evaluate the options, and you change the approach to avoid or mitigate risk. The risk profile of every major construction project faces some risk element which is tied to its duration, for example: a change in the available electrical labor pool at the exact point in time when trade electricians are needed for the project. If a project knows that it will need those electricians 8 to 10 months in the future there are fairly accurate indicators of the state of the industry at that point in the future and specific plans can be made to address that industry condition insofar as the need for electricians at that point in time.

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

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

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

stages cited above. Within the construction industry there are two methods by which one can stage the execution of a project:

1) One can move sequentially through those stages generally in the order in which they are listed above, or:
2) One can overlap those stages, initiating each subsequent stage as the preceding stage reaches a point at which it can maintain a lead over the subsequent stage. This is generally referred to in the construction industry as a "fast track" project schedule.

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

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

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

not be started until BOP construction was complete, then the time it would take to execute a project such as the Iatan Project would be much longer than was planned and has occurred.

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

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

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

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

Q: Are such situations common on mega-projects?

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

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

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

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

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

Q: Does the Missouri Staff or Mr. Drabinski recognize the evolving context of a mega-project?

A: No. Throughout its testimony both the Staff and Mr. Drabinski apply smaller construction project management concepts and expectations or express opinions that indicate that they expect no change during the execution of a mega project against which the Staff and Mr. Drabinski then compare the actions and decisions made by KCP&L during the execution

of the Iatan mega-project. For example, Mr. Drabinski consistently attacks KCP&L management within his testimony for "seriously considering" an EPC project delivery methodology linked to a fixed price contract approach for the Iatan Unit 2 project scope of work. This assertion is made in spite of testimony by KCP&L witnesses and a number of document references to the fact that KCP&L had surveyed the contractor pool and found no interest among that pool in executing the Iatan Unit 2 project on an EPC, fixed price basis. As is discussed in more detail later in my testimony, Mr. Drabinski simply ignores the reasons for that lack of interest in an EPC fixed price contract for the Iatan Unit 2 mega-project.

The Staff's and Mr. Drabinski's persistence in applying contractor concepts and expectations that do not reflect the Iatan Project circumstances is also reflected in how KCP&L management decisions are treated throughout the Staff Report and Mr. Drabinski's testimony. For example: **[redacted]

[redacted]** Mr. Drabinski's criticism of KCP&L is founded on applying a construction management understanding which essentially states that once a decision has been made it is not revisited or changed absent some negative impact has rendered that decision untenable. It is essentially a "decide", "monitor" and, if required, "react" management methodology which as a rule has been followed within the traditional construction industry of small projects. However in modern mega-projects, by the time the monitoring detected a problem or issue it is generally too late for project management to react in time to mitigate or avoid the problem, which then ripples out from that problem to impact other areas of the project. The ultimate results can be, and in the case of the first wave of

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

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

**[redacted]

[redacted]**

Interestingly, Mr. Drabinski originally testified in the Kansas Commission prudence docket that "Given the documentation and process, one could conclude that the decision [to executed the BOP under a multi-prime methodology] was reasonable, and not in itself, imprudent" Drabinski at page 38, lines 14 – 16). Yet throughout his testimony Mr. Drabinski constantly refers to that decision as being at the heart of all many of KCP&L's problems and, ultimately, the disallowances he recommends.

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

same documents and information differently based upon our engagements and experience for both Commission Staffs and Utility management:

- The BOP multi-prime delivery method decision was a result of the fact that no capable industry contractor expressed any interest in executing that scope of work under and EPC delivery methodology or at a fixed price.
- A reasonable alternative was to execute the BOP scope of work under a multi-prime method, with KCP&L acting as the construction manager. This option was explored in depth by KCP&L and its advisors, with significant attention paid to the risks inherent in that methodology, the risks which were particular to KCP&L's current project and construction management status, and the development of mitigation treatment options to address both of those risk factors. For example; staffing needs were identified, management and organization plans initiated and recruitment efforts started to fill the most critical positions in the most logical order.
- Although the risk profile evolved with each staff addition and each process developed by KCP&L, the risk profile of the multi-prime delivery method remained significant at the end of 2006, at which point an unexpected event provided KCP&L with an alternative delivery methodology which had the potential to shift a significant portion of the current risk profile to Kiewit. Any reasonable mega-project manager or owner would examine the Kiewit offer to determine if accepting that offer provided the project with a way to mitigate project risk over the total duration of the project; which is just what KCP&L, with input from its advisors, did in early May 2007.

