significant rate with each new power project announced. Pegasus-Global was not
surprised that the management line items grew as the Iatan Project matured through its
life cycle. Pegasus-Global found nothing in the project record which supports Mr.
Drabinski's assertion that KCP&L significantly underestimated the management staffing
or that the increases in the line items cited by Mr. Drabinski increased as a result of that
alleged underestimation.

7 8

Q: Do you agree with Mr. Drabinski's opinion that KCP&L had high turnover in the Project Manager position during 2006 and 2007?

9 A: No. First, Mr. Drabinski offers no documentation or analysis which supports his opinion 10 that turnover in the project management position during 2006 and 2007 "was significant 11 and one of the fundamental root causes for problems late in the project" [Drabinski at 12 page 59, lines 7 - 8]. In Pegasus-Global's experience, during complex mega-projects 13 which extend over multiple years it is not at all unusual for there to be turnover in project 14 staffing due to a variety of circumstances including promotion, reassignment, retirement, 15 resignation, illness, etc. The Iatan project has been underway for over 6 years during 16 which it one would expect changes in personnel for all of the reasons cited above. 17 Pegasus-Global did not find what appeared to be any unusual level of turnover in critical 18 project management or control positions during its examination of the project record. Mr. 19 Drabinski provided no direct link between the turnover in any of the Project Management 20 positions and any impact on the latan project cost or schedule. Mr. Drabinski failed to 21 establish any link between changes in the project management positions and "problems 22 late in the project" and certainly has not established that those changes were the 23 "fundamental cause" for those alleged problems. Finally, Mr. Drabinski did not 101

1		demonstrate that any of the turnovers in management positions was a result of any
2		imprudent decision or action by KCP&L.
3	В.	PROJECT PLANNING AND APPROACH, INCLUDING CONTRACT
4		METHODOLOGY AND ITS EVOLUTION
5	Q:	What did you conclude with respect to KCP&L's decisions regarding the
6		contracting approach taken for the Iatan Project?
7	A:	Pegasus-Global found that KCP&L management followed a systematic process in
8		selecting the project delivery methodologies and contracting approaches. In summary,
9		KCP&L:
10		• Examined its project risks, goals and objectives;
11		• With the assistance of industry experts, examined the market and industry
12		conditions and circumstances during its review of delivery methodologies and
13		contracting approaches;
14		• Examined a wide range of project delivery alternatives with the assistance of
15		industry experts engaged to provide advice and assistance relative to those
16		alternatives; and,
17		• Made appropriate adjustments to the project delivery decisions as the Iatan
18		Project unfolded during execution.
19	Q:	Can you describe your evaluation?
20	A:	Pegasus-Global has worked with and written extensively on project delivery
21		methodologies and contracting formats over the course of many years. And there are

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some critical points to understand before examination of the Iatan Project delivery methodologies and contracting formats³⁶ including:

3 A project delivery methodology and a contract approach are not the same thing 4 and those terms are not interchangeable. The project delivery methodology 5 involves the allocation of the scope of work among the participants in the project. 6 For example, an Engineer, Procure, Construct (EPC) delivery methodology 7 implies that a single contractor (or joint venture) has the duty to complete the 8 entire scope of a project (or a discrete subcomponent of a full project), while a 9 Design-Bid-Build (DBB) delivery methodology implies that there are separate 10 contractors, with one having the duty to design (engineer) the project and one 11 having a duty to construct the project. There are a wide variety of project delivery 12 methodologies, including:

- 13 o Design-Bid-Build (DBB);
- 14 o Engineer, Procure, Construct (EPC);
- 15 o Design-Build (DB);
- 16 o Multi-Prime (MP);
- 17 o Construction Manager (CM);
- 18 Construction Manager at Risk (CMR); and
 - Various Hybrid Methodologies

³⁶ See for example: Nielsen, K.R., "Execution Risk Management in Design-Build Infrastructure Projects," *Proceeding of the Construction Institute Atlantic Coast Conference*, Tysons Corner, VA, May, 2004 and Nielsen, K.R., "Managing Risk on CM Projects," *Establishing Standards of Practice*, University of Wisconsin, Madison, May, 1984

2and negotiated terms and conditions which govern the execution of the scope of3work identified by the parties. Contract approaches tend to be classified by the4payment and schedule provisions drafted and not by the specific delivery5methodology. For example, contract approaches include the following:6• Fixed Price, Completion Date Certain;7• Fixed Price, Milestone Target Schedule;8• Firm Price, Completion Date Target;9• Unit Price, Milestone Schedule;10• Unit Price, To Project Schedule;11• Unit Price, To Project Schedule;12• Time & Materials, To Project Schedule; and13• Various other combinations.14One of the elements of a contract approach will be the identification of the delivery15methodology. However there is in reality no such thing as a "standard" EPC contract16approach as under that delivery methodology the price can be firm, can be fixed or can17even be target and the schedule requirement can be date certain, milestone or progress18based. Any contract approach may identify and include reference to any delivery19methodology. It should also be understood that contract approaches are specifically20driven by the owner's policies and standards and local, state and federal laws, statues and21regulations. As a result, while there are a vast variety of "standard contract formats"22globally (i.e., the FIDIC Red Book Contracts), there is no universally accepted contract	1	• Contract approach on the other hand defines the documents specifically developed
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 methodology. For example, contract approaches include the following: Fixed Price, Completion Date Certain; Fixed Price, Milestone Target Schedule; Firm Price, Completion Date Target; Unit Price, Milestone Schedule; Unit Price, Completion Date Certain; Unit Price, Completion Date Certain; Unit Price, Completion Date Certain; Unit Price, To Project Schedule; Time & Materials, To Project Schedule; and Various other combinations. One of the elements of a contract approach will be the identification of the delivery methodology. However there is in reality no such thing as a "standard" EPC contract approach as under that delivery methodology the price can be firm, can be fixed or can even be target and the schedule requirement can be date certain, milestone or progress based. Any contract approach may identify and include reference to any delivery methodology. It should also be understood that contract approaches are specifically driven by the owner's policies and standards and local, state and federal laws, statues and regulations. As a result, while there are a vast variety of "standard contract formats" 	3	work identified by the parties. Contract approaches tend to be classified by the
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21 regulations. As a result, while there are a vast variety of "standard contract formats"	19	methodology. It should also be understood that contract approaches are specifically
	20	driven by the owner's policies and standards and local, state and federal laws, statues and
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	22	globally (i.e., the FIDIC Red Book Contracts), there is no universally accepted contract

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

3 All of those delivery methodologies, or combinations of those delivery methodologies, 4 and all of those contract approaches, have been used within the power industry and no 5 one of those delivery methodologies or contract approaches has been identified as the 6 "best" method for construction of power generation facilities, and any of those 7 methodologies (or combination of those methodologies) is an appropriate vehicle for the 8 delivery of a major power project. Likewise all of those contracting approaches or 9 combinations of those approaches have been used within the power industry and no one 10 of those contract approaches has been identified as the "best" contract under which to 11 execute a scope of work on a major power project. The goal is to formulate a reasonable 12 and prudent approach based upon all information known or reasonably available to 13 management at the time that the project delivery approach and contract methodology are 14 developed.

The distinction between delivery methodology and contract approach is important because it is easy to confuse those two elements of a project. For example, to assert that the Iatan Project should have been executed under an EPC delivery system because it would reduce risk and eventual costs when compared to a multi-prime delivery system [Drabinski at page 43. Line 19, through page 44, Line 2] is mixing the benefits expected from a delivery system with the realistic elements of a contract approach. **

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1	construction industry maxim - that the more risk an owner sheds the greater the cost - has
2	been proven repeatedly because a contractor bidding a fixed price for the total risk of the
3	project cost is going to assure that it has not only covered the direct cost of that project,
4	but has included in that fixed price a contingent amount to cover any and all potential
5	impacts to that fixed price. ³⁷ Even if the project is executed to perfection and none of that
6	contingency is used, the owner, under those contract conditions must pay the contractor
7	that contingent sum. It is overly simplistic to assert that any project delivery methodology
8	or contract approach is more or less costly or has more or less risk to any of the parties
9	involved in that project.
10	The selection of project delivery methodologies and the contract approaches is dependent
11	upon a number of factors that must be taken into account during the development of the
12	project plans, including:
13	• The specific project risk profile;
14	• Project size and complexity;
15	• Project cost, schedule and quality goals;
16	• Project ownership profile;
17	• Ownership risk tolerance;
18	• Investor risk tolerance;
19	• Local, state and federal laws and regulations;

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³⁷ "A Contract Clause for Allocating Risks", Dr. George F. Jergeas P.Eng. and Dr. Francis T. Hartman, P.Eng., American Association for the Advancement of Cost Engineering, 1996 AACE Transactions, D&RM1.1; "Risk Sharing – Good Concept, Bad Name", James G. Zack Jr., American Association for the Advancement of Cost Engineering, 1995 AACE Transactions, D&RM.6.1; "Coal-Fired Power Plant Construction Costs", Synapse Energy Economics, Inc., July 2008, David Schissel, Allison Smith and Rachel Wilson

- 1 Industry conditions;
- 2 Market conditions;
- 3 Financing structure;
- 4 Geographic location;
 - Labor conditions; and
- 6

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Various other factors that should be known to management at the time of developing the project delivery methodology and contracting approach.

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8 In short, myriad separate yet interrelated factors generally dictate the project delivery 9 methodology (or combination of methodologies) and contracting approach (or 10 combination of contract approaches) which best aligns with those factors. In the Iatan 11 Unit 2 project example, during the early development of the latan Unit 2 project KCP&L 12 followed a process which "defined" the crucial project factors which would be crucial to 13 its selection of project delivery methodologies and contracting approaches. Those crucial 14 factors were summarized in two documents produced by KCP&L, the Project Definition 15 Report (PDR) initially prepared in August 2004 and the CEP, which placed the Iatan Unit 16 2 project within the context of the full KCP&L generation and supply plans for the near 17 term. The PDR of August 2004, while fairly broad in nature, set the basic context within 18 which the Iatan Project would be further developed and defined and provided KCP&L a 19 set of project factors from which early project management decisions could be examined 20 and based.

21 **Q**:

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

22 A: Yes. Earlier in this testimony, Pegasus-Global said there is one additional factor which 23 influences projects such as the Iatan Project; the fact that the Iatan Project is, by 107

1 definition, what is considered to be a mega-project. A mega-project is generally defined 2 as a construction project with a total execution cost of \$1 billion or more, requiring 3 several years to execute from initial planning to final operations, and which involves 4 complex technologies and/or physical conditions. As a mega-project there are certain risk 5 elements which are considered to be of heightened importance in the examination and 6 formulation of execution plans and strategies, for example: The distribution of cost risk 7 may become problematic as few contracting firms can assume the cost risk of one, let 8 along multiple, mega-projects simultaneously. Although theoretically an EPC delivery 9 methodology shifts cost risk to the contractor, it is very unlikely that any single 10 contractor will agree to accept the entire cost risk for a mega-project, resulting in an EPC 11 contract with a target price or a series of price conditions which offer the contractor with 12 protection from cost increases which are not within its control. Likewise, most 13 contractors would find it extremely difficult to secure bonding on a project in which it 14 had agreed to assume the risk of cost. The distribution of schedule risk may become 15 problematic as the extended time period required to execute a mega-project would 16 involve "predicting" the future of the market, the industry, the general local, regional and 17 international economic conditions, the impacts to various critical equipment being 18 manufactured off shore, and the like. For example, regional conditions in Japan may 19 impact the delivery of critical pieces of engineered equipment, delaying a project schedule. The choice of a project delivery and contracting method is dependent upon the 20 21 identification and examination of hundreds or even thousands of project specific factors. 22 as that delivery method and contracting approach must be tailored to the project factors. 23 Within the industry it is generally considered unreasonable to attempt to force fit any 108

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project, but in particular a mega-project, into a specific delivery methodology and contracting approach chosen in advance of having identified and examined all of the critical project factors. In the end, the delivery methodology and contracting strategy must align with the project factors as the project factors usually cannot be altered simply to fit a particular project delivery methodology or a preferred contracting approach.

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

KCP&L utilized B&McD to perform Owners Engineer services for the Iatan Project 7 A: 8 during early evolution of the project definition for both the latan Unit 1 and Unit 2 9 projects. During that early project development phase B&McD worked under a "General Services Agreement (GSA)," which is common practice in the industry and was 10 11 appropriate to the scope of work involved in this early phase of the project definition 12 development process. As is also expected with complex mega-projects, B&McD's initial 13 development work evolved and expanded as the project definition was refined and 14 expanded and, in the case of the Iatan Unit 2 project, culminated in B&McD's 15 preparation of the Iatan Unit 2 PDR in August 2004. However, B&McD was not released 16 to proceed with any significant level of engineering on the Iatan Unit 2 project pending 17 the further refinement and expansion of the project definition beyond that contained 18 within the 2004 PDR.

In one action taken to refine and expand the project definition beyond that contained in
 the 2004 PDR, in 2005 KCP&L engaged Black &Veatch (B&V), another experienced
 power plant engineer, to prepare technical specifications for the Iatan Unit 2 engineered

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boiler equipment and turbine generator.³⁸ The development of the boiler technical
specification was arguably the most critical element to the completion of the Iatan Unit 2
project preliminary definition, establishing the basis from which the majority of basic and
detailed engineering of the project would flow.

