the Alstom Unit 1 settlement, [see Missouri Staff Report Schedule 1-1], leaving only $10 million variance to be accounted for, which is identified in Change Orders issued on the contract. The Alstom Unit 2 total cost variance is ** [redacted] ** on a base value of ** [redacted] ** a variance of 6.2%, well within a normal tolerance for EPC contracts of this magnitude and complexity, but again can be identified in Change Orders issued against the Alstom contract.

Regarding the BOP contract (Kiewit), the Staff indicates the total Iatan Project variance to be ** [redacted] ** on the basis that there was no such line item in the CBE, which is not correct. As Pegasus-Global has discussed earlier in this testimony, the original intent for the BOP work was to have (multiple) prime contractors to perform this work, which included both mechanical and electrical BOP work on the Iatan Unit 1 and 2 projects. This work was ultimately awarded to Kiewit, essentially on a unit price basis. The total CBE value of the Mechanical and Electrical work for the Unit 1 project was ** [redacted] ** against the June 2010 amount of ** [redacted] ** a difference of $39.2 million. Similarly, the total value of the Mechanical and Electrical work for the Unit 2 project was ** [redacted] ** against the June 2010 amount of ** [redacted] ** a difference of ** [redacted] ** not the ** [redacted] ** indicated by Staff.

In addition, the original Kiewit (BOP) contract for the Iatan Units 1 and 2 projects was ** [redacted] ** against a June 2010 expenditure of ** [redacted] ** an increase of $144 million. Both the Alstom – Civil/Structural and Kiewit BOP work were executed using construction contracts, Alstom under an EPC contract and Kiewit under a Unit

Price contract. Pegasus-Global's experience is that EPC contracts are based on a defined scope of work with a defined contract value and that payments are made against achieving milestones, which are defined in the contract or quantities of work. KCP&L's EPC contract with Alstom was no different from that used in any other power project in Pegasus-Global's expereince. Under the Kiewit Unit Price contract, quantity of specfic elements of work completed was measured and payment made according to the contract unit prices. Again, KCP&L's Unit Price contract with Kiewit was not different from that used in any other power project in Pegasus-Global's experience. Such processes are in place to ensure payments in accordance with the contract can be made and no payment can be above the approved contract value, and as I have testified, this was the case on the Iatan Project. The normal process to make a change to the contract contract scope or payment methods (milestone definition or value or to scope of work or unit price) or total contract value requires the owner, KCP&L, to issue a Change Order and this was done on the Iatan Project, memorilising the change to the contract.

These two large budget differences the Staff has identified in its budget table relate to contracts of the nature just discussed, and therefore any changes in the contract value, scope or payment method will have to be covered in a Change Order, which will also include backup that memorializes the reason for the change.

KCP&L has made all Change Orders for all of the Iatan Project available to Staff and others evaluating the project. The Staff and others evaluating the Iatan Project would know that the contract and associated Change Orders would be the first place to go to understand the nature, magnitude and timing of changes in contract scope, value and payment methods. As noted several times in this tesimony, the Staff had access to and

evaluated Change Orders as noted in the direct testimony of Mr. David Elliot beginning at page 28 of the Missouri Staff's report. According to Mr. Elliot's testimony:

> "*Engineering Staff review construction project changes orders associated with the project for the following:*
>
> - *To understand the reason for the change at the point in time when the Change Order was issued;*
> - *To determine whether the change corrected an engineering-related problem, resulted in a better design, or improved the operation or construction of the plant; and*
> - *To determine whether the change resulted in a safety concern, caused unnecessary construction, or caused unnecessary duplication of facilities or work*". [Missouri Staff Report, page 28, lines 16 – 24]

In Pegasus-Global's experience it is appropriate and necessary within the audit process to understand the evolution of the project and costs and schedule changes. According to the Missouri Engineering Staff:

> "*During an Engineering Review, the Engineering Staff discuss the Change Orders with company and construction project personnel to understand the reasons for the Change Orders. In addition, the Engineering Staff review contracts, agreements, Purchase Orders, drawings, and correspondences related to the Change Orders. If the Engineering Staff determine there is an engineering concern with a Change Order, such as an unnecessary coal conveyor, the Engineering Staff would share its concern with the Commission's Auditing Staff*

and consult with Staff management to determine the approprate response to take to address the concern. [Missouri Staff Report, page 29, lines 3 – 9].

In total, Mr. Elliot testified that Missouri Engineering Staff reviewed 647 Change Orders with a value of over $50,000. Ultimately the Missouri Engineering Staff narrowed the examination to 222 Change Orders that were comprehensively reviewed with particular attention paid to Change Orders with values in excess of $250,000 [Missouri Staff Report at page 30, lines 1 – 16].

Pegasus-Global found this process not only reasonable, but indicative of general industry standards for such audits. Finally, at the conclusion of the Iatan Unit 2 Engineering Review (which included 20 site visits from the start of construction to September 2010) Missouri Engineering Staff "*found no engineering concerns with any of the Iatan 2 or Iatan common plant Change Orders reviewed*" [Staff Report, page 29, lines 11 – 14].

