistent with
18 other projects I am familiar with and shows that KCP&L was diligent in updating cost
19 estimates as the project progressed. The initial high level estimate for Iatan Unit 1 was
20 developed in 2002 and targeted total project costs (excluding financing costs) of \$210.7
21 million. This high level estimate was revised in conjunction with the development and
22 negotiation of the CEP program with the Missouri and Kansas Commissions. This new

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1 plan was based on estimates and schedules that were developed in late 2004 and reflected
2 some of the changes that occurred in early 2005 to reflect permit application revisions.

3 The first detailed estimate for Iatan Unit 1 project was provided to management on May
4 15, 2006. This detailed estimate reflected significantly more information about the
5 project based on actual contract values and more information about commodity costs that
6 could not have been known at the time the high level estimates were prepared.

7 **Q: What were the reasons for the cost increases from the high level estimates to the**
8 **Control Budget Estimate?**

9 A: The major changes were caused by increases in escalation resulting from commodity cost
10 increases, permit limits likely to require additions to Low NOx Burners, and demolition
11 of the existing electrostatic precipitators.

12 **Q: How does the Iatan Unit 1 project cost changes compare with cost changes on other**
13 **utility projects being completed during this time frame?**

14 A: The Iatan Unit 1 project budget was affected, in large part, by commercial and economic
15 conditions that were impacting a wide range of other utility projects that were under
16 construction during this time frame.

17 Pegasus-Global has reviewed specific industry reports and publications published during
18 this same time period. For instance, the Edison Foundation commissioned the Brattle
19 Group to study the costs of building infrastructure in the 2000-2007 timeframe.⁶⁷ In
20 addition to their Edison Foundation report,⁶⁸ the study authors also published their

⁶⁷ Chupla, Marc W. and Basheda, Gregory, Rising Utility Construction Costs, Sources and Impacts, Edison Foundation, 2007

⁶⁸ Chupla, Marc W. and Basheda, Gregory, Rising Utility Construction Costs, Sources and Impacts, Edison Foundation, 2007

1 findings in "*Sticker Shock*", Public Utility Fortnightly.⁶⁹, December, 2007, pages 56-61.

2 Among the findings reported:

- 3 • The rapid rise in construction costs was not predicted and not predictable. The
4 U.S. Energy Information Administration "2007 Annual Energy Outlook"
5 contained projected cost assumptions dramatically under actual costs incurred.⁷⁰
- 6 • A surge in demand for construction services, coupled with constraints in
7 component manufacturing capacity, engineering, material procurement and
8 construction EPC services all "exacerbate cost pressure".⁷¹
- 9 • Between January 2004 and January 2007 costs for steam generation equipment,
10 transmission facilities and distribution equipment rose by 23 to 35 percent while
11 inflation rose only 8 percent.⁷²
- 12 • For one class of plants, combined cycle, the data shows that average costs
13 increased gradually from 2000 to 2003, with significant increases in 2004 and a
14 very significant escalation in 2006.⁷³
- 15 • Four factors have driven costs for all utility projects (1) material costs including
16 both manufactured components and commodities like steel and cement; (2)
17 limited shop and fabrication capacity; (3) costs for construction field labor; and
18 (4) a competitive market for large construction project management and EPC
19 services.⁷⁴

⁶⁹ "*Sticker Shock*", Public Utilities Fortnightly, December, 2007, pages 56 - 61

⁷⁰ "*Sticker Shock*", Public Utilities Fortnightly, December, 2007, page 57

⁷¹ "*Sticker Shock*", Public Utilities Fortnightly, December, 2007, page 57

⁷² "*Sticker Shock*", Public Utilities Fortnightly, December, 2007, page 57

⁷³ "*Sticker Shock*", Public Utilities Fortnightly, December, 2007, page 59

⁷⁴ "*Sticker Shock*", Public Utilities Fortnightly, December, 2007, page 59

1 These common elements were identified in the B&McD study, the PUF article, and also
2 identified by Pegasus-Global at other projects where we were engaged.

3 Pegasus-Global observes that these types of comparisons with other projects are
4 collaborative in evaluating the prudence of KCP&L management. The fact that costs
5 increased is not, again, in and of itself, evidence of imprudence. In this situation,
6 reasonable and prudent managers on scores of projects were making the same or similar
7 decisions based on the same knowledge, facts and conditions and incurring similar results
8 – cost escalation that could not be avoided and had to be reflected in revised budgets.

9 **Q: Have there been revisions to the Iatan Project estimate since the May 2006**
10 **presentation?**

11 A: Yes, there were additional estimates required as a result of ongoing reviews of the cost to
12 complete the Iatan Unit 1 project. This process was evidence of prudent management of
13 the project to insure that responsible management was aware of the progress of the plant
14 and could make necessary changes to address changed conditions, such as described
15 above.