Specific to the Iatan Unit 2 project, by the fall of 2005 the project definition was
sufficiently defined to the stage where the selection of an owner engineer under a formal
commercial project engineering relationship was possible. To this point two experienced
power project engineering firms, B&McD and B&V had participated in the development
of the preliminary project definition.

10 Thus, reasonably, KCP&L solicited proposals from both of those qualified power 11 engineering firms. The proposals were not limited to provision of engineering services, as 12 each firm was free to propose for any scope of work from pure engineering, to 13 engineering with construction management scope to full EPC scope. Likewise there was 14 no restriction placed on the contracting approach proposed by the two engineering firms; 15 the firms could propose on a fixed price, unit rate, time and materials or hybrid 16 contracting approach. Ultimately each firm submitted proposals that were not limited to 17 engineering, but also included some procurement and construction scopes of work.

Each of those proposals was subjected to a formal review process by KCP&L, with each of those two contractors given an opportunity to present their respective proposals and address issues and questions which arose during the formal KCP&L reviews. On the basis of the selection process, in November 2005, KCP&L formally awarded the

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³⁸ KCP&L Strategic Infrastructure Investment Status Report, First Quarter 2006, page 4, April 28, 2006

engineering scope of work for the Iatan Unit 2 project to B&McD. [Giles direct testimony, Kansas Corporation Commission Docket No. 10-KCPE-415-RTS, December 17, 2009, page 15, line 9 – page 16, line 2 and page 20, line 3 – page 21, line 23]

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Q:

Was the process through which KCP&L selected the Owner Engineer unusual within the industry?

6 A: Only in one respect; by having given B&V the work to develop the boiler technical 7 specification, KCP&L was able to solicit proposals from two experienced power project 8 engineering firms, both of whom had direct knowledge of the preliminary project 9 definition. Normally one of the proposing engineering firms has that direct knowledge 10 gained from the development of the PDR, while other proposing engineering firms must 11 discern and digest the PDR from the Request for Proposal documents issued by the 12 owner. In this aspect, KCP&L's decision relative to B&V's development of the boiler 13 technical specification was extremely beneficial and reasonable on the selection process, 14 resulting in two complete and competitive proposals from two qualified engineering 15 firms. Then, with respect to the latan Unit 1 project, KCP&L released B&McD to 16 proceed with the engineering for the Iatan Unit 1 AQCS in December 2005.

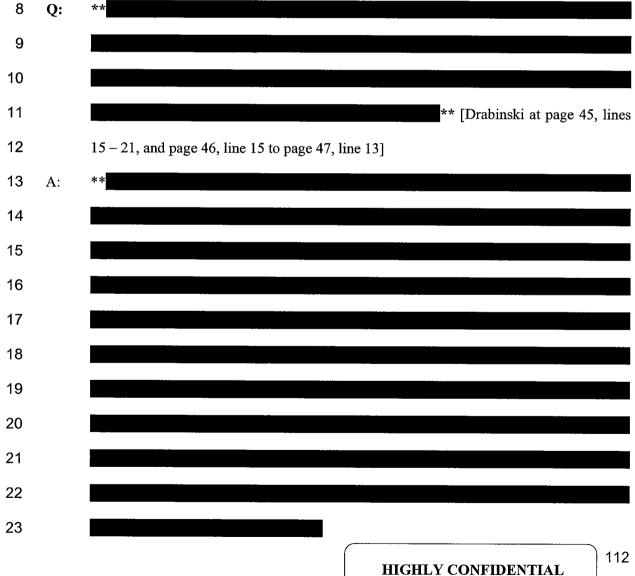
17 Q: What did Pegasus-Global conclude relative to the Iatan Unit 2 PDR having been 18 prepared under a General Services Agreement?

A: Development of initial or preliminary project definition is usually done under an Owner's
GSA, as the scope of work is actually defined during the execution of that work. In
effect, as the definition is developed and refined the scope of work expands to a point that
the remaining scope of work involves the basic or detailed engineering of the actual
facility. Basic engineering is the preparation of technical specifications for engineered

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1 equipment. Once these technical specifications have been drafted, work beyond that point 2 ventures into facility basic engineering and detailed engineering. Pegasus-Global found 3 that KCP&L employed its current "in house" engineer, B&McD, for the development of 4 the initial PDR. This is a standard practice within the industry because using an engineer 5 which is already familiar with an Owner's practices, preferences and procedures save 6 both time and money during the preparation of that initial PDR. Pegasus-Global found 7 the use of the GSA both reasonable and prudent.



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

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5 A: Yes. There is a difference between the formal process of negotiating and executing a 6 contract on a project scope of work and the award and initiation of that scope of work by 7 the engineer or contractor. On a mega-project a formal contract agreement will take much 8 longer to negotiate and execute, and take a short period of time than it will take to initiate 9 project work. Simply because the contract is not finalized does not mean that no work is 10 done to advance that scope of work. It is routine for the two parties to initiate work under 11 a detailed LNTP or a GSA that is necessary in order to advance work while the difficult 12 process of negotiating a contract is pursued.

13 A contract document is a method by which risk is allocated among the two parties, and 14 no experienced contractor or engineer would rush to execute a contract that it had not at a 15 detailed level examined for every risk allocated to it, if for no other reason than to be sure 16 that the contract price and schedule reflect that risk allocation. As of early 2006 there 17 were still elements of the Iatan Unit 2 PDR that had not been fully settled, including the 18 delivery method and contracting approach to be utilized for the BOP scope of work. That 19 ultimate decision had a direct bearing on the scope of work to be contained within the 20 B&McD contract, and thus the risk which would be allocated to and assumed by 21 B&McD.

What was defined was primarily the procurement scope of engineering work and responsibility for that scope was retained by KCP&L. Therefore there was a scope of

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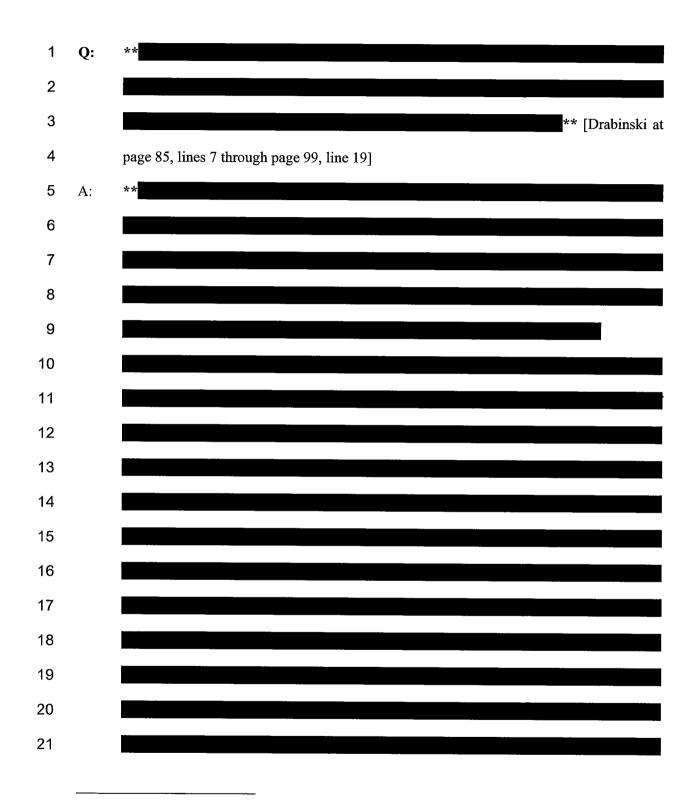
engineering work available immediately for B&McD in support of that procurement
effort and that scope of work could be adequately covered under the GSA already in
place between KCP&L and B&McD. Continuing work under the GSA enabled KCP&L
to initiate full activity on procurement of longer lead, engineered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

8 Pegasus-Global found that KCP&L's actions to continue to "retain" B&McD's 9 engineering services under the GSA enabled KCP&L to move forward with critical 10 procurement of long lead equipment both reasonable and prudent for a mega-project. 11 Given that there was no delay in the initiation or delivery of B&McD's engineering 12 services, there was merely a period when those services were controlled under the GSA 13 until the project specific engineering agreement could be finalized and executed.

14 Q: What did Pegasus-Global conclude with respect to KCP&L's management of Burns 15 & McDonnell?

16 On any project, and especially on a mega-project, no contractor is in isolation. As A: 17 presented earlier in this testimony, mega-projects introduce a significant amount of stress 18 among and between engineers, contractors, and suppliers, all of which the owner or its 19 agent must manage. Pegasus-Global found that KCP&L was able to resolve all of those 20 issues and stresses in a timely and efficient manner. Did B&McD perform flawlessly? 21 No. But perfection is not the standard for prudent decisions or their execution. KCP&L 22 management had to resolve the issues and stresses which arise throughout the entire 23 execution of a mega-project.

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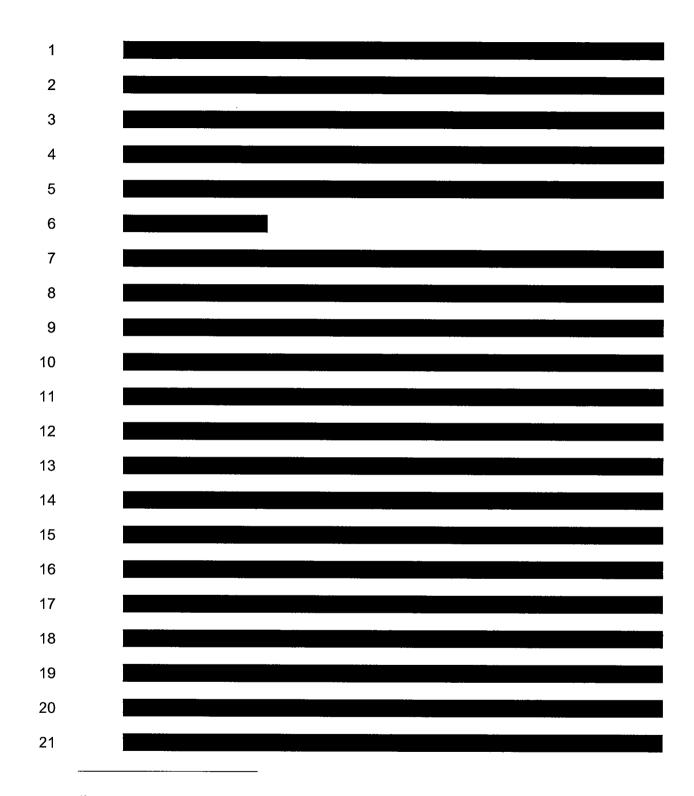
³⁹ Iatan Construction Project B&McD Vendor Audit Report – FINAL

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⁴⁰ BM Vendor Audit Follow-up 4-08

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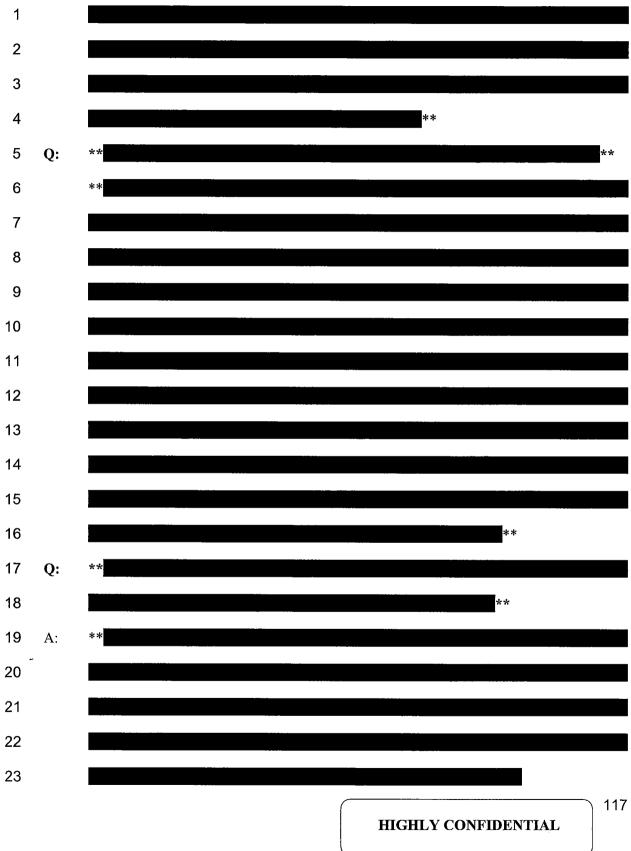
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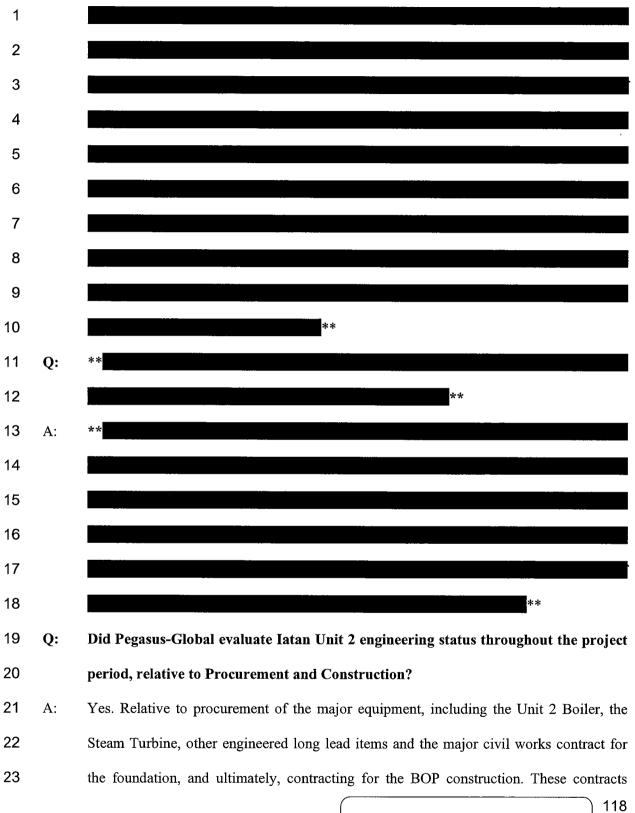
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1 were dependent on the engineering being adequately progressed to support the project. 2 Pegasus-Global discussed KCP&L's contracting approach elsewhere in this testimony. 3 Pegasus-Global concludes engineering progressed adequately to support all of these key 4 project activities. As Steve Jones, KCP&L's Procurement Manager testified, by the end 5 of 2006 B&McD had provided technical specifications and bid evaluations for the 6 completion of 24 contracts with a combined value of almost \$1billion and that did not 7 have any delay impact on the Iatan Project [Direct Testimony of Steve Jones, Kansas Corporate Commission, Docket No. 10-KCPE-415-RTS, page 17, lines 1 - 11, December 8 9 17, 2009].