It is clear from the tetimony of Mr. Elliot that the Staff had full access to the Change Orders, from which they could readily determine the reasons why these two contracts had caused the Iatan Project cost to increase over the CBE.

In addition to the Missouri Engineering Staff Change Order review discussed above, Mr. Drabinksi filed testimony in this case that identified a very extensive review of Change Orders, including Change Orderes relating to the Alstom and Kiewit contracts. In all, Mr. Drabinski reported having reviewed a total of 2,376 Change Orders totaling $188,453,498.93 [Drabinski Report at page 204, lines 13 – 14]. Although Pegasus-Global does not agree with Mr. Drabinski's conclusions and opinions relative to those Change Orders, it is apparent that Mr. Drabinski encountered no problems in obtaining the

materials needed to review and anlyze the KCP&L Change Orders and supporting material.

Q: Can you explain how an auditor uses the information contained on line 3 of the Missouri Staff table above to assist it to determine the root cause of the cost increases?

A: Yes. The third item identified above, Construction Indirects, amounts to a total Iatan Project cost variation of $90 million. However, it should be noted that Unit 2 Owner's Indirects was $35 million less than the CBE and this needs to be deducted from the $90, for a net increase of $55 million. Construction indirects, as indicated in the Summation Report, relate to construction management/engineering, including staff (project controls, site inspection, safety etc.), facilites, etc. KCP&L contracted for the vast majority of these services and were retained through contracts and/or Purchase Orders (POs), subject to the similar controls as the Alstom and Kiewit contracts. Therefore review of Change Orders and supplements to POs relating to construction management services provide the same type and degree of information as in the case with the Alstom and Kiewit contracts. Mr. Drabinski in his testimony stated that he had analyzed many of the POs relating to construction management services and support [Drabinski Report page 204, beginning at line 9]. In his testimony Mr. Drabinski stated that analysis of the PO's "*was in-depth and extremely data intensive*" [Drabinski Report at page 204, line 11]. Mr. Drabinski stated that he had reviewed 1,105 initial Purchase Orders with a total value of $1,547,936,307 [Drabinski Report at page 204, lines 13 – 14].

Pegasus-Global could find no reason why the Staff would say that the KCP&L cost control system does not identify and explain any cost overrun above the definative

estimate. It is clear from the Staff tables [Missouri Staff Report at page 35] that they have identified the difference between the CBE and June 2010 Iatan Project costs. Similarly, the Missouri Engineering report, and the direct testmony submitted by Mr. Drabinski, demonstrated that the Change Orders and Purchase Orders provide direct documentation of each change in contract (and thus project) cost and provide the information needed to ascertain the root cause for each of those cost increases.

Q: Has Pegasus-Global reviewed the Missouri Staff recommended disallowances?

A: Yes. Pegasus-Global limited its review of the Missouri Staff's recommended disallowances to those which appeared to flow from the execution of the Iatan Project and not to those which appeared to flow from accounting or financial issues (i.e. mileage).

Q: Did Pegasus-Global review the Missouri Staff recommended disallowance for the May 23, 2008 crane accident for the Unit 1 project?

A: Yes. According to the Staff **[redacted]** was recorded to the Unit 1 AQCS project related to the crane accident which occurred on May 23, 2008 [Missouri Staff Report at page 41, line 6]. Further, according to the Staff KCP&L has previously testified that it had no financial responsibility for costs related to that crane incident [Missouri Staff Report at page 41, lines 13 – 19]. Because of the KCP&L statements which led the Staff to believe that 100% of the costs of that incident will be recoverable, the Staff has taken the position that the **[redacted]** should be disallowed from the rate base for Unit 1 [Missouri Staff Report at page 41, lines 13 – 19]. Pegasus-Global has identified nothing within the project record which suggests that the crane incident or the resulting costs are attributable to any imprudent decision or action by KCP&L; however, given the

statements by the Staff relative to KCP&L statements to it during a meeting on June 11, 2008, Pegasus-Global is not in a position to comment on or address the ultimate responsibility for the costs identified by the Staff. As a result, Pegasus-Global has at this time no definitive opinion relative to the appropriateness of this disallowance from the Iatan Unit 1 project. Certainly, if the **[redacted]** is recovered by KCP&L from other sources then that amount should be adjusted out of the rate base.

Q: Did Pegasus-Global review the Missouri Staff's recommended disallowance for the Campus Relocation on the Iatan Unit 1 and 2 projects?