- Having profiled the risks of both alternatives – continuing with the Multi-Prime method under direct KCP&L control or shifting the bulk of that work and risk to Kiewit under a GC methodology – KCP&L's decision was to shift the risk to Kiewit.

Testimony filed by the Staff addresses approximately that same period in the Iatan Unit 2 project history, but provided little detail relative to its findings or conclusions of that 2005 to 2007 time period. Staff simply concluded that "By late 2006, the Iatan Project had been committed to a course that made the risk of cost overruns and schedule delays for the Iatan 1 AQCS segment high, and this is one of the, if not the most, significant factor causing the cost overruns and the documentation issues Staff encountered on this audit" [Missouri Staff November 3, 2010 Testimony at page 25, lines 17 – 20].

The Staff included some testimony relative to the multi-prime BOP decision at pages 22 line 9 through line 24, which quoted from an Ernst &Young (E&Y) Risk Assessment of March 2007. **[redacted]**

Beyond that I found no testimony by the Staff which addressed the mega-projects, or any specific finding of imprudence which may have occurred during that 2005 – 2007 period. Likewise, I found no Staff testimony to the effect that the initial decision to adopt a multi-prime BOP delivery methodology and the later decision to revise that decision contracting with Kiewit to execute the BOP work was imprudent.

Pegasus-Global's examination of the Iatan Project record does not reflect a project in any danger of eminent failure as of the spring of 2007. The risk profile of the project reflected

the effort which KCP&L would have to expend to mitigate those risks over the life of the project, and those expenditures would be significant. The documents indicate that KCP&L was, in fact, expending the anticipated level of effort throughout 2006 and into 2007. However, the Kiewit option provided KCP&L with an opportunity to address those risk elements almost immediately, with a lower expenditure of effort required. From a mega-project perspective, the decision making process which was followed throughout that period by KCP&L is exactly what Pegasus-Global would expect to see under the conditions described in great detail within the Iatan Project records. The Iatan Project is a mega-project. Recognizing this circumstance enables Pegasus-Global to place the actions and decisions taken by KCP&L within the actual contextual conditions of the project.

IV. KCP&L'S MANAGEMENT DECISIONS WITH RESPECT TO THE IATAN PROJECT WERE REASONABLE AND PRUDENT UNDER THE CIRCUMSTANCES

Q: How did Pegasus-Global determine what decisions to evaluate as part of its prudence review?

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

- Corporate Management and Project Management organization, staffing and evolution;

- Project planning and approach, including contracting methodology and its evolution;
- Contract Management and Administration processes and decision-making, including Project Control Systems, Project Budget, Change Management, Project Schedule, Quality Management.

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

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

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

A. CORPORATE MANAGEMENT & PROJECT MANAGEMENT, ORGANIZATION, STAFFING & EVOLUTION

Q: Did KCP&L have a management structure in place for a rational and deliberate process with respect to the planning and execution of the Iatan Project?

A: Yes. Pegasus-Global concluded that the management oversight process was thorough, complete, and what would be expected of a reasonable and prudent utility. A team of KCP&L executives was formed in the summer of 2005 and met throughout 2006 to discuss and make decisions regarding the Iatan Project.[11] This committee evolved into a more formalized CEP Executive Oversight Committee (EOC) in October 2006. Great Plains Energy (GPE) formalized the EOC upon the recommendation of GPE's CEO, M. Chesser, and GPE's internal audit department. The EOC was formed to provide program management assurance to minimize the risk of program failures and to assure that every one of the CEP Projects in the Program was strategically aligned in terms of scope, quality, cost and schedule. The responsibilities, structure and attributes were established at that time for the EPC by Mr. Chesser in an attachment to his communication to KCP&L CEO, Bill Downey:

Oversight Committee[12]

Committee Structure and Responsibilities

- Be chaired by the Chief Executive of Utility.
- Be comprised of a selection of executives of the organization who are affected by the change or have responsibility for its outcome.
- Confirms the project in terms of strategic alignment, overall costs, benefits, deliverables, and scope.
- Work closely with the Project Executive to ensure that the project's progress is on schedule.