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

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

18 The Boiler contract for the Iatan Unit 2 project was awarded to Alstom on the basis of a 19 performance specification to enable that scope of work to be executed under an EPC 20 delivery method and fixed price contract, where Alstom had full responsibility for 21 engineering, procurement and construction of the equipment purchased.

When a contract is awarded on an EPC basis very little detailed engineering is required from the Owner Engineer though performance specifications will need to be well 119

1 developed. The Turbine Generator scope of work was awarded as an "engineer and 2 fabricate" delivery method and with a lump sum Purchase Order contract approach, 3 where Toshiba was responsible for the engineering and fabrication of the Turbine 4 Generator. Again, though minimum detailed engineering is required, well developed 5 performance specifications are required to bid this work and award a contract. Little 6 detailed engineering design can be started prior to having details of the equipment from 7 these two primary project component equipment suppliers. As also noted earlier in this 8 testimony KCP&L retained B&V to prepare these two technical performance 9 specifications.

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

Based on Pegasus-Global's review of the Owner Engineer performance and the nature of
the contracts awarded, the construction of the Iatan Project was not impeded by
B&McD's engineering.

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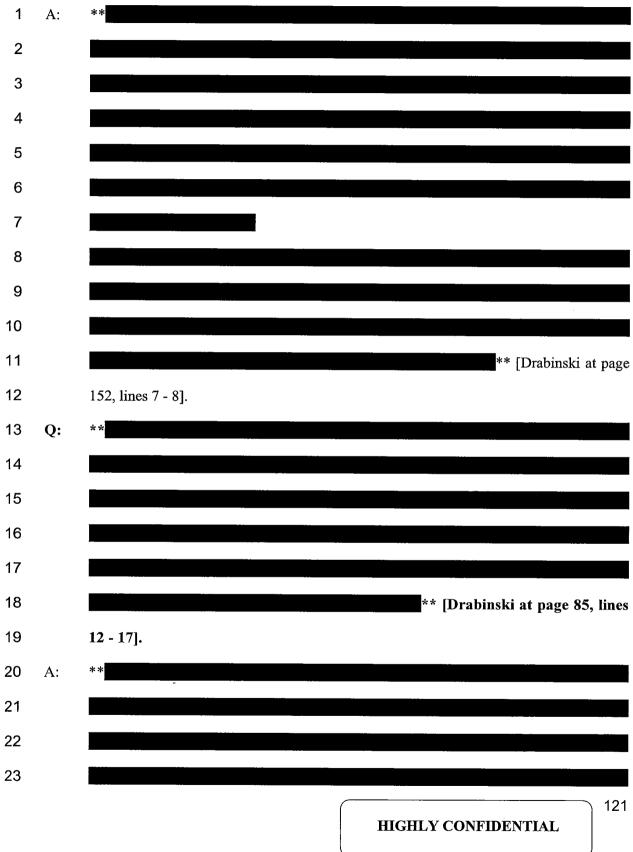
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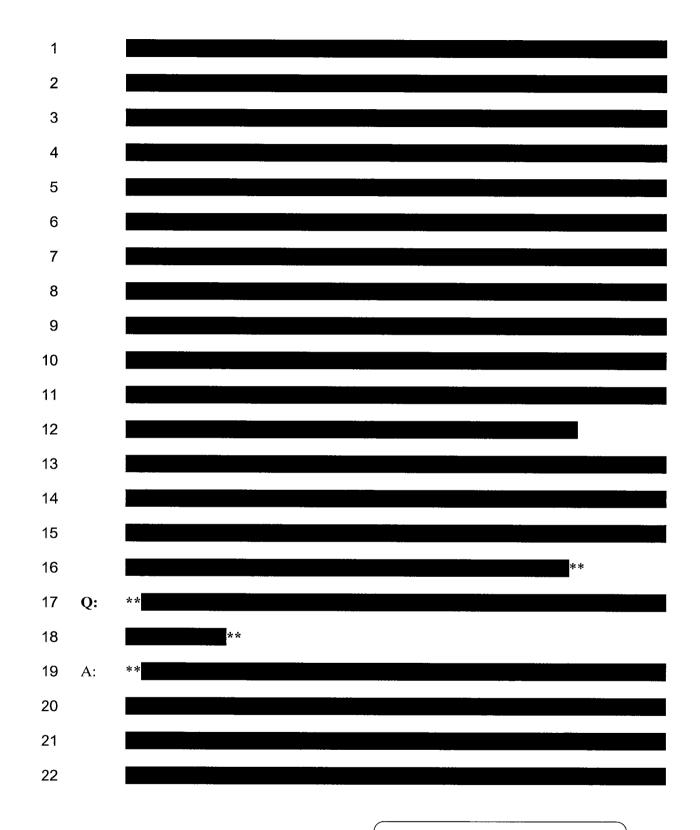
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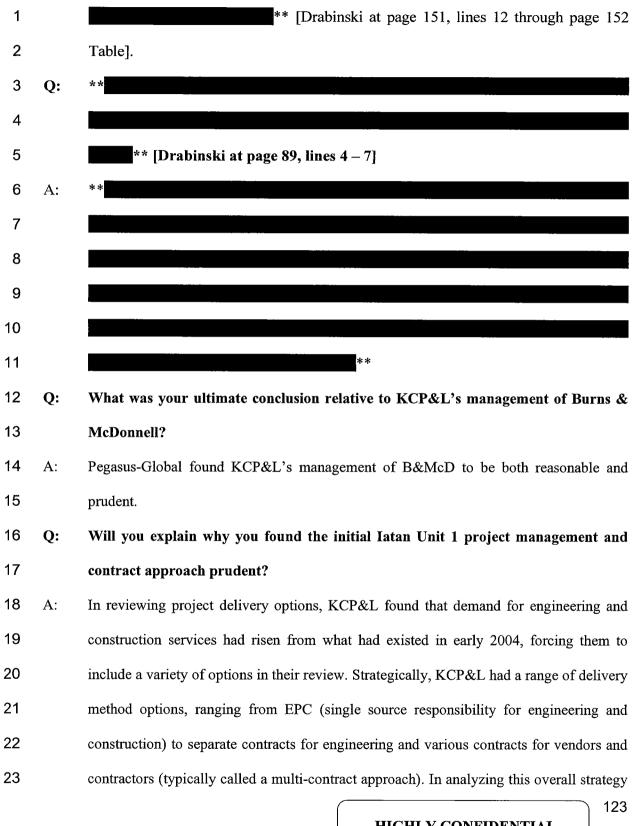
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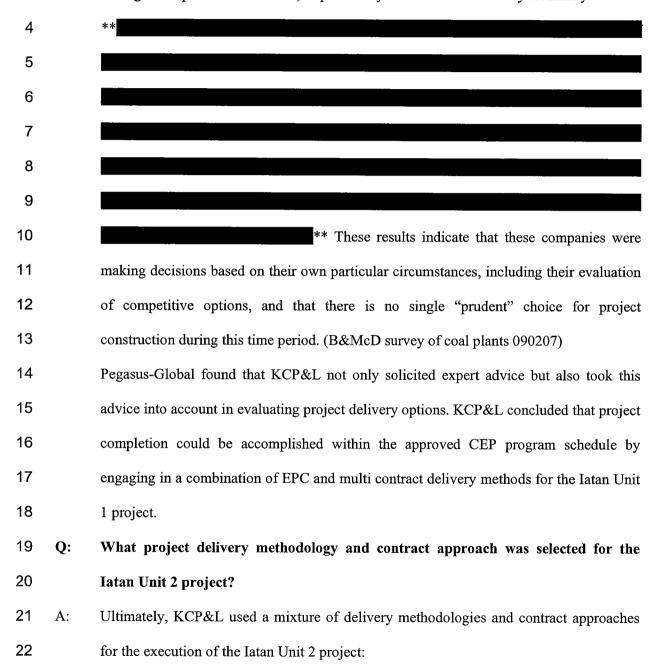
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KCP&L management determined that the recently approved CEP program (by the Kansas and Missouri Commissions in mid 2005) would require enhanced project management personnel and staff, as previously discussed earlier in my testimony.

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1 KCP&L selected an EPC delivery methodology to execute the primary piece of 2 engineered equipment - the boiler. That delivery methodology is typically used 3 when the scope of work is based on operational specifications utilizing a fixed 4 price contracting approach manufacture and involves both and 5 erection/installation of that equipment on site.

- KCP&L selected a straight equipment procurement delivery methodology to
 execute another crucial piece of engineered equipment the turbine generator. As
 a manufactured piece of equipment the use of a fixed price contract approach
 based on operational specifications for engineering and manufacture is typical.
- KCP&L contracted for engineering services under a time and materials
 contracting approach which is typical within the industry when the project
 involves design of a new facility predicated on several "operational
 specifications" supplied by the owner and the primary engineered equipment
 suppliers.
- KCP&L originally selected a multi-prime delivery method for the BOP scope of
 work, with KCP&L acting as its own Construction Manager. KCP&L later
 modified its multi-prime delivery method by engaging Kiewit as a General
 Contractor responsible to complete the BOP construction.

Pegasus-Global found that KCP&L followed a methodical process during the selection of
each of its project delivery methodologies and contracting approaches, which resulted in
decisions which were reasonable and prudent given the information available at the time
those decisions were made.

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

3 A key consideration in selection of delivery method and contract approach is to align the A: 4 delivery methodology and contracting approach with the risk profile of the project to be 5 executed. One of the crucial decisions for an owner is to select a project delivery method 6 and contract approach which enables it to allocate project risks appropriately while 7 maximizing the ability to meet the project goals and objectives. The goal is not for the 8 owner to attempt to shed all risk to a contractor; first of all it is simply not possible, even 9 under an EPC delivery methodology and a Fixed Price, Date Certain, Turn Key contract 10 approach for an owner to shed all project risk. Second, the more risk an owner sheds, the 11 higher the contracting cost, as no contractor will knowingly accept a risk without assuring 12 that the compensation to be received is as high or higher than the cumulative impact of 13 those risks should they manifest on the project. A primary tenet of successful risk 14 allocation is that a risk element should be allocated to the project party that is best able to 15 manage and control the specific risk element in question. No owner, including a utility, 16 should blindly select a delivery method simply because others appear to be using it.

To preliminarily judge whether KCP&L followed a management process that generally
reflected the best industry practice to capture and appropriately allocate risk for the Iatan
Unit 2 project, Pegasus-Global employed a table which Pegasus-Global has used for over
ten years as a reference guide. The table is based on an approach presented by two senior
Bechtel Corporation officers at an American Society of Civil Engineers (ASCE)

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1 conference in 1997,⁴¹ and employs various general project criteria which generally 2 describe risk allocation conditions between project parties. Using the table enables an 3 owner to identify the project delivery methodologies and contract approach which 4 provide the best "fit" to the project risk profile for that project. An example of how the 5 table is employed to match various criteria with delivery methods and contracting 6 approaches has been provided below in Table 1 – Project Execution Conditions and 7 Risk Allocation Re: Iatan Unit 2 Alstom Contract and Table 2 – Project Execution 8 Conditions and Risk Allocation Re: Iatan 2 Kiewit Contract in 2007. Tables 1 and 2 9 provide an indication of which project delivery methods and contract approaches match 10 the risk profile established for the project for the Boiler Island and BOP scopes of work.⁴² 11 Pegasus-Global uses the table to perform a general check as to whether the owner's 12 processes met the general expectation at the time based upon what the owner knew or 13 should have known.