A: Yes. According to the Staff **[redacted]** of the recorded Iatan Unit 1 project costs and **[redacted]** of the recorded Iatan Unit 2 project costs related to the relocation of the trailer campus on site should be disallowed. The Staff stated that there were two reasons for relocating the project trailer campus: 1) the need to improve access to the turbine generator building for moving the turbine equipment into that building; and 2) to accommodate Kiewit's preferred location for erection cranes. In total the Staff indicated that the campus was moved approximately 100 feet east of its then location. Nowhere in its report did the Staff identify an imprudent decision or action by KCP&L which was directly linked to this proposed disallowance. Rather the Staff identied two "*justifiable reasons why KCPL would agree to incur over* **[redacted]** *in costs to relocate construction trailers*": 1) KCP&L realized the original design and location of the trailers was faulty; or 2) The cost savings or other benefits resulting from relocation would exceed the cost of relocation. [Missouri Staff Report at page 43, line 20 through page 44, line 2]. The Staff in questioning KCP&L staff felt they had not received an adequate response from KCP&L relative to this cost and, as a result, found the total cost to have

been "inappropriate". In reviewing the issue Pegasus-Global found nothing in the project record which pointed to any imprudent decision or action by KCP&L. The original site layout was completed in the fall of 2006, well in advance of any detailed design having been received from either Toshiba or Alstom, which means that at the time the campus location planned by KCP&L was based on very preliminary and limited information relative to the size of the various structures and facilities which would ultimately be constructed to house the boiler or the turbine generator. By the time that information had been received (in 2007) much of the trailer campus had been located and set. As the plans for construction of the facilities were prepared (by KCP&L early and later Kiewit) Kiewit was concerned that the location of the campus posed difficulties to both the turbine equipment movement (access) and the safety of site personnel (crane siting and load swing paths). Such issues are normal in projects which are large, complex and involve multiple contractors, vendors and suppliers. Pegasus-Global found nothing that would lead it to believe that the original siting of the campus was imprudent and certainly found nothing imprudent in either improving equipment access or improving site safety in moving the campus.

Q: Did Pegasus-Global review the Missouri Staff's recommended disallowance based on the JLG Accident for the Iatan Unit 1 and 2 projects?

A: Yes. According to the Staff **[redacted]** of the Iatan Unit 1 project costs and **[redacted]** of the Iatan Unit 2 project costs should be disallowed as a reasult of an accident involving a JLG boom belonging to one of Alstom's subcontractors. In summary, the Staff, citing KCP&L reports which show the original KCP&L position shifting from Alstom and its subcontractor being totally responsible for the costs related

to the accident to one in which KCP&L was willing to share some of the costs related to the accident. The Staff "*concludes that KCPL developed a strong case of why it bore no responsibility for the cost of this accident. Staff does not believe it was reasonable and prudent for KCPL to enter into this settlement agreement and pay any costs for the JLG accident*" [Missouri Staff Report at page 46, lines 29 – 32]. Pegasus-Global found nothing in the project record that demonstrates that the decision to settle this issue with Alstom flowed from any imprudent decision or action by KCP&L. There are times in every project when owners and contractors must reach a compromise from what appear to be iron clad positions on both sides; although the Staff has examined KCP&L's initial decision and subsequent reversal of that decision, it has not addressed Alstom's own initial decisions and subsequent reversals. Pegasus-Global noted that the issue was a matter of contention between KCP&L and Alstom for a period of over seven months (August 2007 thorugh March 2008), yet there is no indication that either party allowed that unresolved issue to impact or delay the execution of the project. In Pegasus-Global's experience sometimes the final resolution of any issue requires both parties to approach compromise from their initial positions. All too often such seemingly minor issues and dollar amounts become elements of huge claims and legal disputes. In weighting all of its alternatives to resolution of this issue KCP&L appeared to carefully examine all of its options and, absent Alstom's agreement to resolve this issue on KCP&L's terms (with KCP&L paying nothing), KCP&L took action to resolve the issue and avoid it becoming an element in a major dispute. Pegasus-Global has encountered exactly this same dilemma during its work on almost every major construction project and while the

resolution may not appear "fair" from KCP&L's point of view, moving to resolve the issue to prevent it from becoming part of a larger dispute was not imprudent.

Q: Did Pegasus-Global review the Missouri Staff's recommendation for disallowance based on the Construction Resurfacing Project for the Iatan Unit 1 and 2 projects?

A: Yes. According to the Staff **[redacted]** of the Iatan Unit 1 project costs and **[redacted]** of the Iatan Unit 2 project costs should be disallowed due to the need to resurface the construction site. In part this issue is tied to the JLG crane incident discussed above, as that incident may have been, in part, attributable to soil conditions on site. Specifically, the concern expressed by contractors was that the soil conditions as they existed then would not support the movement and operation of heavy construction equipment which is vital to construction of power plants. This issue is first and foremost a safety issue as the failure of equipment on heavy construction sites generally results in serious injury and even loss of life. Pegasus-Global finds nothing at all imprudent about KCP&L's decision to take actions to protect life after the JLG accident. Relative to the Alstom claim, any resurfacing on a "tight" construction site may delay and disrupt a contractor's work and because Alstom's work was at the core of the entire site it is easy to understand how any resurfacing activites had the potenital to impact that work. Therefore Alstom had what it believed to be a sound claim for delays and disruptions to its work due to the resurfacing work and, as an EPC fixed price contractor Pegasus-Global would expect Alstom to pursue recovery of any of those impact costs. Again, Pegasus-Global found nothing imprudent relative to KCP&L acknowledging a vaild claim and agreeing to pay a valid impact cost. However, the Staff has not made any assertion of imprudence relative to this issue but has rather, relied on its understanding