[11] Downey testimony, December 17, 2009, page 5, lines 16-17.
[12] CEP Oversight Committee 10-26-06

- Objectively review the direction and progress of the project at key intervals to ensure that the aims of the project are being met and that the Benefits Plan is on schedule to realize expected benefits.
- Make decisions pertaining to the project's external influences.
- Assess resource requirements and team's performance throughout the course of the project.
- Constantly review and evaluate the Project as it may become necessary to re-direct or stop the project (mid-stream) if it becomes clear that it is no longer relevant to the company objectives or is unlikely to deliver the expected benefits.
- Ensure that the project follows the corporate policies and procedures of the organization.
- Ensure that the project complies with the performance criteria defined in the Project Business Case.
- Monitor the decision making process.
- Designate an individual to organize the Oversight Committee meetings, take notes and distribute minutes and action items.

Attributes

- Be accountable for achieving planned benefits within budget, on schedule and within scope.
- Exercise organizational leadership with regard to the project and all parties involved.

- Contribute to finding solutions if access to resources falters.
- Manage all internal and external business issues related to the project.

The CEP EOC Committee members originally consisted of:

- Terry Bassham, KCP&L CFO and GPE Executive VP, Finance and Strategic Development and CFO
- Bill Downey, KCP&L President and CEO and GPE President and COO
- Barbara Curry, Sr. VP – Corp. Svcs. And Corporate Secretary
- Lora Cheatum, VP – Admin. Svcs.
- Chris Giles, VP – Regulatory Affairs
- Bill Riggins, VP – Legal and Environmental Affairs and General Counsel
- Michael Cline, KCP&L Treasurer and Chief Risk Officer
- John Marshall, Sr. VP – Delivery
- Steve Easley, Sr. VP – Supply[13]

Committee members listed at the April 2008 meeting also included:

- John Wallis, Director – Budget and Planning[14]

And the minutes from the March 26, 2010 CEP EOC meeting list the following additional attendees as committee members:

- Curtis Blanc
- Maria Jenks
- Scott Heidtbrink – KCP&L Sr. VP Supply[15]

---

[13] CEP Oversight Committee.102606.pdf, page 8
[14] CEP EOC, April 25, 2008 minutes
[15] CEP EOC Meeting, March 26, 2010, minutes, page 1

The CEP EOC started functioning in October 2006 and was formally approved at the beginning of February 2007. After October 2006, the EOC met regularly, approximately monthly, and the meetings were well attended. The meeting agendas and presentation materials indicate that the EOC was focused on critical issues affecting CEP success, including the Iatan Project safety, cost, schedule, status, contractor performance indicators, contractor issues and conflicts, and actions to mitigate indentified project risks.

Q: Did this management structure develop available information and ensure that it was provided to management to make informed decisions?

A: Yes. The CEP EOC arranged with the GPE Internal auditor and E&Y to provide one source of input to allow KCP&L executive management to monitor project decision making to assist in the normal conflicts of competing stakeholders, including external influences and project management executives. The proposal of the audits was proactive on the part of KCP&L management and indicative of good, prudent management process. The sequence of events for all audits, including those conducted on the Iatan Project, consists of a series of steps, rather than merely the delivery of a final report. First is to define and clarify the audit scope, including the time frame of data/information to be audited. Then data is collected from the available project files and interviews with personnel are conducted. An initial reporting of findings is made after the field work is completed which consist of audit summaries which are provided to management of the affected areas. These findings are be reviewed by affected management and written comments are provided to the audit team. These written comments to the audit findings provide additional information, comments, and any relevant actions that will be or may

already have been taken since the audit data were collected. The auditor then finalizes the report, including the responses from KCP&L. Therefore, it is important to understand that actions in response to the external audit initial findings are often taken long before an audit report's final issue date. The final audit report is then presented to senior management of KCP&L and the Audit Committee of the Board of Directors, including the response of company management to the findings. This process illustrates that KCP&L management demanded and received differing opinions that were used to inform them of their choices and that audit findings were communicated to the relevant management levels in the normal course of management of the project.