14 Q: Can you explain your review and findings concerning the Alstom delivery method 15 and contract approach selected by KCP&L?

16 A: Yes. An examination of the Iatan Project records showed KCP&L first completed its
17 examinations of the future need for power and had developed a consolidated plan for
18 addressing that future need, one element of which was to construct a second coal fired
19 unit at the Iatan power station. Next Pegasus-Global found that KCP&L had engaged

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⁴¹ "Choosing the Right Delivery System," By Charles M. Spink, P.E., F.ASCE, Construction Congress V, <u>Managing Engineered Construction in Expanding Global Markets</u>, <u>Proceedings of the Congress</u>, 1997, <u>American Society of Civil Engineers</u>

⁴² Over the years, as risk management practices and programs have evolved, Pegasus-Global has adjusted the original table in order to reflect the latest industry thinking as to the best methods for allocation and management of specific risk elements.

1 consultants such as Schiff Hardin, B&V and B&McD to provide it with the information 2 and data it needed to understand the current state of the power project industry. KCP&L 3 management received advice relative to the general progress steps through which a power 4 project proceeds, including identification of critical equipment decisions, timing of those 5 decisions, and the interdependence of actions and decisions. Pegasus-Global then found 6 that KCP&L used the information gained from its advisors to develop its project risk 7 profile and prioritize the order of its actions and decisions for managing those risk 8 elements.

9 Specific to the boiler island project delivery and contract approach decisions Pegasus-10 Global examined the project conditions for the period during which KCP&L made its 11 delivery method and contract approach selections. The boiler island is the project element 12 which drives the majority of project detailed design, cost and schedule; as the design, 13 manufacture of the boiler components and construction of the boiler island collectively 14 take the longest time to perform. In addition the boiler island has the greatest influence on 15 the completion of detailed design and construction for the BOP; simply, without the 16 complete boiler design the detailed design of the BOP cannot be finalized, issued or bid. 17 In the latter half of 2005 and early into 2006, KCP&L was preparing to bid the boiler 18 island, the first step in the long process which would ultimately result in the completion 19 of the Iatan Unit 2 project. At that time the industry as a whole was in the midst of a 20 construction boom which was quickly locking up what is known within the industry as 21 the "manufacturing queue" for major engineered equipment such as boilers and turbine

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generators.⁴³ Pegasus-Global found that KCP&L was cognizant of the need to secure a
 boiler contractor as early as possible in the project life cycle and acted quickly to have a
 performance specification prepared which could be expeditiously bid and awarded.

4 Because of the highly specialized nature of the equipment involved, utility owners do not 5 take the risk of actually engineering or designing the boiler equipment, those risks are 6 allocated to the manufacturer awarded the boiler equipment scope of work. To allocate 7 the risk to the manufacturer, utility owners procure boiler island equipment using a 8 performance specification; that is, the owner (through its engineer) develops the 9 performance requirements for the boiler (such as pressure, temperature, flow rates, 10 cooling and recapture characteristics, etc), but leaves all of the detailed engineering and 11 design of the equipment and appurtenances (the boiler island), and therefore allocates the 12 risk attached to that work, to the manufacturer.

The boiler components must be assembled and installed within the boundaries of the Boiler Island, a task which is again very specialized and complex, involving a significant level of project risk. Therefore, the utility owner will generally contract with the manufacturer to do the installation as part of its direct scope of work or contract with the manufacturer to directly oversee and manage a specialist contractor engaged to execute that scope of work.

to that scope of work.

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• Defective design of the boiler island equipment;

Among the risk elements attached to the boiler island are the following:

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⁴³ KCP&L Strategic Infrastructure Investments- Quarterly Status Update Third Quarter 2006 and KCC Docket No. 04-KCPE-1025-GIE, page 9; Synapse Energy Economics, Inc., July 2008, David Schissel, Allison Smith and Rachel Wilson

1	• Defective installation/construction of the boiler island equipment;
2	• Cost overruns (design, procurement, manufacturing and/or installation);
3	• Schedule delays (design, procurement, manufacturing and/or installation);
4	• Failure of the completed boiler island to meet the performance specification set by
5	the owner; and
6	• Failure to properly test and commission the boiler island.
7	Once the project conditions and risk profile had been established, Pegasus-Global
8	examined the primary risks attached to the boiler island against the possible delivery
9	methods and contract approaches using Table 1 as discussed earlier above, with the
10	following results:

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

Choosing				odology, <u>Cont</u> Expectations	racting Approach 44 —	
	Project Delivery Methodology		Contracting Approach			KCP&L Choice
	Design Bid Build	ЕРС	Fixed Price	Unit Price	Cost Reimbursable	Re: Iatan Unit 2
Owner Considerations a	nd Requirement	S				
Cost Control is Major Consideration		~	~	~		*
Owner to Control Contingency		~		~	√	
Bid Competition Required	~	~	✓	~		*
Maximum Owner Involvement		1			√	*

⁴⁴ Modified by the author from "Choosing the Right Delivery System," by Charles M. Spink, P.E., F.ASCE, <u>Construction Congress V, Managing Engineered Construction in Expanding Global Markets, Proceedings of the</u> <u>Congress</u>, 1997, American Society of Civil Engineers, pages 663 – 671

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

Choosing the Preferred Project Delivery Methodology, Contracting Approach and Resultant Risk Allocation Expectations⁴⁴

	Project Delivery Methodology		Contracting Approach			KCP&L Choice
	Design Bid Build	ЕРС	Fixed Price	Unit Price	Cost Reimbursable	Re: Iatan Unit 2
Minimum Owner Involvement	✓		4			
Owner Has No Oversight Capabilities	~		~			
Single Source Responsibility		~	4	~	1	*
Contractor In Part Provides Project Funding		4	✓			N/A
Project Scope and Param	eters					
Clear Scope Definition	1	~	~	1		*
Minimal Scope Definition	4			~	✓	
Scope/Complexity Defined, Quantities Uncertain	✓	~	~	~		*
Minimal Scope Changes Expected	~	✓	~			*
Potential for Large Scope Changes		✓		1	\checkmark	
Tight Schedule		✓	✓	\checkmark	\checkmark	*
Volatile Project Environment		~		✓	\checkmark	*
Stable Project Environment	v		√			
Large Complex Project	✓	✓	✓	~	✓	*
Primarily New Technology		~		~	✓	

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As noted by the "tick marks" in Table 1 above, both the Owner Considerations and 3 Project Scope and Parameters significantly favor the use of an EPC delivery method (14 4 out of 18 total risk elements). Under the Contracting Approach both the Fixed Price and

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Unit Price contract approaches appeared as the preferred contract approaches (12 out of
14 total risk elements). Using Table 1, Pegasus-Global confirmed that KCP&L's
selection process accounted for those risk elements most crucial to the choice of delivery
method and contract approach for the boiler island scope of work. KCP&L selected an
EPC delivery methodology and a Fixed Price contract approach as shown in the last
column of Table 1.

Pegasus-Global concluded that KCP&L's process for selection of delivery method and
contracting approach for the boiler island scope of work was reasonable and prudent
based on what was known, or reasonably could have been known by KCP&L relative to
industry and project conditions as of late 2005 and early 2006 and the risk profile for the
boiler island scope of work.

12 Q: Can you explain Pegasus-Global's review and findings concerning the Kiewit 13 delivery method and contract approach selected by KCP&L?

14 A: Pegasus-Global followed exactly the same process in examining KCP&L's selection of 15 delivery method and contract approach for the Kiewit contract that was used to examine 16 the Alstom contract. The risk elements specific to this scope of work focused around 17 execution of the BOP construction, as the risk for detailed design of the BOP had already 18 been allocated to B&McD. The Iatan Project record shows that initial attempts to allocate 19 this risk via either an EPC or GC delivery method, and a fixed price contracting 20 approach, met with no interest within the contracting community when first tested by 21 KCP&L in early 2006. As a result, KCP&L had no way in which to allocate that risk at 22 that time and was taking actions which would enable it to manage and control those risk 23 elements under a Multi-Prime methodology throughout 2006 and into 2007.

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1 As often happens in mega-projects extending over several years, industry conditions 2 change relatively quickly and in late 2006 and early 2007 Kiewit, who previously had 3 declined to bid on the BOP scope of work under an EPC/GC methodology or fixed price 4 contract approach, contacted KCP&L with an offer to assume the responsibility for the 5 BOP scope of work as a GC, although it was unwilling to accept a fixed price contracting 6 methodology. The decision to change delivery methodology for the BOP scope of work 7 needed to be evaluated against the impact that change would have on the project's risk 8 profile and, in particular, the reallocation of those risks from KCP&L to Kiewit.

9 The document record showed that KCP&L and its advisors carefully examined the 10 impact to the Iatan Project's risk profile of changing the delivery method and ultimately 11 determined that although the core elements would not change, the allocation of those risk 12 elements could be improved; the project risk profile could be altered substantially by 13 shifting certain of those risk elements to Kiewit, a party that at that time was better able 14 to manage and control those risk elements which existed within the BOP scope of work.

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

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PRO		TION CON		AND RISK AI ONTRACT IN		
Choosing				nodology, <u>Cont</u> on Expectations	racting Approach	
	Project Delivery Methodology			Contracting Approach		
	Design Bid Build	ЕРС	Fixed Price	Unit Price	Cost Reimbursable	Choice: Re: Iatan Unit 2
Owner Considerations an	nd Requirement	ts				
Cost Control is Major						
Consideration		✓	 ✓ 	1		*
Owner to Control		1				
Contingency				×	✓	*
Bid Competition						
Required	✓	✓	 ✓ 	×	·	
Maximum Owner					,	
Involvement		✓			✓	*
Minimum Owner						
Involvement	✓	· · · · · ·	✓			
Owner Has No	1					
Oversight Capabilities	•		·····			
Single Source		×	✓	· ·	1	*
Responsibility Contractor In Part		• • •		•	v	*
Provides Project		1	 ✓ 			NT/A
Funding		•				N/A
Project Scope and Paran	L		J			
rioject scope and raran		1				
Clear Scope Definition	×	1	×	✓		*
Minimal Scope Definition	~			×	\checkmark	
Scope/Complexity						
Defined, Quantities	1	1	1	✓		*
Uncertain						
Minimal Scope						
Changes Expected	✓	↓ ↓	 ✓ 			
Potential for Large						
Scope Changes		v	,	v		
Tight Schedule		✓	 ✓ 		✓	*
Volatile Project					,	
Environment		✓	····	✓	✓	*
Stable Project	↓ <u>✓</u>		· ·			
Environment	· · ·	·	✓			.
Large Complex	1	✓	✓	~	1	
Project	¥	×	×	· · · · · · · · · · · · · · · · · · ·	✓	*
Primarily New		✓		✓	\checkmark	
Technology	<u></u>	v	I	¥	V	

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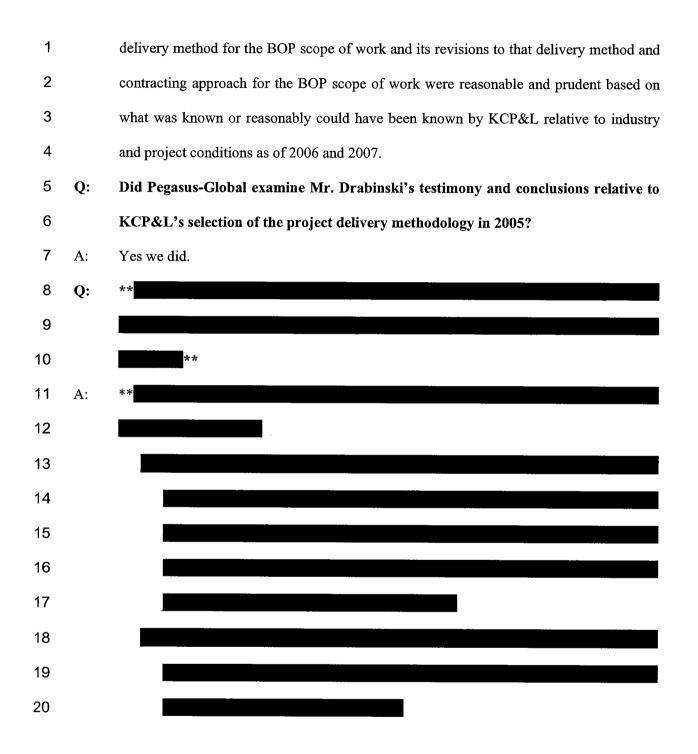
2 As noted by the "tick marks" in Table 2 above, both the Owner Considerations and 3 Project Scope and Parameters significantly favor the use of an EPC delivery method (14 4 out of 18 total risk elements). Under the Contracting Approach both the Fixed Price and 5 Unit Price contract approaches appeared as the preferred contract approaches (12 out of 6 14 total risk elements). Using Table 2, Pegasus-Global confirmed that KCP&L's 7 selection process accounted for those risk elements most crucial to the choice of delivery 8 method and contract approach for the BOP scope of work. KCP&L decided to revise its 9 project execution plan for the BOP scope of work using an EPC type delivery 10 methodology and a Unit Price contract approach as shown in the last column of Table 2. 11 As engineering and procurement were too far advanced to be fully re-allocated to Kiewit 12 for the BOP scope of work, KCP&L ultimately selected a EPC delivery methodology 13 under which Kiewit would assume full responsibility for the actual construction of the 14 BOP scope of work, while providing input into engineering (i.e. construability reviews) 15 and taking responsibility (and risk) of certain material and specialist subcontract 16 procurement.