that this cost was recommended for disallowance by Mr. Drabinski in his Unit 1 testimony filed before the Kansas Commission and that KCP&L "*agreed not to challenge the KCC staff adjustment to remove the costs from this settlement from the Iatan Project*" [Missouri Staff Report at page 47, lines 20 – 22]. Pegasus-Global is aware of Mr. Drabinski's testimony on this issue and rebutted that testimony noting that "*Vantage has not suggested that this cost resulted from any imprudent KCP&L management decisions or actions, simply opining 'does not appear to be any basis for inclusion in rate base'*. Pegasus-Global found that there was no evidence of imprudence, nor did Mr. Drabinski cite any imprudent action or decision [Nielsen Direct Testimony, Kansas Commission Docket No. 09-KCPE-246-RTS, page 74 lines 23 – 26]. Whether or not KCP&L agreed not to challenge the Kansas Staff's removal of the cost from the settlement does not change Pegasus-Global's findings relative to this issue.

Q: Did Pegasus-Global review the Missouri Staff's recommendation for disallowance based on the July 18, 2008 Alstom Settlement for the Iatan Unit 1 project?

A: Yes. According to the Staff it "*is taking the position in this case to remove the* ** [redacted] ** *settlement payment by KCPL to Alstom. In addition, the Staff is reducing the cost of the Iatan Project by the* ** [redacted] ** [Staff Report at page 57, lines 25 – 28]. That results in a total disallowance of ** [redacted] .**

Q: Do you agree with the Missouri Staff's position on this matter?

A: No. First, the Staff does not identify any specific KCP&L management decisions or actions which it found imprudent relating to this proposed disallowance.

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Second, the Staff in its determination of the proposed ** [redacted] ** disallowance has relied upon two different sources in its attempt to determine KCP&L imprudence and to quantify the costs associated with the alleged imprudence. Neither of which is an acceptable basis or approach for determining imprudent management or related costs.

** [redacted]

[107] Direct Testimony of Walter P. Drabinski on behalf of Kansas Commission, Docket No. 09-KCPE-246-RTS, page 25, lines 8 – 10, February 3, 2009

[redacted]

[redacted]

Q: Does Pegasus-Global agree with the Missouri Staff's position on liquidated damages as they pertain to the Alstom Settlement?

A: No. the Staff stated that "*if the Alstom Settlement is allowed to stand, KCPL's customers will suffer the harm of KCPL management's decision not to pursue liquidated damages against Alstom*" [Missouri Staff Report at page 59, lines 14 – 16]. Ultimately, the Staff disallows **[redacted]** based on KCP&L's surrendering the right to impose LDs on Alstom for delay for which Alstom may be responsible [Staff Report at page 57, lines 25 – 28]. The Staff's position that KCP&L gave up **[redacted]** in LDs is both incorrect and founded on an unreasonable assumption. First, **[redacted]

[redacted]

[108] Rebuttal Testimony of Dr. Kris R. Nielsen before the Kansas Commission, Docket No. 10-KCPE-415-RTS, page 41, line 19 through page 42, line 2,l July 2010

[redacted]**

Second, to impose LDs on a contracting party the owner must prove that the contracting party is solely and completely responsible for the delay events or issue which can be proven to have been the direct cause of those delays. By disallowing the entire **[redacted]** of LDs the Staff has taken the position that Alstom was solely and completely responsible for every issue or event which may have ultimately impacted the critical path of Alstom's schedule; this is simply not a creditable position in the real world of construction and, in particular, construction claims and disputes. Imposition of LDs almost always leads to disputes, which then places the owner in the position of proving its right to impose those LDs under the contract which means that KCP&L would have to

undertake a very expensive and time consuming analysis to achieve that level of proof. None of the money spent on that analysis is recoverable from the contractor given that the owner bears the burden to prove its allegations. Because every event or issue must have a direct impact on the contractors critical path, simply saying a contractor was late in doing something is not good enough and in more instances than not the contractor can point to some concurrent delay for which the owner was responsible which the contractor will assert were the "real" cause of the delay to achievement of the critical path of the project. In short, while KCP&L may have had the contractual right to impose ***[redacted]** in LDs is not at all the same thing as being able to clearly and completely prove that Alstom was solely and completely responsible for every day of delay to its critical path of the Iatan Project schedule.

In Pegasus-Global's opinion KCP&L's decisions concerning liquidated damages were reasonable and prudent given the difficulty of proving and enforcing any delays which may or may not have been Alstom's responsibility at the time, while at the same time preserving the right to impose liquidated damages in the future should Alstom not meet the revised project schedule milestones.

Q: Does Pegasus-Global have other observations relative to the Missouri Staff's report relative to the Iatan Unit 1 project settlement with Alstom?

A: Yes. The Staff's argument in support of that **[redacted]** disallowance is long and somewhat difficult at times to follow.