**[redacted]

[16] CEP Risk Assessment Report 3-27-07

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]**

In addition, the CEP EOC reviewed reports from Schiff Hardin that provided KCP&L with outside expertise with respect to the CEP program and specific projects. Schiff Hardin reports provided even more detailed, operating level recommendations with

respect to specific project management for the Iatan Project. Again, this is a process of decision making that we look for – the seeking out of potential risks and possible solutions regularly from outside sources which exemplifies good and prudent management.

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

Q: Were there any other KCP&L senior management involvement in the Iatan Project?

A: Yes. KCP&L executive managers involved themselves with the Iatan Project in other ways beyond just serving on the EOC. Executive level managers were directly involved in contract negotiations, dispute resolution and had responsibility for approval of major contracts. **[redacted]**[18]

[redacted][19]

Q: Did the KCP&L management and organization evolve during the Iatan Project execution?

A: Yes. As I pointed out earlier, KCP&L formed the CEP EOC in October 2006 so that every one of the CEP Projects in the program was strategically aligned in terms of scope, quality, cost and schedule. The EOC met, received reports, and made corporate level

[17] Proposed Resolution, Board of Directors Teleconference October 7, 2008
[18] Iatan 2 Joint Owners Meeting Minutes of May 14, 2009
[19] CEP EOC Presentation 2008 03 28 – Meeting Minutes; CEP EOC Presentation 2008 04 25 – Meeting Minutes

decisions approximately every 2 to 3 weeks and the Iatan Project was addressed at every single meeting.

For example, the EOC was very involved in interface and claims issues that arose between B&McD and Alstom, and various adjustments that were made to attempt to get both firms to live up to their obligations. The failure of a contractor to perform at the expected level is, in and of itself, not evidence of imprudence. At this stage of a project a proper prudence review looks at the facts and circumstances known to management at the time (such as stage of the project, causes for non-performance, other commercial options available, budget impact, corrective action plan, etc.) to determine whether the response to non-performance was appropriate and prudent. Here, when project management determined at the beginning of 2006 that the strategic plan requirement of a schedule driven project would be enhanced by limiting the multi-contract approach to equipment procurement only, the CEP EOC concurred. Kiewit was engaged under a Limited Notice to Proceed (LNTP) to serve in this role while Kiewit and the Project Management staff worked out details of Kiewit's contract to handle all field construction required for the Balance of Plant (BOP) work and outage work required. **[redacted]**

[redacted][20] **

The evolution of project strategy structure and organization and the constant follow up that Pegasus-Global observed is evidence of management attention and action. Decisions by KCP&L were timely and based upon timely information. New decisions cannot be implemented immediately, but the project documents show steady improvement and further refinement as more information was received. One of the decisions that stands out is the decision to use Kiewit under a LNTP while the parties took the time necessary to appropriately establish definitions and scope to enable a contract. Pegasus-Global finds the evolution of the Iatan Project management and contract approach and the decision making process reflective of appropriate management practices that fell within a zone of reasonableness. Pegasus-Global concludes these decisions and decision making processes were prudent.

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

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

[20] Iatan Construction Project Organization Audit Report-FINAL

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

A: Yes. KCP&L senior management, executive management, and the Board of Directors had an effective oversight process in place, focused on important Iatan Project issues, participated fully in the strategic decision making process, were active in issue resolution and remained fully informed and engaged throughout the Iatan Project execution. The KCP&L executive management and Board of Directors' oversight of the Iatan Project were thorough and reasonable, and Pegasus-Global found the decision-making processes and decisions fell within a zone of reasonableness and to be prudent.