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17 Because Kiewit was not involved in the initial BOP planning, engineering and 18 procurement activities it was understandably unwilling to accept a Fixed Price contract 19 approach; therefore KCP&L and Kiewit negotiated a Unit Price contract. That 20 compromise contract approach was reasonable both from the perspective of the **Table 2** 21 results shown above and in consideration of the status of the Iatan Project at the point in 22 time when the decision was made to modify the delivery method for the BOP scope of 23 work. Pegasus-Global concluded that KCP&L's process for selection of its initial

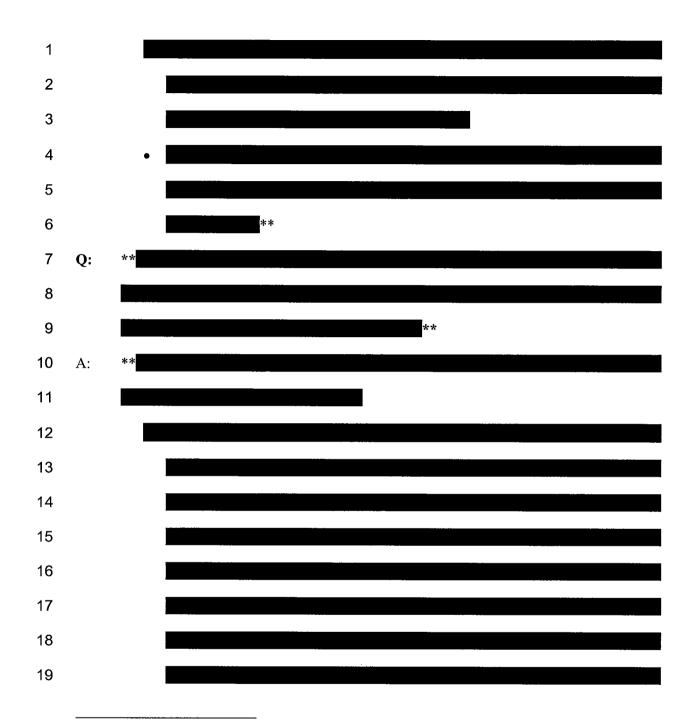
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⁴⁵ Direct Testimony of Walter P. Drabinski, Vantage Energy Consulting, LLC, on behalf of Missouri Retailers Association, Case No. ER-2010-0355/0356, Missouri Public Service Commission, November 17, 2010, page 43 line 10

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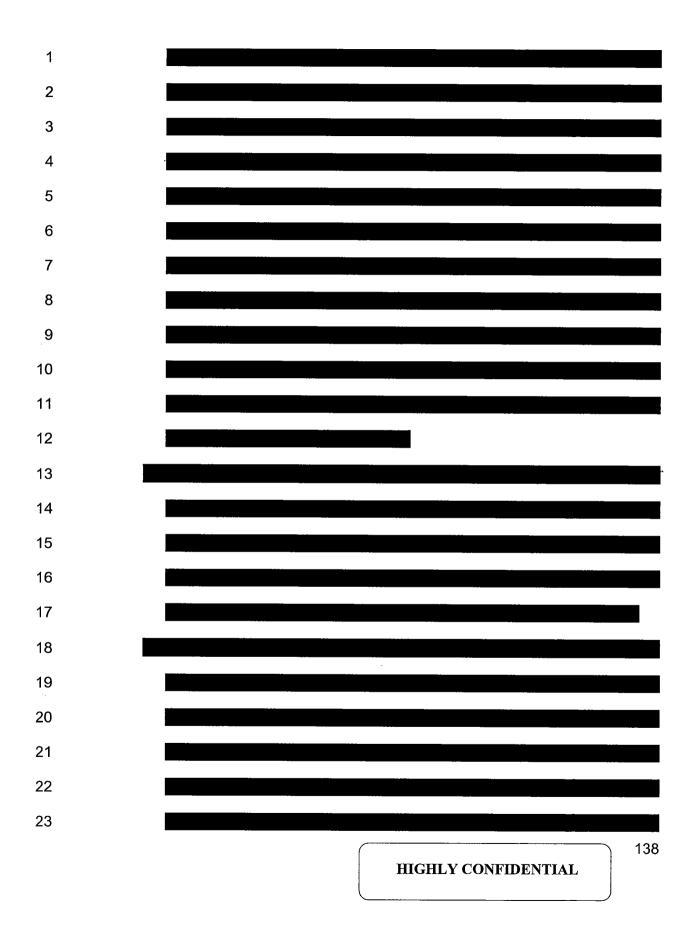


⁴⁶ Direct Testimony of Walter P. Drabinski, Vantage Energy Consulting, LLC, on behalf of Missouri Retailers Association, Case No. ER-2010-0355/0356, Missouri Public Service Commission, November 17, 2010, page 43 line 6

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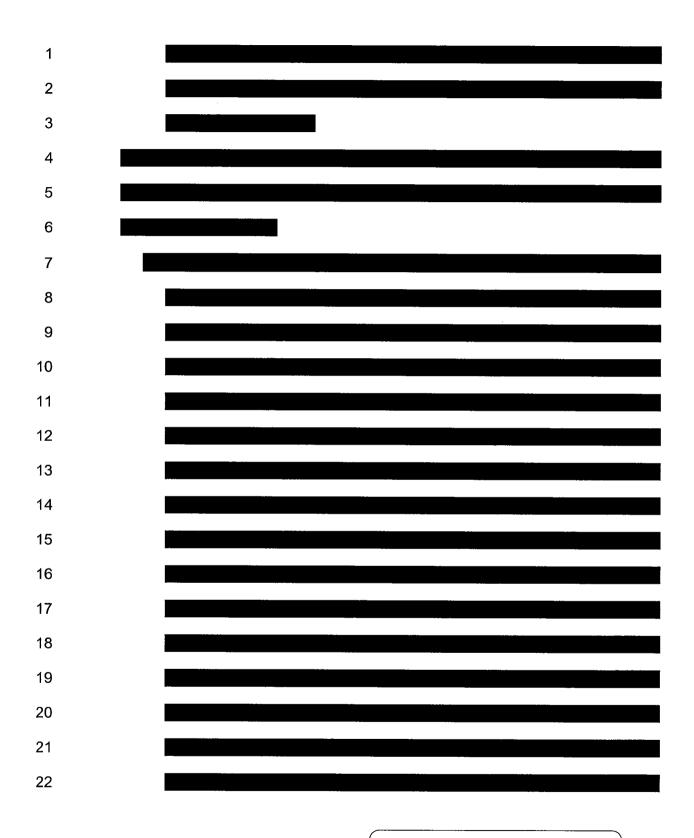
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⁴⁷ Direct Testimony of Walter P. Drabinski, Vantage Energy Consulting, LLC, on behalf of Missouri Retailers Association, Case No. ER-2010-0355/0356, Missouri Public Service Commission, November 17, 2010, page 43 line 19



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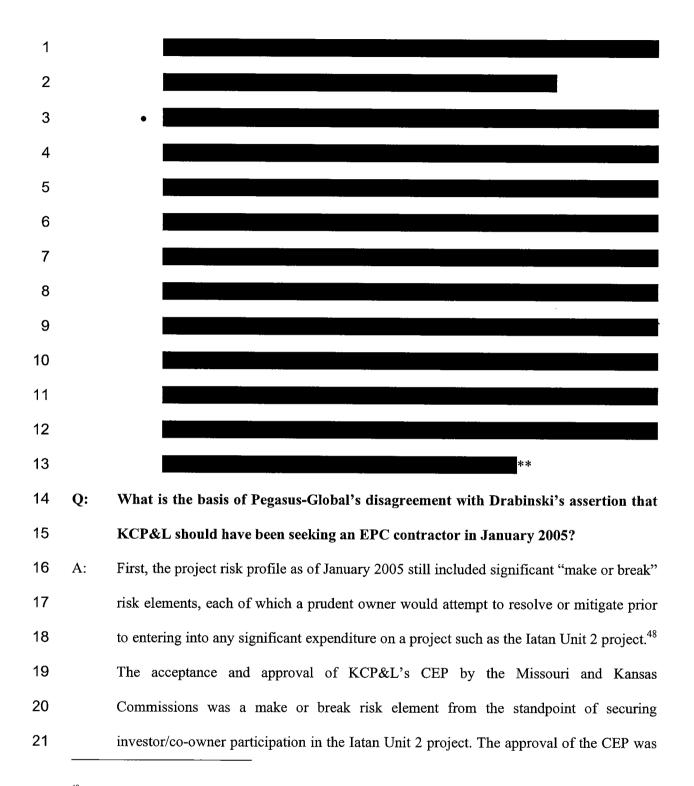
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⁴⁸ A "make or break" risk element is one that on its own has the potential to completely stop a project from advancing beyond initial planning. For example, if sufficient financing cannot be secured to fund the execution of the project the project will either shelved until that risk element can be overcome or be abandon in total.

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critical to assure investors and potential co-owners of the viability of the Iatan Unit 2
mega-project given that even at that early stage of development (January 2005) the megaproject was expected to cost well in excess of \$1 billion and take five-plus years to
execute. Had KCP&L incurred significant cost preparing a project for an EPC bid and
award only to have the Missouri and/or Kansas Commissions reject the CEP, one could
argue that initiating that project and incurring those costs without having secured that
acceptance and approval was an imprudent management decision.

8 Second, as of January 2005 the project definition was not detailed to a level from which 9 the primary engineered equipment specification (boiler and turbine generator) could be 10 prepared, bid and selected. Searching and selecting an EPC contractor as of January 2005 11 would have meant entering the contractor market with a "blanked" Request for Proposal; 12 that is soliciting response proposals from EPC contractors with the majority of the 13 operating specifications and basic designs left "blank" or marked "to be determined." In a 14 blanked solicitation, the experienced EPC contractor will either (1) refuse to bid, or (2) 15 will caveat the entire bid response to avoid accepting any undefined scope risk attached 16 to cost or schedule. There would be no "risk advantage" in soliciting, or awarding an 17 EPC contract on such a response for the project, as contractors would be unwilling to 18 accept cost or schedule risk on a blanked solicitation.

This condition is exemplified by the presentation by B&V to KCP&L on November 8,
 2005.⁴⁹ B&V refused to bid the Iatan Unit 2 project on an EPC fixed price contracting
 methodology because of the limited level of project definition in place as of November

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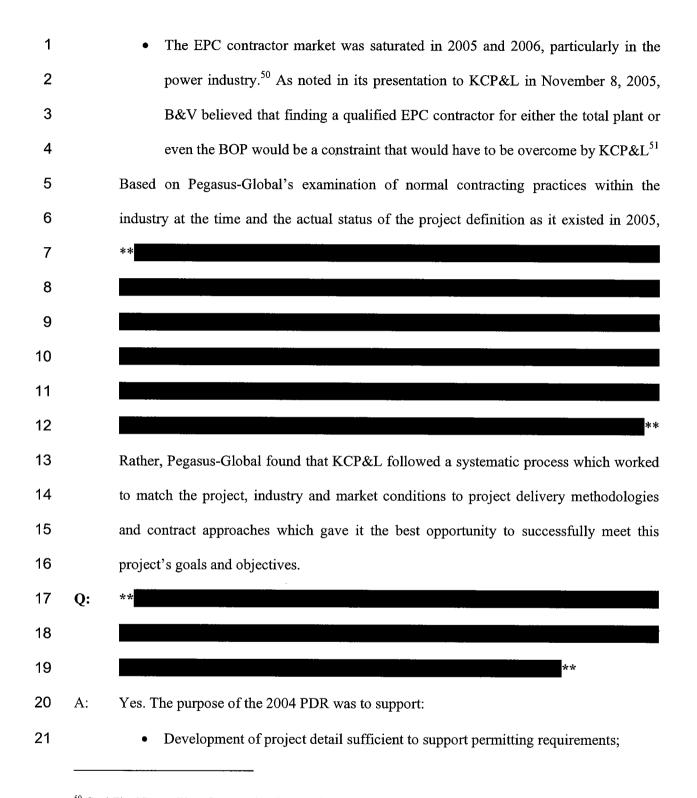
⁴⁹ Black & Veatch November 8, 2005 Presentation to KCP&L

2005. Instead B&V offered to set a target price approximately one year after the initiation
 of full detailed project engineering. The refusal by B&V occurred eleven months after
 January 2005, the point at which Mr. Drabinski asserts that KCP&L should have been
 soliciting and securing an EPC contractor for the Iatan Project.