First, after stating that it "*recognizes that force majeure claims and other potential claims by contractor may occur on this project through no fault of KCPL*" [Staff Report at page 56, line 16 – 18] the Staff "*believes B&McD is likely responsible for much if not all of the*

claims asserted by Alstom that resulted in the settlement" [Missouri Staff at page 57, lines 29 – 30]. **[redacted]

[redacted]**

Finally, the most fundamental flaw in all of the Staff's arguments is the assumption that KCP&L would prevail on every claim raised against the Iatan Project by Alstom and Alstom would fail to prove any delay damages which would negate KCP&L's ability to collect LDs. This is simply not a credible possition to take now, or from which KCP&L and Alstom could argue in attempting to settle the disputes between them in 2008. No one can predict the outcome of a claim which may have to be resolved in a litiagated dispute, and that is one of the factors that must be weighed by both parties when facing claims and disputes.

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Second, as noted earlier in this testimony the Staff takes the position that KCP&L would have been entitled to recover all ** [redacted] ** in LDs. As also noted earlier in this testimony, such a conclusion is not realistic. For example, in late 2008 through early 2009 there were two events beyond the control of Alstom that impeded Alstom and the Iatan Project completion. The first event occurred November 8, 2008, when cracking of the Unit 1 boiler economizer casing was discovered. For safety reasons that cracking had to be rectified prior to placing the boiler back into service. That issue would have prevented Alstom from completing the commissioning of the Unit 1 AQCS. The second event occurred on February 4, 2009 and involved high vibration on the turbine, which ultimately required the rotor to be sent to a GE facility for remedial work. The rotor was returned to the site on February 28, 2009, which further delayed Alstom's commissioning program. These two events, both of which related to existing Unit 1 equipment and thus attributable to no specific party, delayed commission of the Alstom Unit 1 AQCS. KCP&L would have been prevented from assessing liquidated damages against Alstom during those time periods, even if it could be proven that Alstom was also late in completing any of its milestone work for reasons which where within its control (concurrent delays). These examples are not unique as in any mega-project there will generally be multiple issues that must be taken into consideration when considering the imposition of LDs.

Ultimately the Staff's basis for this ** [redacted] ** disallowance has not been supported by any reasonable level of analysis or evaluation, which is why the ** [redacted]

[redacted]

[redacted]

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[redacted]**

Q: Is this the first time Pegsus-Global has testified on the July 2008 settlement agreement between KCP&L and Alstom?

A: No. Pegasus-Global testifed on this issue during the Kansas Commission Iatan Unit 1 proceedings. As noted above in his testimony in that proceeding Mr. Drabinski recommending that 50% of the **[redacted]** settlement be removed from the rate base [Nielsen Direct Testimony before the Kansas Commission, Docket No. 09-KCPE-246-RTS, page 76, line 21]. Pegasus-Global has not revised its findings since the Kansas Commission Docket. **[redacted]

[redacted]

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[redacted]

4. [redacted] **

Q: What is Pegasus-Global's opinion relative to the prudence of the July 2008 settlement between KCP&L and Alstom?

A: Although the Staff has stated that there is a "*lack of justification of this settlement put forth by KCPL*" [Missouri Staff Report at page 63 line 17] Pegasus-Global has reviewed

literally hundereds of pages of documentation and testimony from numerous witnesses relative to all of the omnibus settlements reached on the Iatan Project and at no point found that KCP&L acted imprudently in the face of all the facts and all the possible scenarios considered by KCP&L in reaching those settlements. Perhaps the best example of that prudence is KCP&L engaging a completely independent party to mediate those very complex issues and disputes which arose between the parties. That independent mediator had no stake in the Iatan Project whatsoever other than to attempt to resolve issues equitably among the parties without the parties having to resort to other much more costly venues such as ligation. Given the magnitude of the Staff's disallowance, it should be based on more than a few passages from audit reports and some unrelalistic expectations concerning KCP&L being able to prevail on every claim submitted by Alstom.

Q: Did Pegasus-Global review the Misssouri Staff's Recommendation for disallowance based on the January 2010 Alstom Settlement for the Unit 2 project?

A: Yes. According to the Staff it "*can only identify* ** [redacted] ** *of costs related to this settlement charged to the Iatan 2 project as of June 30, 2010. The Staff understands approximately* ** [redacted] ** *additional costs have been charged to the project after June 30, 2010. The Staff will address these costs in its true-up Iatan 2 audit*" [Missouri Staff Report at page 65, lines 9 – 13].

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

A: ** [redacted]

[redacted]

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

[redacted]

[redacted]**

Q: **[redacted]

[redacted]**

A: **[redacted]

[redacted]

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

[redacted]**

Q: **[redacted]**

A: **[redacted]

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

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

[redacted]

[redacted]**

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

A: No. By the summer of 2009 the Iatan Project was entering a transitional phase from construction to startup testing and commissioning. Such transitions are not immediate, they are gradual as systems are finished and turned over to the group responsible to start and test those systems. The transition occurs as the construction schedule moves from being driven by construction activities to being driven by the plant commissioning team's preferred sequence for system completion and turn over. In July 2009 Alstom, Kiewit and KCP&L negotiated and set the system CTO date milestones and began tracking the system progress by schedule fragnets established for each of those systems (see earlier testimony above). It is normal within the power industry to make a transition to a system turnover driven finish from a bulk construction phase. It is also normal for the parties to engage in a detailed examination of the turnover packages, the work remaining to complete construction, the preferred sequence of systems turnover, etc., and then to negotiate the final schedule to achieve those CTO dates.