Q: Did the KCP&L Project Management organization and staffing for the Iatan Project evolve beyond the initial plan?

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

- Major engineered equipment was set, including the Turbine Generator (Toshiba) and Boiler Island (Alstom).
- The Toshiba was a supply only agreement, with installation to be included in the BOP scope of work under Toshiba guidance.
- The Alstom Boiler Island was a full EPC agreement with fixed price and completion date certain; the scope of work was set to specific boundary limits.
- Engineering was ramping up as crucial data was received from the engineered equipment suppliers which would enable detailed engineering for foundations.

- KCP&L was staffing to meet its role as both Project Manager and Construction Manager, assuming direct responsibility for the BOP multi-prime project execution.
- KCP&L was focused on procurement as a critical early element in the project execution both in order to support engineering needs (size, capacity, loads, etc.) and to gain firm pricing and delivery commitments for critical equipment and materials in what was an overheated construction market.
- As project staff was engaged, KCP&L initiated efforts to enhance its corporate and operations level policies and procedures to a level commensurate with the needs of a major construction project.

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

Pegasus-Global found KCP&L management reasonably knew the environment in which it was trying to recruit new project management level staff. As already noted, the large number of major construction projects being executed across the country put a high

[21] CEP Risk Management Report 3-27-07, pages 41, 45
[22] Schiff Hardin Report, May 23, 2007, page 1; Iatan Audit Report, July 2007, page 4

demand on experienced personnel in the 2006-2008 time period. Although KCP&L had begun ramping up staffing in 2006, the availability of qualified, experienced project and construction management staff was low, making that recruitment effort slow.[23] For instance, although KCP&L knew from early in the Iatan Project that a master scheduler was required, in 2006 the position was advertised for months before being filled.[24] As a result, recruitment of new hires, as well as training of internal staff, required long lead times. Since having adequate, qualified and experienced project and construction management staff was essential to the successful execution of KCP&L's role, KCP&L contracted with outside firms such as B&McD, Schiff-Hardin, and Aero-Tek to fill their management and staffing needs, while KCP&L built up internal resources. Despite the difficulties, KCP&L was able to make progress in developing the PMT. An audit performed in early 2007 indicated significant progress had been made between late 2006 and the first half of 2007.[25] These decisions seem reasonable, appropriate and prudent.

Once contracts were in place and project control metrics were established, lower level staffing needs were addressed in order to support implementation of the contractor controls. Many of these staff positions were contracted through workforce agencies. Within this level of staffing, personnel were frequently retrained and shifted positions during the course of the Iatan Project in accordance with changing needs. For instance, as the initial procurement and purchasing phase wound down, people were shifted to project control monitoring roles where needs were increasing as the construction proceeded. The

---

[23] Schiff Hardin Report, August 7, 2006, page 3

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

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

use of contracted staffing at this level was prudent in that much of the workload is of a limited duration (the construction of the project), and so staff levels can more readily be increased and decreased according to project needs than they can be with permanent employees. This is a prudent and typical strategy for a project like the Iatan Project.