16 **Q: What was the relationship of schedule and cost impacts impacting Iatan Unit 1**
17 **project with activities on the Iatan Unit 2 project?**

18 A: The Iatan Unit 1 project activities were integrated into the Iatan Unit 2 project schedule
19 since these projects are managed in an integrated fashion. However, the only hard
20 constraints on Iatan Unit 1 project completion dealt with the tie-in outage and the Iatan
21 Unit 2 project start up activities.

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

1 A: The development of the budget for the Iatan Unit 2 project progressed from an initial
2 high level conceptual estimate in 2004 based on the 2004 PDR conceptual project to a
3 detailed definitive CBE in 2006 which was updated with design maturation in 2008. In
4 July 2009 the Cost Reforecast Validation was conducted to review the CBE and it was
5 determined that the estimate was accurate in total, but adjustments were made within the
6 budget details. ** [REDACTED]

7 [REDACTED]
8 [REDACTED] **⁷⁵ This budget
9 development process is consistent with other projects Pegasus-Global has evaluated and
10 shows that KCP&L was diligent in updating cost estimates as the Iatan Project
11 progressed. It is important to understand the development of the budget for the Iatan Unit
12 2 project in light of the evolution of the permitting events and market conditions
13 surrounding the Iatan Unit 2 project, in light of the economic conditions affecting all
14 utility projects during this period of time.

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

17 A: Pegasus-Global reviewed the process implemented on the project and finds it to be
18 reasonable. In late 2006 and early 2007 KCP&L transitioned to cost reports as discussed
19 above. These cost reports were developed utilizing project costs recorded in the General
20 Ledger of the utility and reported through an Excel work sheet to the project cost system.
21 While there was manual processing necessary at the project level the practice was not

⁷⁵ ** [REDACTED] **

1 unique to KCP&L. In June 2007 a presentation was made to the CEP EOC regarding the
2 Cost Tracking System in response to the audit findings. In that presentation the CEP EOC
3 was informed that a survey of other Edison Electric Industry (EEI) members had
4 confirmed that other large utilities, including America Electric Power and Pacific Gas
5 and Electric, utilized Excel or similar programs to report costs of the project contained in
6 the General Ledger to the project management group.⁷⁶

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

12 **A:** In its initial decision making process of whether to build the Iatan Unit 2 project, KCP&L
13 retained B&McD in 2004 to prepare a Project Definition Report (PDR), regarding the
14 feasibility of building a new Iatan Unit 2 facility on the same site with the existing Iatan
15 Unit 1 facility. The intent for the PDR was to provide preliminary engineering and cost
16 estimates, contracting approach and other early development information so that KCP&L
17 could begin scoping and provide feasibility inputs for use by KCP&L in its production
18 cost modeling. The PDR provided KCP&L some gross information for what it was going
19 to build and how the costs would translate to the equipment that would be installed. The
20 PDR was also used to provide some sense to KCP&L on how it was going to construct
21 the project and the type of packages that would be involved. An understanding of the

76 ** [REDACTED] **

1 various technology options and the framework from which to evaluate those options was
2 also an important aspect of the PDR's function. It allowed KCP&L to work through the
3 various options with economic and technology analysis to arrive at a base assumption for
4 what the Iatan Unit 2 project would eventually look like. The PDR was only considered
5 to be a conceptual estimate based on a "generic" schedule and several assumptions
6 regarding the plant design to provide KCP&L management with the sufficient
7 information to make an informed decision at the time as to whether to proceed with the
8 project, and if so, in what context. While the PDR did contain certain performance
9 parameters for the Iatan Unit 2 project, the PDR did not identify any detailed level of
10 design as having been completed as of the PDR.

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

- 14 • Development of adequate detail to support permitting requirements;
- 15 • Integration of project design and financial data into KCP&L's IRP;
- 16 • Discussion within KCP&L management; and
- 17 • Internal budget appropriations.

18 Risks were also identified in the PDR including:

- 19 • Planning, design and construction for a project of this size to take between 5-6
20 years.
- 21 • This 5+ year time span provides a significant amount of time for labor and
22 material pricing and market conditions to change from that originally anticipated.

- 1 • The risk is heightened by the fact that the skilled workforce that constructed coal
- 2 plants in the 1970s and 1980s has aged without a significant influx of younger
- 3 workers with similar specialized skills and experience.
- 4 • Recent significant increases in natural gas prices have led to a number of utilities
- 5 looking at coal as an alternative and economic fuel source.
- 6 • Proposed new emission requirements could have impacts to the project.
- 7 • All projects anticipated in the market would be competing for a limited labor
- 8 force.