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

- There are a limited number of contractors that can successfully execute a mega project as an EPC contractor. If the qualified EPC contractor pool is saturated
 with work, it would be difficult to find a contractor willing to bid additional work
 with the significant level of risk which accompanies every mega-project.
- There are a limited number of mega-projects that any one EPC contractor can take
 on at a time given the extremely high risk which accompany fixed price mega projects. Even a Bechtel has an upper limit to the total amount of risk the
 corporation can place under contract and successfully execute.
- KCP&L's history with the EPC contractor market had been minimal for almost
 two decades. One way in which EPC contractors mitigate and control their risk
 exposure on mega-projects is by working for a very select group of owners,
 preferring to work for owners with whom they have had a long and successful
 relationship. It is doubtful that KCP&L could have generated any fixed price,
 fixed completion "date certain" responses from EPC contractors with which it had
 not worked before.

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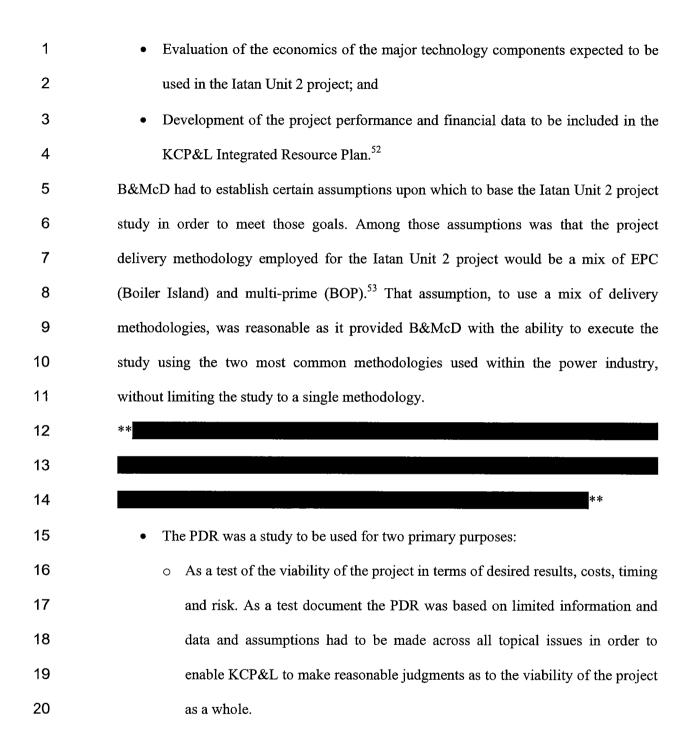


⁵⁰ Coal-Fired Power Plant Construction Costs, July 2008, Synapse Energy Economics, Inc., page 4

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⁵¹ Black & Veatch November 8, 2005 Presentation to KCP&L



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⁵² Iatan Unit 2 Project Definition Report for KCP&L, August 2004, rev. 0, page 1-1

⁵³ Iatan Unit 2 Project Definition Report for KCP&L, August 2004, rev. 0, page 1-3

As preliminary guide for future project planning. As a planning guide the PDR established the elements of the project which had to be researched, analyzed and set in order to identify the full project risk profile, from which decisions would be made with the goal of achieving the project's desired results, at a reasonable cost and within the timeframe required.

7 ** Project Management by its definition involves the 8 continuous examination of, and reaction to, changes to a project's risk profile over 9 a project's full life cycle. With every decision made, action taken and unforeseen 10 event which occurs a project's risk profile changes and with every change in a 11 project's risk profile management must make decisions and take actions to adjust 12 a project's course to meet and overcome those changes. Mega-project managers 13 face exactly the same challenge, but with the added pressures which accompany 14 projects which are technically complex, take thousands of people years to build 15 and cost over \$1 billion. To successfully manage and control a changing project 16 risk profile over an extended period of time, mega-project managers must be 17 prepared to adjust plans and decisions constantly over the life of that project.

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18 One example of the dynamic nature of managing a changing risk profile on the Iatan Unit 19 2 project involves the evolution of the project delivery methodologies and contracting 20 approaches managed by KCP&L. Throughout 2005 KCP&L sought advice relative to the 21 project delivery methodology from at least three expert sources: Schiff Hardin, B&V and 22 B&McD. In the fall of 2005 B&V and B&McD were requested by KCP&L to prepare

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and submit proposals which addressed both of the EPC and the multi-prime delivery
 methodologies.

3 B&V's proposal, preferring the EPC approach, was conditioned in that it would assume 4 neither the risk of a fixed price or a completion date certain under an EPC delivery 5 methodology and contracting approach [Giles direct testimony, Missouri Commission 6 Docket No. ER-2010-0355, June, 2010, page 9, line 22 through page 10, line 10]. Two of 7 the primary reasons to utilize an EPC delivery methodology and contracting approach are 8 to (1) shift cost and schedule risk to the EPC contractor and (2) to gain cost and schedule 9 certainty for the ownership group and rate payers. B&V's EPC proposal provided neither 10 of those two goals.

11 B&McD submitted a proposal with two delivery options; a hybrid EPC delivery 12 methodology and a multi-prime delivery methodology. B&McD proposed putting certain 13 work under an EPC structure (i.e. the primary engineered equipment) while executing the 14 BOP under a multi-prime structure. The advantage to this methodology was that it shifted 15 cost and schedule risk for a significant portion of the work - the Boiler Island and turbine 16 generator equipment – to a single contract for a fixed price and a completion date certain. 17 This was possible because the scope of work for those two critical elements of the project 18 scope was strictly defined and could be founded on operational specifications. However, 19 the BOP scope of work was unlikely to generate fixed price, date certain bids until the 20 detailed engineering had been completed and issued for bid, which could not occur until 21 the detailed engineering and design had been completed for the boiler island and the 22 turbine generator equipment.

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1	Because of that project flow the B&V EPC proposal actually gained none of the cost or
2	schedule risk reduction generally sought by an owner provided by an EPC delivery
3	methodology, KCP&L's first decision was to separate the Boiler Island from the BOP,
4	immediately initiating action to enable solicitation of an EPC supplier/installer for that
5	engineered equipment. This decision was completely in line with the required project
6	flow (completion of detailed engineering for the primary boiler island and turbine
7	generator equipment leading to initiation of detailed design of the BOP).
8	However, KCP&L did not finalize a decision relative to the delivery methodology for the
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BOP work at that same time. In early 2006 KCP&L's Steve Jones was surveying
contractors in an effort to gauge whether or not there was any interest among the
contracting community in bidding the BOP work under an EPC delivery methodology
and contracting approach.⁵⁴ Among those firms contacted were the following:

- 13 Kiewit;
- Washington Group;
- Fluor Daniels;
- Black & McDonald Power;
- 17 EMCOR;
- **18** PCL; and
- 19 Shaw.

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⁵⁴E-mail string, Steve Jones to John Grimwade, et al, May 15, 2006 and Robert Reymond to Steve Jones, et al, May 17, 2006

1 In a May 24, 2006 memo, Steve Jones summarized his notes on one of those interviews, noting that the Washington Group had politely declined any interest at this time.⁵⁵ Similar 2 3 answers were received from the other contractors that were contacted and interviewed by 4 telephone [Direct Testimony of Steve Jones, Kansas Corporate Commission, Docket No. 5 10-KCPE-415-RTS, page 14, line 18 through page 16 line 8 December 17, 2009]. 6 Through the summer of 2006 KCP&L continued to reasonably examine all of its options 7 relative to the delivery methodologies for the BOP scope of work and did not discard any 8 delivery options until mid-2006, at which time it committed to a multi-prime 9 methodology. 10 **Q**: 11 12 13 A: First, Pegasus-Global knows of no industry study which supports the contention that an 14 EPC delivery methodology reduces costs when compared against a multi-prime delivery 15 methodology. Mr. Drabinski provided no documented support for that assertion, and in 16 fact that statement conflicts with the combined personal experience of the Pegasus-17 Global team and with what Pegasus-Global has observed as conventional wisdom in the 18 construction industry. The EPC delivery methodology is primarily known within the 19 industry as a way to shift cost and schedule risk to a contractor, and in return for 20 accepting that risk, a contractor will bid a higher cost to cover the possible impact of that 21 risk should costs increase or schedule lengthen. Second, the ability to shift that risk is

⁵⁵ Memo, Steve Jones to Terry Murphy, et al, May 24, 2006 (date on memo incorrect)

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only true if the contractor agrees to accept that risk under the EPC contract. As discussed
above, attempts by KCP&L to find a contractor willing to take on the cost or schedule
risk of the Iatan Unit 2 project under an EPC contracting approach were unsuccessful. An
EPC contract approach which leaves the cost unfixed and the scheduled completion date
floating until sometime in the future has not shifted any of the cost or schedule risk from
the owner.

Q: Did your examination lead to any disagreements with the Missouri Staff's analysis
and testimony relative to KCP&L's selection of the project delivery methodology
for the Iatan Unit 2 project?

A: Yes. The Missouri Staff report [pages 21-22] indicates that KCP&L's decision to choose
a multi-prime contracting approach led to Iatan Project cost overruns and document
control issues as the result of KCP&L's failure to employ a strong, capable and
experienced Project Management or Construction Manager. However, it is my opinion
that the Staff's finding is flawed for a number of reasons including:

- The Staff has not demonstrated any independent analysis as required under the GAAS standards, which it purported to have used, and instead simply relies on testimony by Kansas Commission Staff consultant testimony of Mr. Drabinski (deemed by the Kansas Commission November 22, 2010 Order to be unreliable and gave no weight to it), and "sound bites" taken from KCP&L internal audits.
- The Staff inappropriately used KCP&L internal audits to criticize KCP&L's
 multi-prime contracting approach decision ignoring the fact that the process of
 conducting on-going internal audits during a complex construction project is
 considered part of the prudent management decision-making process.

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As Pegasus-Global has described earlier in this testimony, KCP&L did staff an organization commensurate with the phase of the Iatan Project and the contracting approaches taken. KCP&L, using input from its advisors and the internal audits continued to improve its staffing and organization per the very same recommendations quoted by the Staff demonstrating reasonable and prudent management actions.

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

9 A: Pegasus-Global found that KCP&L solicited expert advice and took this advice into 10 account in evaluating project delivery options. Further, with the assistance of those 11 experts and its own information sources, KCP&L continued to explore all of its project 12 delivery options up until the point in time when a final decision had to be made in mid-13 2006. Ultimately KCP&L concluded that its project risks could be managed and its 14 project goals and objectives could be achieved within the approved CEP program 15 schedule by engaging in a combination of EPC and multi-prime delivery methods for the 16 Iatan Unit 2 project. KCP&L's decision is consistent with Pegasus-Global's experience 17 on mega-projects in all industry sectors for over four decades.

KCP&L's further recognized that such a strategy shifted the focus of some of the
 management elements of the project risk profile, the most significant of which required
 KCP&L to enhance and expand its internal project management staff and organization to
 assume the management responsibilities for the BOP scope of work under the multi prime BOP delivery methodology. KCP&L delivery methodology decisions, and the
 decision making processes KCP&L followed, exhibited good management and fell within

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a zone of reasonableness. Pegasus-Global concludes these decisions and the decision making processes were prudent.

3 Q: Pegasus-Global described the initial decisions regarding KCP&L. Did KCP&L 4 evolve and alter this Delivery Methodology and Contract Approach during the 5 Iatan Unit 2 project execution?

6 A: Yes. As Pegasus-Global noted earlier, with every decision made, action taken and 7 unforeseen event which occurs a project's risk profile changes, and with every change in 8 a project's risk profile management must make decisions and take actions to adjust a 9 project's course to meet and overcome those changes. Mega-projects such as the latan 10 Unit 2 project are confronted with an even greater range of issues which require 11 adjustments to the project execution plans. Again, prudence is judged by the decisions 12 and actions taken by management within the context of what was known or should have 13 been known to management at a specific point in time. As the project environment 14 evolves, management decisions and actions must evolve to meet those changing 15 conditions. In evaluating prudence Pegasus-Global examines how management reacted to 16 changes in the project environment as the project moves through its life cycle.

The speed with which the Iatan Unit 2 project was evolving increased throughout 2006 and 2007, as a myriad of decisions were made and actions were taken to solidify the project execution plan and to varying degrees each decision by KCP&L altered the project environment within which management was operating. The most critical decisions within the project environment involved early engineering to establish the operating specifications for the primary engineered equipment, soliciting proposals for that equipment and awarding that equipment. As described earlier, during 2006 the

1 turbine generator and boiler island engineered equipment were specified, solicited and awarded.⁵⁶ Those actions set the operational and to a large extent the physical parameters 2 3 of the plant. Those decisions also began to shape the project execution environment for 4 all subsequent work on the project. For example, the boiler island was awarded to Alstom on an EPC delivery and fixed price, date certain contract basis,⁵⁷ an action which 5 6 produced certain elements of the project environment which now had to be factored into 7 all subsequent decisions and actions by KCP&L management. For example, KCP&L's 8 management structure, staffing and execution plans had to adjust to that element of the 9 project's environment in order to insure that the decisions made and actions taken going 10 forward with the project aligned with that change in the environment.

Because KCP&L found no contractor interest in bidding the full project or even the BOP scope of work on an EPC basis, with a date certain completion or a fixed price, a reasonable option moving through 2006 was for KCP&L to execute the BOP under a multi-prime delivery structure for that scope of work acting as its own construction and project manager. One consequence of that choice was that the risk elements which accompany that scope of work would remain with KCP&L, with minimal risk allocation possible among the various prime contractors possible.