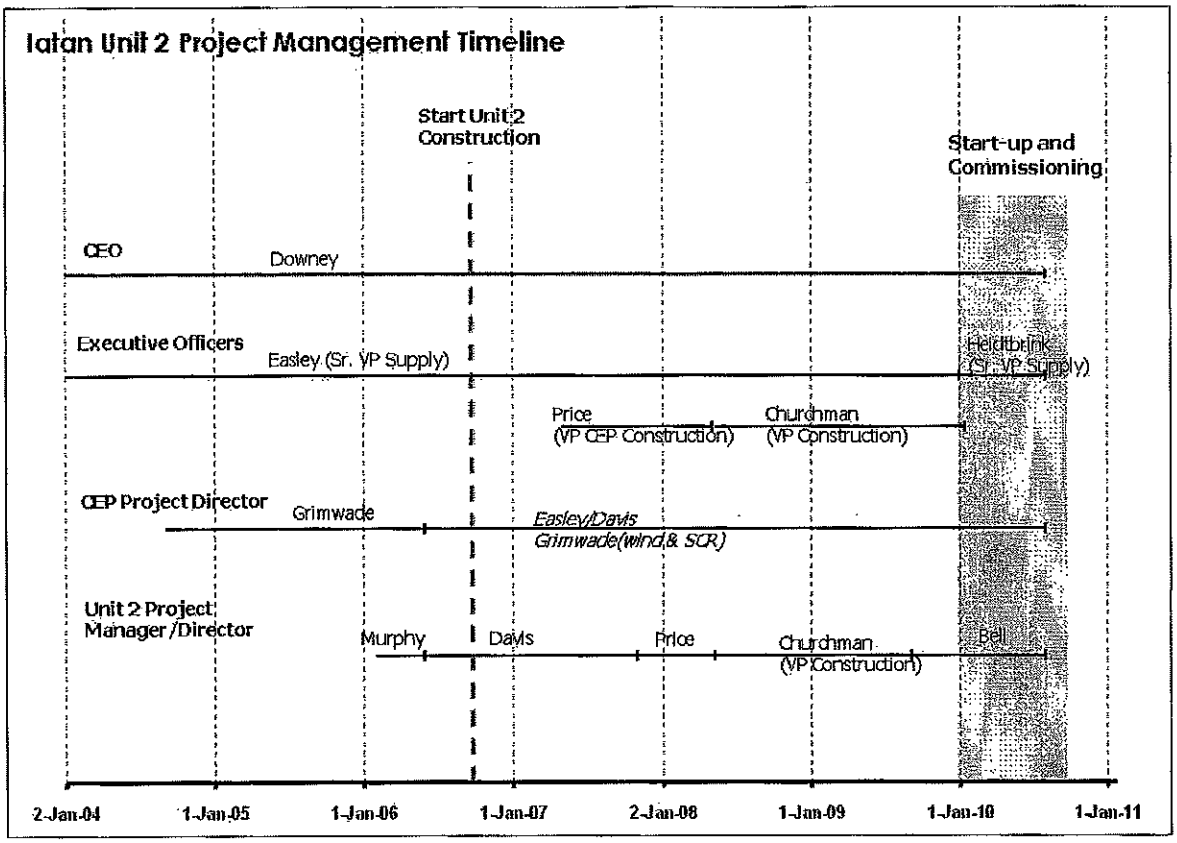
Q: Did KCP&L continue to monitor and adjust the Project Management Team (PMT) and Project Management process as the needs of the Iatan Project changed and the Project progressed?

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

As noted earlier in this testimony, the Iatan Project is a mega-project. It is usual to have multiple project managers on a mega-project, with each of those managers being to some extent "specialists" in particular phases or elements of execution. For example: one project manager may be chosen for planning and conceptual engineering strengths; another may then be brought on board during the heavy procurement and contracting phase; a third with mega-project construction execution experience may be sought to oversee the completion of detailed coordination and multi-party construction; while a fourth may be inserted for particular experience in commissioning and start-up of complex facilities. It is possible for a mega-project to have three or even four of those "project managers" on board during overlapping periods, with different but equally

critical titles and functions. One clear example of this is the hiring of Carl Churchman in May, 2008 as VP of Construction, bringing experience as a Construction Completion Director on large-scale power plant construction projects to the project executive management level as the Iatan Unit 2 project moved into the most critical construction phase.[26] Farther along in the Iatan Project, Bob Bell – with particular expertise in startup transitions – was hired to direct Iatan Unit 2 construction under Churchman and then was installed as the Unit 2 Project Director under the VP Supply as the project entered the Startup phase.[27] The Senior Management positions relative to the Iatan Unit 2 project are summarized in the following figure:

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



Examples of organizational changes in response to feedback during the Iatan Project are evident in the Iatan PMT restructuring in November of 2007. The CEP Project Director at that time (Brent Davis) was dedicated to the Iatan Unit 1 project in November 2007 and the VP of Construction assumed direct management responsibility for the Iatan Unit 2 project.[28] Moreover, additional management positions have been added as needs have progressed: BOP construction manager and Startup Manager positions were added in May 2007;[29] separate contract managers for each of the major contractors (Alstom and Kiewit) were hired in mid-2007 under Steve Jones to handle the large workload as the

[28] Iatan Construction Project Organization Audit Report , January 2008, page 21
[29] CEP EOC Presentation 2007 05 23.pdf, pages 17, 21

work under those contracts increased; and, a dedicated Unit 2 Startup Manager was hired in the second quarter of 2007.[30] Management of the Engineering contract with B&McD was also moved from Engineering to Procurement and Contracts in January, 2008 in response to changing management needs and organizational capabilities.

Q: Was KCP&L's overall approach to its Project Management organization and staffing for the Iatan Project prudent?

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

**[redacted]

[30] KCP&L Strategic Infrastructure Investment Status Report, Second Quarter 2007, page 32

[redacted]**

[31] KCP&L Operations Review 11-01-05, KCP&L Operations Review 02-01-06, KCP&L Operations Review 05-02-06, KCP&L Operations Review 07-25-06, KCP&L Operations Review 10-31-06
[32] KCP&L Business Plan 2007-2011 12-05-06
[33] CEP Risk Management Report 3-27-07

KCP&L identified timely that the project management organization and staffing needed to be increased. KCP&L further recognized that a strategy that was schedule driven did not allow for the recruitment and training of an all KCP&L staff. KCP&L decided appropriately to enhance their Project Management staff and organization with experienced consultants while the KCP&L PMT was fully developed. KCP&L's decisions relative to its initial organization and staffing were consistent with acceptable utility practices under the initial conditions and circumstances of the Iatan Project. KCP&L employed knowledgeable advisors, evaluated options, and made acceptable and appropriate adjustments to the Iatan Project Management organization and staffing.

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

Q: Have you reviewed the Missouri Staff's and Mr. Drabinski's opinions relative to deficiencies in the KCP&L organization and staffing relative to the Iatan Project?

A: Yes. Scattered throughout the Missouri Staff report and Mr. Drabinski's testimony are references to various organizational and staffing decisions and issues which it identified as contributing to the delays and cost overruns on the Iatan Project, among them:

- The Missouri Staff report does not address the issue of management organization or staffing as a discrete element of its report. Rather scattered throughout the report are statements such as the following:
  - In regards to the "fast-track" nature of the project the Staff concluded that KCP&L staff was not experienced enough to effectively manage a fast-track schedule project [Missouri Staff Report at page 38, lines 3 through 8]. The Staff believes that this "fact" was a major factor in the $200 million cost overrun on the Iatan Unit 2 project.
  - In regards to the Alstom claims and settlements the Staff concluded that Alstom "took advantage" of the "inexperienced" KCP&L PMT with regards to the Alstom omnibus settlements [Missouri Staff Report at page 60 lines 8 – 10].
  - The Staff cited an E&Y audit which **[redacted]** [Missouri Staff Report at page 60 lines 12 – 18].
- That KCP&L was not prepared to manage a multi-prime project delivery methodology at the time that decision was made [Drabinski at page 44, lines 2 – 3];
- That KCP&L was late in developing and implementing an integrated Project Execution Plan (PEP) [Drabinski at page 120, line 14 through page 121 line 2];
- That there was dissention among the project team which KCP&L appeared to ignore [Drabinski at page 60 line 7 through page 63 line 16];

- That KCP&L "significantly underestimated" the number of construction management personnel it would need for the Iatan Unit 1 & 2 projects" [Drabinski at page 47, line 14 through page 48, line 2 and page 63 line 18 through page 65 line 1]; and
- That KCP&L had high turnover in the Project Manager position during 2006 and 2007 [Drabinski at page 59, line 1 through page 60, Table].