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

14 Since the original PDR based on an 800 MW unit, KCP&L evaluated alternatives and
15 proceeded with the Iatan Unit 2 project as an 850 MW unit. In addition, KCP&L decided
16 to prepare a comprehensive emissions permit application for both Iatan Unit 1 and Unit 2
17 projects to reduce net emissions from the existing plant site.

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

20 **A: **** [REDACTED]
21 [REDACTED]
22 [REDACTED]
23 [REDACTED]

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[REDACTED]

[REDACTED] **77

The environmental permitting process implementing emissions netting resulted in KCP&L receiving a permit, but the permit requirements were more stringent on both the Iatan Unit 1 project and the overall site operation, including the Iatan Unit 2 project, than had been initially anticipated. These more stringent requirements required changes to both the then current operations of the Iatan Unit 1 project, 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.

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

A: Yes. First, the Iatan Project was a "fast-track" mega project as presented earlier in this testimony 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

77** [REDACTED] **

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1 engineering, procurement and construction phases sequentially; in volatile market
2 conditions, such time savings can have a significant cost benefit for the owner. As
3 discussed more fully below, KCP&L acted reasonably in its decision to fast-track the
4 project based on market conditions and KCP&L's Iatan Unit 1 joint owner's generation
5 needs forecasts.

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

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

16 [REDACTED]

17 [REDACTED]

18 [REDACTED]

19 [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED]

1 [REDACTED] ** Pegasus-Global
2 confirmed that KCP&L has maintained the Control Budget Estimate exactly as frozen in
3 November 2006 and that any changes to that estimate have been reported directly against
4 that CBE. This is in keeping with accepted industry practice for control estimating of
5 mega-projects. It is common practice for procurement and construction to be initiated
6 prior to the design engineering achieving 30% on fast track mega-projects as it is critical
7 that the project establish a detailed Control Budget Estimate as soon as significant
8 procurement and construction activity is initiated. Pegasus-Global found that the CBE
9 produced by B&McD and adopted by KCP&L in late 2006 was developed following
10 generally accepted estimating practices used for a fast-track, mega-project execution
11 plan. The development of the Iatan Project estimates into the Project CBE for
12 management and control of the Iatan Project costs during execution was also done
13 following generally accepted estimating practices.

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

22 ** [REDACTED]

23 [REDACTED]

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[REDACTED]

[REDACTED] ** Further, the Kansas Commission in its November 22, 2010 Order found that: *“It is factually undisputed that KCP&L executed the Regulatory Plan and constructed Iatan 2 in a difficult economic environment. We find that KCP&L knew the risks Iatan 2 represented to its customers, took steps to mitigate those risks, and developed tools for further mitigating, reporting and managing those risks”* [Kansas Commission November 22, 2010 Order, page 31].

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

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

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

18 By conducting periodic risk and opportunity analyses during the life cycle of a mega-
19 project management can ensure that it is focused on the "real time risks" facing the
20 project and taking advantage of opportunities to reduce the future risk elements that still
21 have the potential to impact project goals and objectives.

22 Q: **Can you describe the Iatan Project Cost Reforecast Process?**

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

19 **Q: Can you explain project trending?**

20 A: Yes, it is a term of art within the construction industry used to describe the process and
21 tools used by project management to precisely identify where a project is and how it got
22 there, and, using that data establish trend patterns and lines that can be projected into the
23 future of the project to conclusion. A project can trend any number of project elements,

1 including costs, schedule, bulk commodity installation, procurement milestones, etc. For
2 example, a reforecast trending analysis uses four sets of data:

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

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

16 **Q: What was the result of the Reforecast Process?**

17 **A:** Two findings made early in the process and consistent with the potential risks that
18 KCP&L had identified in its Business Planning Process involved the discovery that (1)
19 the bulk commodities (i.e. electrical cable and wire, pulling, etc.) quantities installed
20 were trending greater than the commodity quantities used within the Control Budget
21 Estimate, and (2) that the current market pricing by contractors was trending higher than
22 assumed in the Control Budget Estimate, as discussed later in this testimony regarding
23 plant comparisons. Thus, KCP&L acted prudently in its decision to address both of these

1 impact issues in its re-estimate of the total project cost. The May 2008 cost reforecast was
2 presented to the CEP EOC, the Board of Directors, the Missouri and Kansas
3 Commissions and the Project Joint Owners. ** [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