However, in December 2006, Kiewit approached KCP&L with an offer to assume
 responsibility for the BOP scope of work. According to Kiewit, one of its projects had
 been terminated, which freed an experienced management team and construction force

⁵⁶ KCP&L Strategic Infrastructure Investment Status Report First Quarter 2006, pages 27 & 28, April 28, 2006

⁵⁷ KCP&L Strategic Infrastructure Investment Status Report Second Quarter 2006, page 7, July 31, 2006, and KCP&L Strategic Infrastructure Investments – Quarterly Status Update, Third Quarter 2006, KCC Docket No. 04-KCPE-1025-GIE, page 34

for reassignment to another project. As noted earlier in this testimony, Kiewit had been approached by KCP&L in the spring of 2006 to determine any interest in the BOP scope of work but Kiewit had declined due in part to the fact that its forces were fully committed at that time. When this condition changed it was not at all unreasonable for Kiewit to contact KCP&L in an attempt to secure that work for its now unassigned management and construction forces.⁵⁸

7 **Q**: What did Pegasus-Global find regarding KCP&L's examination of alternatives to 8 its Multi-Prime delivery method to the BOP contracting methodology in early 2007? 9 The unsolicited proposal from Kiewit gave KCP&L an opportunity to reexamine its A: 10 initial plans from a perspective which did not exist when the original decision was made 11 to execute the BOP using multiple-prime contractors. The unsolicited proposal also 12 offered KCP&L an opportunity to significantly change the project risk profile going 13 forward, which meant that as any reasonable project manager (and owner) would do, 14 KCP&L had to evaluate that opportunity. Among the factors which KCP&L took into 15 account during that evaluation included the following:

- Kiewit was a large, well known contractor with an immediately available and
 experienced organization that had demonstrated its capability to manage and
 execute the complex BOP scope of work on a power project for many years.
- In late 2006 the Iatan Unit 2 project was poised to enter the construction phase of
 the project. Detailed engineering was being released for bid/construction, initial

⁵⁸ Status Report on Comprehensive Energy Plan Projects, Schiff Hardin, page 3, January 10, 2007

1	construction civil work had been bid and awarded and the procurement of the
2	multi-prime contracts was scoped and was being prepared for solicitation.
3	• At this stage KCP&L had expanded its internal staff at the project management
4	level; had drafted the primary contract administration policies, procedures, and
5	processes; had identified and in some cases installed management and control
6	systems; and, adopted a project control line item budget for the latan Unit 2
7	project, ⁵⁹
8	• KCP&L was in the process of recruiting and hiring its construction "line and
9	support" staff; was preparing to solicit and procure the prime specialty
10	contractors; was installing (activating) the project-specific management and
11	control systems; and, had initiated Contract Administrative actions.
12	• KCP&L had utilized staff from both B&McD and Schiff Hardin to assist it in
13	those tasks it had undertaken relative to cost estimating, procurement, permitting
14	and very early construction (demolition and early site preparation), relying on
15	existing project-control processes.
16	Kiewit's unsolicited proposal provided an opportunity to re-examine the BOP delivery
17	methodology before KCP&L had to fully and finally commit to the multi-prime delivery
18	methodology towards which it had been working. **
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⁵⁹ KCP&L Strategic Infrastructure Investment Status Report, Fourth Quarter 2006, pages 6 - 10 and Section 6, February 15, 2007

3 During its evaluation, KCP&L recognized that acceptance of the Kiewit proposal would. 4 in effect, amount to a "sole source" award of a significant amount of the latan Unit 2 5 scope of work. KCP&L examined the various ramifications of that fact and found among 6 other things that the process of holding a competitive bid for other possible General 7 Contractors would have had a significant impact on the project execution schedule and 8 likely would have taken between four and six months. Such a delay would affect the 9 construction schedule and the procurement and engineering schedules. Ultimately the 10 situation involved a judgment decision weighting the gains possible by allocating those 11 risk elements arising from the execution of the BOP scope of work against the potential 12 schedule delay impacts which would result from any attempt to solicit other bids. As the 13 construction market conditions had not changed significantly, it was entirely possible that even had the BOP scope of work been bid, Kiewit may have been the only responsive 14 15 bidder. 16 Working through its evaluation process KCP&L settled on only two practical choices:

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

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⁶⁰ Schiff Hardin Report, January 10, 2007, page 17

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 latan 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
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12		BOP Scope of Work to Kiewit?
12	A:	BOP Scope of Work to Kiewit? Pegasus-Global found that KCP&L adopted a strategy whereby it could take the time
	A:	-
13	A:	Pegasus-Global found that KCP&L adopted a strategy whereby it could take the time
13 14	A:	Pegasus-Global found that KCP&L adopted a strategy whereby it could take the time necessary to make a fully informed decision without having to make any immediate
13 14 15	A:	Pegasus-Global found that KCP&L adopted a strategy whereby it could take the time necessary to make a fully informed decision without having to make any immediate
13 14 15 16	A:	Pegasus-Global found that KCP&L adopted a strategy whereby it could take the time necessary to make a fully informed decision without having to make any immediate
13 14 15 16 17	A:	Pegasus-Global found that KCP&L adopted a strategy whereby it could take the time necessary to make a fully informed decision without having to make any immediate decision to accept or reject the Kiewit proposal. **
13 14 15 16 17 18	A:	Pegasus-Global found that KCP&L adopted a strategy whereby it could take the time necessary to make a fully informed decision without having to make any immediate decision to accept or reject the Kiewit proposal. **

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

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

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6	** 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

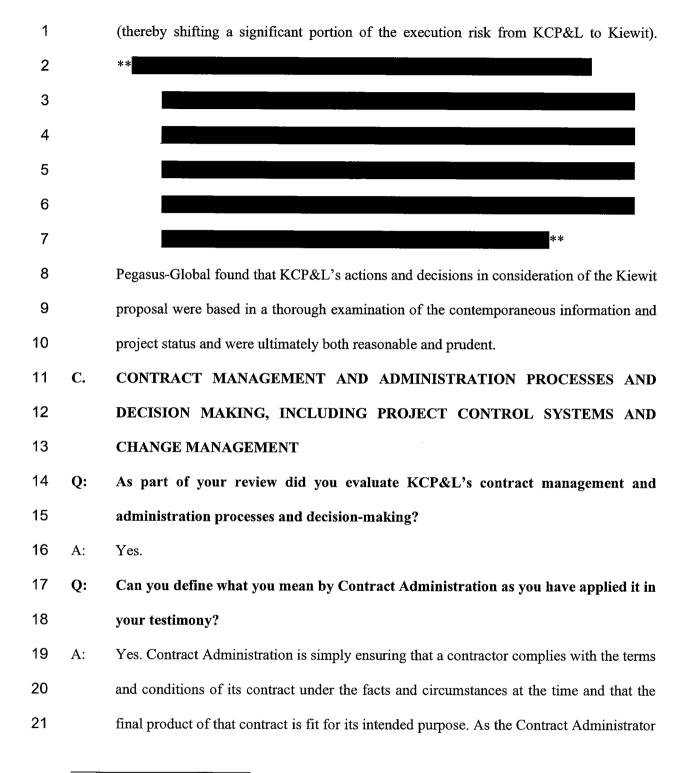
work which in effect would place Kiewit in control of the majority of the BOP work

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

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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?
12 13	Q: A:	What are the primary functions of a Contract Administrator? A Contract Administrator is directly responsible for, among other things, the following:
	-	
13	-	A Contract Administrator is directly responsible for, among other things, the following:
13 14	-	 A Contract Administrator is directly responsible for, among other things, the following: Contract Enforcement;
13 14 15	-	 A Contract Administrator is directly responsible for, among other things, the following: Contract Enforcement; Waivers of Provisions and Conditions;
13 14 15 16	-	 A Contract Administrator is directly responsible for, among other things, the following: Contract Enforcement; Waivers of Provisions and Conditions; Specification Interpretation;
13 14 15 16 17	-	 A Contract Administrator is directly responsible for, among other things, the following: Contract Enforcement; Waivers of Provisions and Conditions; Specification Interpretation; Budget Development and Cost Management;
13 14 15 16 17 18	-	 A Contract Administrator is directly responsible for, among other things, the following: Contract Enforcement; Waivers of Provisions and Conditions; Specification Interpretation; Budget Development and Cost Management; Schedule Management;
13 14 15 16 17 18 19	-	 A Contract Administrator is directly responsible for, among other things, the following: Contract Enforcement; Waivers of Provisions and Conditions; Specification Interpretation; Budget Development and Cost Management; Schedule Management; Quality Assurance;

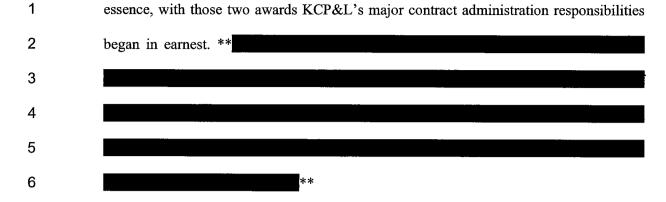
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1		• Penalty Management (i.e. imposition of liquidated damages);
2		• Warranty Enforcement;
3		• Subcontractor Management;
4		• Contract Breach;
5		• Resolution of Disputes;
6		• Project Termination; and
7		• Project Closeout.
8	Q:	Why was KCP&L the Contract Administrator on the latan 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 160



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 utililzed 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 entire project life cycle. The flow and pace of procurement through 2006 increased, as 19 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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Beginning in the summer of 2006, with increasing project specific staffing on board,
KCP&L began drafting project specific policies, procedures and processes, building upon
the Supply Chain contract procurement and administration policies, procedures and
process already in place. Pegasus-Global found that by the first quarter of 2007 all of the
major contract administrative policies, procedures and processes were in place to enable
KCP&L to effectively and efficiently administer the contracts awarded for the execution
of the Project.

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.

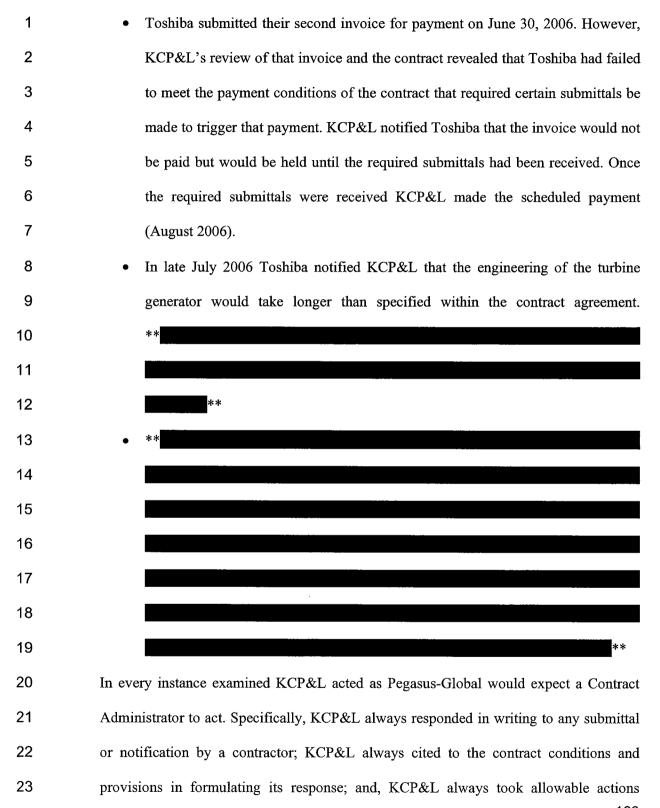
20 **Q**:

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

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

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

16Q:As part of KCP&L's contract administration processes and decision making, did17you evaluate the Project Control Systems that were in place on the Iatan Project?

18 A: Yes.

19 Q: What are project controls?

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

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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:

- Cost Control;
- Schedule/Progress Control;
- Change Control; and
- Quality Management.

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

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

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

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Q: Please discuss the Project Controls in effect for the latan Project?

6 The project control systems used to manage the Iatan Project in the initial stages were A: 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 for the Iatan Project as needed. Project controls consists of three major components, cost 10 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?