Nowhere did Pegasus-Global find in Mr. Drabinski's testimony where he directly linked any of these issues to any specific disallowance amount. Rather, Mr. Drabinski has generally identified these KCP&L management issues as major contributing factors to KCP&L's imprudent actions, which in turn resulted in costs which he recommends that the Commission disallow.

Q: Do you agree with the Missouri Staff's assertion that the experience level of KCP&L's staff was a factor in cost overruns on the Iatan Project?

A: No. The Staff has not put its conclusions relative to the experience level into a proper context with specific points in the Iatan Project life cycle. The Staff loosely ties its allegations of the inexperience of the staff to the cost overrun which occurred between the establishment of the CBE (December 2006) and June 30, 2010, the date through which its audit of construction costs runs. As cited in this testimony, in late 2005 and early 2006 KCP&L initiated a major effort to recruit and hire experienced staff to manage the Iatan Unit 2 project, starting with the more senior project management positions then moving to fill the more technical construction management positions. By the time the CBE had been established all of the senior project management positions had been filled and many of the technical construction positions had been filled (i.e. cost management

and control, schedule management and control, contract administration, etc). The individuals hired by that point in time were neither "inexperienced" nor unfamiliar with the cost, schedule and execution plans and procedures for the Iatan Unit 2 project, having, in fact, developed and issued those plans, procedures and systems. By the fall of 2006 all of the cost, schedule and contract management and control procedures and systems were in place and by early 2007 all of those management and control systems were fully populated and in full operation.

Also, the E&Y audit referenced by the Staff actually stated that: **[redacted]** The E&Y report was issued in March 2007, however the actual audit was conducted by E&Y in the fall of 2006, at which point the technical staff positions were still being filled and the project management and control systems were still under development by the senior project and construction management personnel hired by KCP&L. When placed within the context of the project status as of the date of the CBE, Pegasus-Global does not agree with the Staff that the KCP&L staff was "inexperienced" or that the alleged "inexperience" was a major factor in the cost overruns identified by the Staff within its report.

[34] Phase I Risk Assessment, Ernst & Young, March 2007, page 6

[redacted]

imprudent decision or action by KCP&L.

B. PROJECT PLANNING AND APPROACH, INCLUDING CONTRACT METHODOLOGY AND ITS EVOLUTION

Q: What did you conclude with respect to KCP&L's decisions regarding the contracting approach taken for the Iatan Project?

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

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

Q: Can you describe your evaluation?

A: Pegasus-Global has worked with and written extensively on project delivery methodologies and contracting formats over the course of many years. And there are

some critical points to understand before examination of the Iatan Project delivery methodologies and contracting formats[36] including:

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

[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

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

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

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

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

The distinction between delivery methodology and contract approach is important because it is easy to confuse those two elements of a project. 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. **[redacted]** The

construction industry maxim - that the more risk an owner sheds the greater the cost - has been proven repeatedly because a contractor bidding a fixed price for the total risk of the project cost is going to assure that it has not only covered the direct cost of that project, but has included in that fixed price a contingent amount to cover any and all potential impacts to that fixed price.[37] Even if the project is executed to perfection and none of that contingency is used, the owner, under those contract conditions must pay the contractor that contingent sum. It is overly simplistic to assert that any project delivery methodology or contract approach is more or less costly or has more or less risk to any of the parties involved in that project.

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

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

---

[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

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

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

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

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

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

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

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

A: KCP&L utilized B&McD to perform Owners Engineer services for the Iatan Project during early evolution of the project definition for both the Iatan Unit 1 and Unit 2 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 appropriate to the scope of work involved in this early phase of the project definition development process. As is also expected with complex mega-projects, B&McD's initial development work evolved and expanded as the project definition was refined and expanded and, in the case of the Iatan Unit 2 project, culminated in B&McD's preparation of the Iatan Unit 2 PDR in August 2004. However, B&McD was not released to proceed with any significant level of engineering on the Iatan Unit 2 project pending the further refinement and expansion of the project definition beyond that contained within the 2004 PDR.

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

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.

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

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

---

[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]

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

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

Q: What did Pegasus-Global conclude relative to the Iatan Unit 2 PDR having been 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