Q: **[redacted]**

A: **[redacted]**

[redacted]

Q: **[redacted]**

[redacted]

A: **[redacted]**

[redacted]

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

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]**

Q: **[redacted]

[redacted]

[redacted]**

A: **[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

[redacted]

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[redacted]

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

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

Q: Did Pegasus-Global review the Missouri Staff's recommendation for disallowance based on the Alstom WSI welding services?

A: Yes. At page 100 the Staff recommended "*the disallowance from recovery of $12.7 million related to payment by KCP&L to Alstom for additional welding services*" [Missouri Staff Report at page 100, lines 29 – 30]. However, the Staff indicated that it had learned of this imprudence disallowance via the rebuttal testimony filed by Pegasus-Global in the Kansas Commission case (Docket No. 10-KCPE-415-RTS), and essentially repeats much of the testimony rendered by Pegasus-Global within its testimony [Missouri Staff at pages 100, line 30 thorugh page 101 line 26]. The Staff simply noted that "*Staff could find no evidence that the Alstom delays and inefficiencies that led to this being behind schedule were the result of actions by KCPL or other parties. As a result, Alstom should be responsible for the cost of employing WSI to get back on schedule, not KCPL*"

[Missouri Staff Report at page 101, lines 17 – 20]. Pegasus-Global disagrees with Staff's conclusion as quoted above as the fact that no "evidence was found" does not automatically mean that the root cause has to be either Alstom or KCP&L. In its statement is, in hindsight, substituting its own judgement for that of KCP&L's judgment made at the time. Pegasus-Global did conduct a full analysis and did conclude that the payment of the WSI welding costs by KCP&L was imprudent; however, Pegasus-Global based that opinion on a close examination of all the facts known at the time and the various avenues of recourse open to KCP&L; not by substituting Pegasus-Global's judgment for KCP&L's in hindsight. As indicated earlier in this testimony, the Staff has not presented a prudence review of KCP&L at all.

Ultimately, the Staff adopted and accepted Pegasus-Global's disallowance recommendation relative to this issue. Pegasus-Global's full analysis and findings relative to the WSI issue was addressed in detail in **Section V** of this testimony.

Q: Are there any modifications to the testimony rendered relative to the WSI welding issue in the Kansas Commission case and that rendered here before the Missouri Public Service Commission?

A: No, there are no differences. Pegasus-Global has made the same recommended disallowance of $12,714,596.40 that was made in the Kansas Commission case. Pegasus-Global's full findings, conclusions and recommendations were based on a finding of imprudence and are contained in **Section V** of this testimony.

Q: Did Pegasus-Global review the Staff's recommendation for disallowance based on the Temporary Auxiliary Boiler?

A: Yes. the Staff recommended "*disallowance from recovery of $7.75 million incurred by KCPL related to the use of a temporary auxiliary boiler at Iatan Unit 2*" [Missouri Staff Report at page 101, lines 29 – 30]. As with the WSI issue, the Staff again primarily relied on testimony filed by Pegaasus-Global relative to this issue with the Kansas Commission (Docket No. 10-KCPE-415-RTS). The Staff stated that "*For the purposes of this report, the Staff has relied upon the accuracy of Mr. (sic) Nielsen's quantification of the $7.75 million disallowance. Staff will true-up this cost number in its January 2011 true-up Report*" [Missouri Staff Report at page 102, lines 18 – 21]. As with the WSI issue, Pegasus-Global's full analysis and recommendations as rendered in the Kansas Commission case have been repeated in **Section V** of this testimony.

Q: Are there any modifications to the testimony rendered relative to the temporary auxiliary boiler in the Kansas Commission case and that rendered here before the Missouri Public Service Commission?

A: Yes. At the time the analysis was completed on the Kansas Commission testimony KCP&L was still using the temporary auxiliary boiler exquipment and was projecting to use that equipment into the fourth quarter of 2010. As a result, using actual costs to date (July 2010) Pegasus-Global estimated the total cost of that equipment at $7,754,454. However, KCP&L was able to complete its startup and commissioning earlier than then planned and released the temporary auxiliary boiler equipment sooner than anticipated. Pegasus-Global examined the actual final costs incurred by KCP&L at the point the equipment was released and for this MPSC testimony adjusted its disallowance down to that actual cost incurred by KCP&L of $5,346,049. Again, **Section V** of this testimony reviews Pegasus-Global's findings, conclusions and recommendation relative to the

temporary auxiliary boiler. The basis of the adjustment to the recommended disallowance is also discussed in **Section V** of this testimony.