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

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

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Q: Does Pegasus-Global believe that KCP&L was slow in implementing key project 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 for tracking engineering status and procurement.⁶⁴ Weekly Project team meetings had 10 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

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

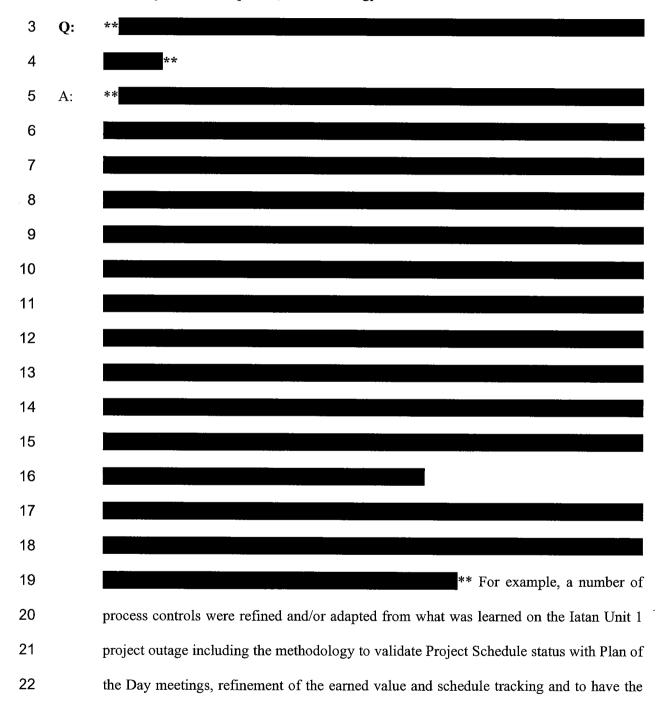
3 As the latan Project progressed the need for changes and enhancements was recognized. 4 and necessary changes were made. For example, in 2007, project controls data from 5 B&McD was provided through the project Document Locator System, thus ensuring 6 transparency in the information that was shared 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 latan 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

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



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

- In summary, Pegasus-Global found that the evolution of the project controls for the Iatan
 Project and the decision making processes were reasonable and prudent.
- 5

6

O:

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

- A: As noted earlier, KCP&L at a corporate level had various control systems in place which
 encompassed all four of those project control elements examined by Pegasus-Global.
 While those control systems were not sufficient to manage the Iatan Project through its
 entire life, those systems were sufficient to enable KCP&L to manage and control the
 Iatan Project work underway during 2006. Pegasus-Global examined the work in
 progress in 2006 and developed the following contextual history for that year:
- Planning and organization. Throughout 2006 KCP&L was finalizing its project
 execution plans, which generally included:
- 15 o setting the project delivery methodologies, development of the contract
 16 approaches;
- working with advisors to formulate the project organization structure and staffing plans;
- working with advisors to enhance project management, control and reporting
 processes and systems;
- 21 o recruiting and hiring experienced staff to fill both project and construction
 22 management roles identified with the assistance of its advisors; and

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 identifying the critical data interface points between project management and 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 procurement management and control systems in place enabled KCP&L to 10 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).

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1 Construction. Actual construction on site for the Iatan Project was initiated at the beginning of September, 2006⁶⁵ when Kissick mobilized to site to execute 2 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 latan 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?

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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.

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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 Estimate at Completion (EAC).⁶⁶ KCP&L provided information in its guarterly reports to 17 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

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

O:

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 controls were used and enhanced by KCP&L. Pegasus-Global would expect prudent 6 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 systems. Pegasus-Global found KCP&L's actions and decisions relative to the 14 15 development and installation of project control processes and systems during 2006 and 16 into 2007 to be prudent.

17 Q: 18

19 20 A: 21

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1 2 3 4 5 6 ** This is evidence of appropriate management attention to changing 7 conditions. Pegasus-Global finds the evolution of the project controls for the Iatan 8 Project, and the decision making process and the decisions themselves fell within a zone 9 of reasonableness and was prudent. 10 Q: What did you conclude with respect to Iatan Unit 2 project Cost Management? 11 A: Pegasus-Global found the evolution of the latan 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 latan 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

developed in 2002 and targeted total project costs (excluding financing costs) of \$210.7
 million. This high level estimate was revised in conjunction with the development and
 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 latan 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 latan 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

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findings in "Sticker Shock", Public Utility Fortnightly.⁶⁹, December, 2007, pages 56-61. 1 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 construction EPC services all "exacerbate cost pressure".⁷¹ 8
- 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 very significant escalation in 2006.73 14
- 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 services.74 19

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

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

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

Pegasus-Global observes that these types of comparisons with other projects are
collaborative in evaluating the prudence of KCP&L management. The fact that costs
increased is not, again, in and of itself, evidence of imprudence. In this situation,
reasonable and prudent managers on scores of projects were making the same or similar
decisions based on the same knowledge, facts and conditions and incurring similar results
– 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?

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

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1 The development of the budget for the Iatan Unit 2 project progressed from an initial A: 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. ** 7 8 **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 latan 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. While there was manual processing necessary at the project level the practice was not 21

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

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

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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 latan 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.

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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:	**
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3 The environmental permitting process implementing emissions netting resulted in 4 KCP&L receiving a permit, but the permit requirements were more stringent on both the 5 Iatan Unit 1 project and the overall site operation, including the Iatan Unit 2 project, than 6 had been initially anticipated. These more stringent requirements required changes to 7 both the then current operations of the latan Unit 1 project, as well as the need to modify 8 the scope of the emissions equipment. These changes were necessary to ensure long term 9 compliance once the permit takes full effect for each of the units. Any increases to cost 10 due to "netting" decisions are not, in and of itself, evidence of imprudent management. 11 To the contrary, KCP&L management evaluated options and made a decision which 12 produced more energy and lower emissions. This type of decision by management is 13 within a prudent zone of reasonableness.

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14 Q: Was the process for estimating the Iatan Project reasonable and prudent for a coal 15 utility in the industry contemplating a similar project?

16 A: Yes. First, the Iatan Project was a "fast-track" mega project as presented earlier in this
17 testimony which essentially means that engineering would not be fully completed prior to
18 the initiation of major procurement or construction of the project; rather engineering
19 would "pace the project" by being just ahead of procurement and construction needs
20 rather than fully completed prior to the initiation and construction of the project. A fast21 track project reduces the total time for project execution by essentially overlapping the

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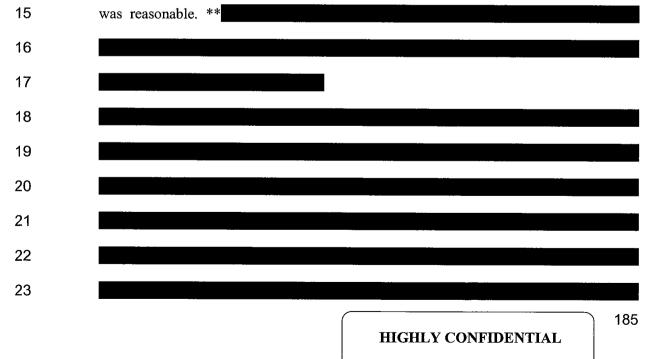
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engineering, procurement and construction phases sequentially; in volatile market
conditions, such time savings can have a significant cost benefit for the owner. As
discussed more fully below, KCP&L acted reasonably in its decision to fast-track the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

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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.

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



** 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 procurement and construction activity is initiated. Pegasus-Global found that the CBE 8 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.

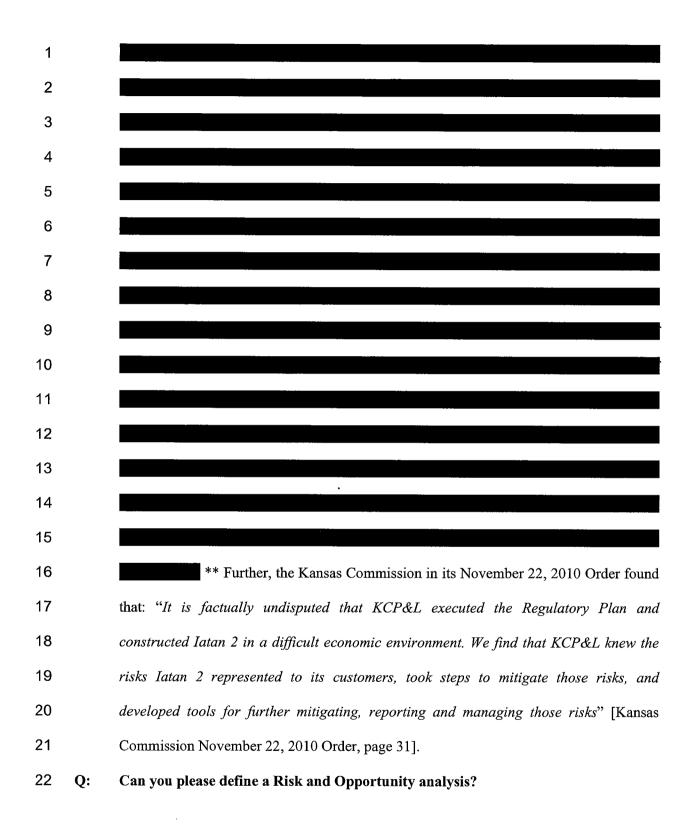
14 KCP&L acted prudently in its development and use of project control metrics and data to 15 identify trends in project cost or schedule which would either threaten the projects costs 16 or schedule or provide it with the possibility of improving the project's cost or schedule. 17 KCP&L's decision to 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.

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

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 somewhat more complex portion of a risk and opportunity report as it requires 15 16 management to analyze the potential benefits possible against any possible risk or cost 17 impact for taking advantage of an opportunity.

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

22 Q:

Can you describe the Iatan Project Cost Reforecast Process?

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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 latan 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?

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

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

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• The planned cost of an element of work;

- The actual cost of that element of work to date;
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• The progress gained against that total element of work to date; and

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• The future trend of that element of work assuming that the work is executed at the same consistent rate and at the same consistent cost experienced to date.

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 190

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. ** 4 5 6 7 ** 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

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series of isolated contract pricing events. By combining trend data from multiple

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

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- 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.
- 5. KCP&L appropriately took the time to examine the "root cause" for the trends it had detected in order to ensure that its responsive actions not only addressed the cost impact, but also enabled project management to address the underlying causes to the extent those causes were within its control (for example, market conditions are not within the project's control but scope creep is, to some extent, within the control of the PMT). This action by KCP&L would represent a "best practice" within the industry.
- 6. KCP&L acted well before the Iatan Unit 2 project cost control budget "went
 negative", that is reflected an actual overrun in the total cost of the project. It is
 easy in a fast-track project to lose sight of the future when attempting to address
 the pressures to coordinate multiple activities (engineering, procurement and
 multiple construction efforts). By acting proactively, KCP&L avoided having to
 make a series of "budget increase requests", without being able to understand or

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

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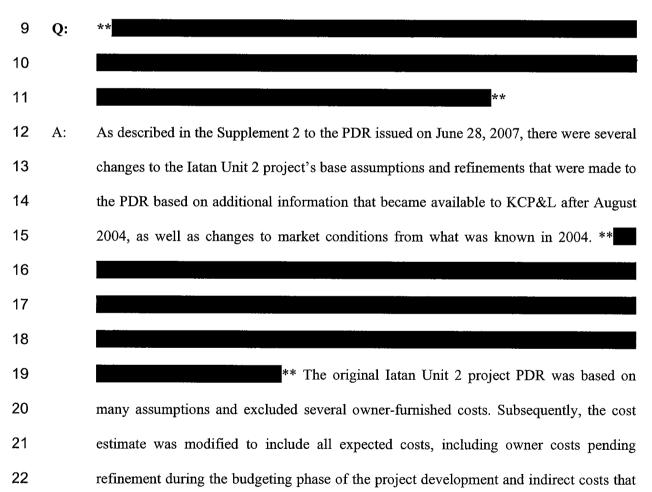
3 Q: Did Pegasus-Global review the Iatan Unit 2 project Cost Revalidation Process?

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:

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

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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.



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:
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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;
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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 latan 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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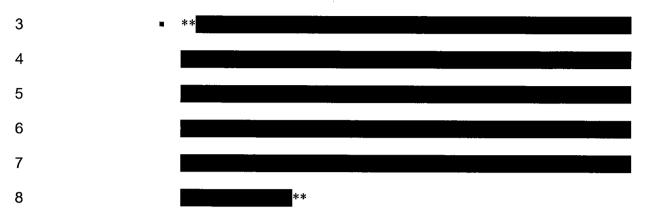
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1 A more sophisticated Monte Carlo analysis of the remaining expected costs 0 2 and schedule variations were performed during the period after January 2006 3 and continued into November 2006. The objective was to predict the 4 contingency necessary to achieve 80% confidence that the project would be 5 within budget and on or ahead of schedule. ** 6 7 ** Multiple evaluations were performed during 8 the course of procurement as pricing information provided feedback regarding 9 estimated versus actual values for procurement. 10 In addition to the Monte Carlo analyses performed by B&McD, ** 0 11 12 13 14 15 ****** 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

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



• Commodity cost increases.

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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. **

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******78 2 3 Was the information collection and analysis done by KCP&L in making its **Q**: 4 **Reforecast of the Iatan Unit 2 project reasonable?** 5 A: Yes. In Pegasus-Global's review of the KCP&L Business Plans for 2006-2009, and the 6 quarterly reports that were issued by KCP&L, Pegasus-Global found that KCP&L based 7 its decisions and conducted its decision making process through analysis of several key 8 factors and risks, which it continued to and still continues to review and evaluate through 9 the project execution. 10 KCP&L recognized in its 2006 Business Plan that execution success was influenced by 11 several key factors including: 12 Clear understanding of drivers for each project; 13 Construction strategy; 14 Dedicated team with proper experience (KCP&L, Engineer and Contractors); 15 Effective Project Controls and reporting systems; and 16 Decision making process and documentation to support. 17 KCP&L continued to recognize and evaluate several market drivers, as so noted in its 18 Business Plans from 2006-2009. Although some of the risks were identified in the 19 original August 2004 PDR, the impact of those risks manifesting themselves could not be 20 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

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

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

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