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

- 11 1. KCP&L had converted the project control estimate into a project control line item
12 budget, which enabled it to monitor and trend commitments, spending, changes
13 and contingency allocation on a monthly basis.
- 14 2. KCP&L was monitoring costs closely on a monthly basis, providing snapshot
15 reports of cash flow, commitments, spending, changes and contingency allocation
16 and on an aggregate basis, which enabled KCP&L to discern patterns and trends
17 which threatened specific estimate and budget line item cost limits. This enabled
18 KCP&L to identify trends at a very early point in time rather than picking up
19 trends only when line items "went negative".
- 20 3. KCP&L used trend data to forecast probable impacts; for example, the fact that
21 several contracts came in higher than assumed within the Control Budget
22 Estimate was treated as a holistic trend in the industry marketplace and not a
23 series of isolated contract pricing events. By combining trend data from multiple

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1 perspectives, KCP&L was able to forecast probable cost impacts at a very early
2 point in the execution of the Iatan Project.

3 4. In industries, the earlier in the project one identifies potential impacts the more
4 alternatives the project team has to address and overcome those impacts. Early
5 identification of trends by KCP&L enabled it to not simply increase the project
6 total estimated budget but to examine and employ several actions aimed at
7 managing and controlling project costs through to completion. For example:
8 KCP&L examined the budget estimate by line item, and using the same trend
9 data, moved money from line items trending under the control budget into line
10 items which were trending over the control budget.

11 5. KCP&L appropriately took the time to examine the "root cause" for the trends it
12 had detected in order to ensure that its responsive actions not only addressed the
13 cost impact, but also enabled project management to address the underlying
14 causes to the extent those causes were within its control (for example, market
15 conditions are not within the project's control but scope creep is, to some extent,
16 within the control of the PMT). This action by KCP&L would represent a "best
17 practice" within the industry.

18 6. KCP&L acted well before the Iatan Unit 2 project cost control budget "went
19 negative", that is reflected an actual overrun in the total cost of the project. It is
20 easy in a fast-track project to lose sight of the future when attempting to address
21 the pressures to coordinate multiple activities (engineering, procurement and
22 multiple construction efforts). By acting proactively, KCP&L avoided having to
23 make a series of "budget increase requests", without being able to understand or

1 explain why those budget increases were necessary. These actions evidence good
2 and prudent management decision making.

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

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

- 12 • Review of schedule and any post-effect of any changed milestones to the
13 completion date;
- 14 • Evaluation of all cost trends;
- 15 • Determination of any unknowns from design maturation;
- 16 • Quantity growth in the BOP contract to determine velocity and timing of Change
17 Orders emanating from design maturation; and
- 18 • Vetting of the contingency assumptions.

19 ** [REDACTED]

20 [REDACTED]

21 [REDACTED]

22 [REDACTED]

23 [REDACTED] ** The revalidation work performed by KCP&L enabled it to weigh

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

9 Q:

** [REDACTED]
[REDACTED]
[REDACTED]**

12 A:

As described in the Supplement 2 to the PDR issued on June 28, 2007, there were several
13 changes to the Iatan Unit 2 project's base assumptions and refinements that were made to
14 the PDR based on additional information that became available to KCP&L after August
15 2004, as well as changes to market conditions from what was known in 2004. ** [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]**

The original Iatan Unit 2 project PDR was based on
20 many assumptions and excluded several owner-furnished costs. Subsequently, the cost
21 estimate was modified to include all expected costs, including owner costs pending
22 refinement during the budgeting phase of the project development and indirect costs that
23 have now been included in the current budget. These changes and refinements included:

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

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

17 Both the unit size and schedule changed from the original PDR and influenced the project
18 costs. Meanwhile, the market shifted to become more volatile generally trending toward
19 higher costs. During 2005 and 2006, the market for engineered equipment and material
20 was volatile as niche market suppliers became constrained; steel based products were
21 subject to price and availability pressures and the price and availability of other
22 commodities, like copper, also exhibited significant volatility. The major drivers to the
23 cost increases include:

- 1 • Base labor costs which have increased since the original PDR Union rates used
- 2 for conceptual estimating purposes;
- 3 • Labor availability;
- 4 • Incentives to attract labor;
- 5 • Major equipment increases;

6 ** [REDACTED]

- 7 [REDACTED]
- 8 • [REDACTED]

9 [REDACTED]**

- 10 ○ The volume of the power house building (steam turbine-generator building)
- 11 increased substantially from the expected size during the detailed design
- 12 layout based on the purchased equipment.) Bids for the structural steel supply
- 13 contract were received in October 2006 and when the bid-to-estimated steel
- 14 quantities were compared, it became obvious that the Powerhouse building
- 15 required about twice the volume as originally expected.