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

A: Yes. Pegasus-Global conducted a detailed examination of Mr. Drabinski's disallowance testimony in an attempt to understand the amount of the recommended disallowance and to determine the processes by which Mr. Drabinski arrived at those disallowance figures. In general Pegasus-Global found that Mr. Drabinski's disallowance testimony to be inconsistent and unsupported as there are several different "disallowance theories" presented within that testimony, which do not follow accepted utility industry prudence standards or methods of analysis as presented earlier in this testimony. Beginning at page 160 of its Direct Testimony, Mr. Drabinski presents a number of alternative cost disallowance scenarios, including the following:

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

Pegasus-Global examined each of those Drabinski disallowance categories in depth. The Pegasus-Global response regarding Mr. Drabinski's analysis of the budgets and reforecasts and the Purchase Orders and Change Orders has been previously addressed in my testimony.

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

A: Yes.

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

A: Pegasus-Global first looked at new coal plant construction cost information that would have been available throughout the project definition phase of the Iatan Unit 2 project up through the end of 2006 in order to consider what information would have been available to KCP&L at the time they were making a number of major decisions regarding the execution of Iatan Unit 2 project and the project budget was being finalized. Pegasus-Global next investigated information related to the reported large increase in materials costs and plant costs that occurred through the construction phase. Finally, Pegasus-Global considered total plant costs and cost estimates through the point at which Iatan Unit 2 project achieved Commercial Operation in 2010.

Information sources reviewed were all publicly-available and included consultant research regarding coal-fired power plant construction costs, such as; the CRS report for Congress on Power Plants, Characteristics and Costs; the Michigan Capacity Needs Forum, Staff Report to the Michigan Public Service Commission; Fitch ratings for the Iatan Unit 2 project; reports prepared for the National Coal Council and the Department of Energy; reports by the U.S. Carbon Sequestration Council; Reports prepared by the MIT Center for Energy and Environmental Policy Research; individual scholarly research papers; testimony prepared by officers of Louisville Gas and Electric Company and Kentucky Utilities Company in its application for adjustments in base rates; information prepared by the National Energy Technology Laboratories; various presentations made at Energy Conferences in the U.S.; reports prepared for the Nuclear Energy Institute; and,

studies prepared for specific coal fired power plants that also use comparative information. These would be the types of information that would be available to utility executives to use when new estimates of the cost of a plant were evaluated or adapted. Pegasus-Global reviewed all these materials to determine what measures would allow Pegasus-Global to perform comparisons.

The following factors were considered when Pegasus-Global performed its comparative review:

- Timing of the plant construction;
- Date the data represented (data date);
- Type of coal plant;
- Type of fuel to be used;
- Plant size in MW;
- Any common plant costs shared with other facilities; and
- Issues faced by other coal plants that were noted to have increased final costs.

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

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

- Engineering, procurement and construction cost - the primary costs for building the plant. It includes the cost of designing the facility, buying the equipment and materials, and construction. In multi-unit power generating facilities, it is

important to carefully consider how "common" costs that would benefit more than one power generating unit are allocated and accounted for;

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

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

Thus, it is important to understand what the costs include before making comparisons, because there is a wide variation in costs depending on what factors are considered in identifying which specific plants might be possibly used in a plant comparison analysis and/or how to read reports relative to industry averages. All of the factors that are listed

above can swing the cost significantly and without putting that cost into context, the cost comparison may be mixing apples and oranges, thus making any analysis that does so meaningless and not useful to the purpose for which it was intended.

For cost comparison purposes, Pegasus-Global reported overnight plant costs, without financing costs or inflation, in dollars per kilowatt ($/kW) for the specified construction year. Power plant costs are often reported and discussed in $/kW, because this normalizes for plant size differences (to some extent) and enables consideration of inflation effects separately from the base plant costs. Note that the construction year reported is often not the same as the report or analysis year.

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

A: Based on the analysis of the information Pegasus-Global reviewed, Pegasus-Global determined that the Iatan Project budgeted total plant cost was in line with industry averages at the escalation rates existing through 2006; the actual cost was below the predicted average plant overnight costs for similar plants constructed in 2010; and the actual plant cost is comparable to other coal plants of its size, type of fuel used, and the time period in which it was constructed. Pegasus-Global also determined that the cost overruns and delay in COD experienced by the Iatan Project were comparable to other cost overruns and delays that were being experienced by similar plants as described in the above testimony and were the result of similar issues faced by the Iatan Project.

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

A: Yes. Several consultants, academic institutions, research organization and government agencies have conducted analyses of the cost of electricity from various generating options, which often include information on average power plant construction costs. Analyses that included overnight construction cost estimates for supercritical pulverized coal plants that were available in 2006 were compiled and are shown in **Figure 1**. Analysis results shown in **Figure 1** are from a 2003 study by the MIT Center for Environmental Policy and Research (2002 data);[114] from an analysis done by the Michigan Public Service Commission Capacity Needs Forum;[115] and, the National Coal Council.[116] In addition, Synapse Energy Economics prepared a report in July 2008 entitled "Coal-Fired Power Plant Construction Costs", which compared a number of coal plants, including the cost overruns that had been experienced to date. This report notes that companies in 2005 were expecting construction costs between $1,500/kW and $1,800/kW.[117] Such information would also have been available to KCP&L, either first hand from power companies or through regular Department of Energy/NETL reports on power generation. One can see in **Figure 1** that over the years 2004 through 2006, when KCP&L was defining and developing the Iatan Unit 2 project, coal plant construction costs were reported to be increasing gradually and at a moderate rate (about 4.5% per year). The Iatan Unit 2 project CBE fixed in November 2006 is added to the graph to show how it falls relative to the construction costs existing at the time.