- 16 • Owner site management costs;
- 17 • The Substation & Interconnect costs that were originally carried independently by
- 18 KCP&L (an Iatan Unit 2 PDR assumption) are included with each estimate
- 19 revision;
- 20 • Refined Risk Assessment:
 - 21 ○ The initial Iatan Unit 2 project PDR and the subsequent cost estimate updates
 - 22 that were made in January 2006 maintained a consistent 8% cost estimate
 - 23 contingency.

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1 o A more sophisticated Monte Carlo analysis of the remaining expected costs
2 and schedule variations were performed during the period after January 2006
3 and continued into November 2006. The objective was to predict the
4 contingency necessary to achieve 80% confidence that the project would be
5 within budget and on or ahead of schedule. ** [REDACTED]

6 [REDACTED]
7 [REDACTED] ** Multiple evaluations were performed during
8 the course of procurement as pricing information provided feedback regarding
9 estimated versus actual values for procurement.

10 o In addition to the Monte Carlo analyses performed by B&McD, ** [REDACTED]

11 [REDACTED]
12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED] ** Risk was a significant concern and specifically the
16 impact that could occur due to a low probability-high impact event. A low
17 probability – high impact event is defined as a specific risk issue that has a
18 low probability of actually occurring during the execution of the project but if
19 that risk event does occur the impact on the project goals and objectives
20 would be very high. For example, a the probability of there being a 500 year
21 flood on the Missouri River during the execution of the Iatan Unit 2 project
22 would be classified as a low probability risk event; however, the impact of

1 that event should it occur would have a very high impact on the ultimate cost
2 and schedule of the project.

- 3 ■ ** [REDACTED]
- 4 [REDACTED]
- 5 [REDACTED]
- 6 [REDACTED]
- 7 [REDACTED]
- 8 [REDACTED]**

- 9 • Commodity cost increases.

10 **Q: Please describe the changes in commodity costs that impacted the Iatan Project**
11 **estimate?**

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

20 [REDACTED]

21 [REDACTED]

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[REDACTED]

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[REDACTED] **78

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

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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.

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

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- 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.

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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 original August 2004 PDR, the impact of those risks manifesting themselves could not be quantified based on the information available at the time. In addition, other risks

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⁷⁸ Iatan Projects Cost Estimate and Schedule, July 17, 2006, page 6

1 emerged.⁷⁹ KCP&L further recognized that it understood its risks, and developed and
2 implemented prudent management techniques to mitigate them, as discussed later in this
3 testimony regarding the Corporate and Project risk management and project control
4 processes that were established.

5 Both known and emerging risks impacted the project's cost and schedule including:⁸⁰

- 6 • Labor and Manufacturing Capacity:
 - 7 ○ Strong market demand for new coal units as well as environmental retrofits
 - 8 for existing units to comply with CAIR and CAMR had put several other
 - 9 projects out for bid at the same time as the Iatan Unit 2 project resulting in
 - 10 additional demand on supplier's engineering and manufacturing resources.
 - 11 Construction of new facilities and retrofitting existing facilities constrained
 - 12 the available construction resources, resulting in significant higher prices and
 - 13 long lead times; and
 - 14 ○ Labor productivity.
- 15 • Supplier failures;
- 16 • Ability to attract and retain talent:
 - 17 ○ Changing workforce demographics;
 - 18 ○ Changing workforce expectations;
 - 19 ○ Changing Business Environment regarding employee culture; and

⁷⁹ 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.

⁸⁰ 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

- 1 ○ Employee skills.
- 2 • Commodity price volatility:
 - 3 ○ Already volatile commodity markets were even being further impacted by
 - 4 2005 hurricanes which impacted the timing and availability of major steel
 - 5 contracts.
- 6 • Base operations affected by weather and natural gas volatility, coal conservation
- 7 and unit outages;
- 8 • Fuel and energy prices exhibited volatile movement:
 - 9 ○ Coal transportation performance and costs.
- 10 • Environmental regulations;
- 11 • Rising interest rates which drive down share price, valuation and increase
- 12 financing costs;
- 13 • Capital liquidity markets; and
- 14 • Tight budgets which strained technology, training and staffing

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

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

19 **Q: The Missouri Staff report discusses at page 34 alleged unexplained cost increases in**
20 **the reports by KCP&L of cost changes from the Control Budget Estimate. Do you**
21 **agree with Staff's statements?**

22 A: No, I do not. The Staff asserts that KCP&L has not complied with section III.B.1.q of the
23 Experimental Alternative Regulatory Plan Stipulation and Agreement filed in Case No.