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[114] "Future of Nuclear Power" MIT 2003, in MIT Center for Energy and Environmental Policy Research, "Update on the Cost of Nuclear Power", by Yangbo Du and John E. Parsons, May 2009, pages 22-23
[115] Michigan Capacity Needs Forum: Staff Report to the Michigan Public Service Commission, page 24
[116] Opportunities to Expedite the Construction of New Coal-Based Power Plants, National Coal Council Report, Library of Congress #2005920127, page 27
[117] Synapse Energy Report, page 1

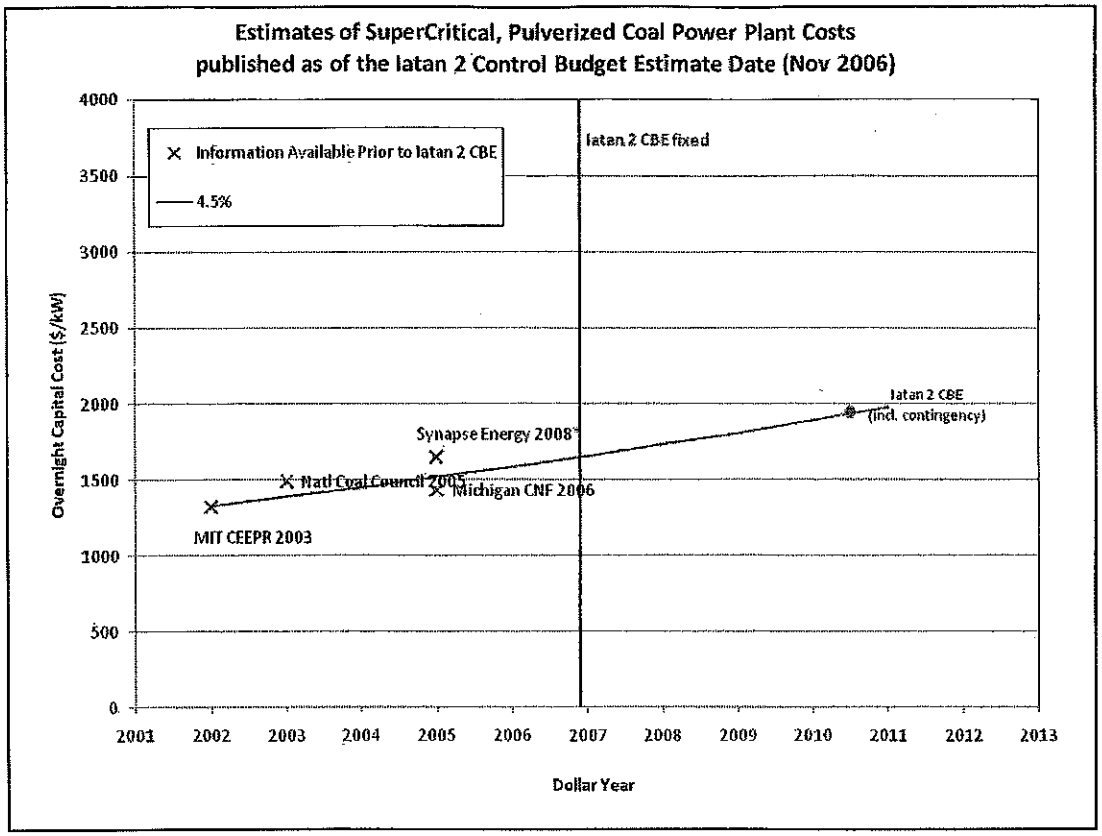

Figure 1- Average overnight pulverized coal plant construction costs, 2002-2006

However, a tightening of the construction commodities markets was already becoming apparent and was reflected in higher prices and longer lead times (described earlier in this testimony). In May 2006, B&V made a presentation regarding building new baseload generation in the Midwest. While no specifics on total plant cost numbers were provided, B&V did note that coal plant costs were increasing due to 1) price escalation on commodities, such as, steel, copper and alloy, 2) AQCS equipment was an extremely tight market due to ongoing retrofit work, 3) boiler prices were increasing, and 4) the

E&C industry was very "tight" with a limited number of capable players.[118] KCP&L considered these price increases and also added a substantial contingency fund when it set the CBE in November 2006, which was otherwise largely based on the estimate prepared in May of that year (see earlier testimony). Even with these considerations, the Iatan Project CBE lies right on a projected line increasing at a steady 4.5% per year from 2003 (see **Figure 1**).

Power cost and plant construction analyses published in early 2007 began to reflect sharp increases in total plant construction costs, largely due to the increases in commodity pricing and the generally tight market surrounding power plant construction (see earlier testimony). These costs continued to increase at unprecedented and unpredictably high rates throughout the Iatan Unit 2 project construction period. For example, B&V prepared a study for Florida Power & Light in January 2007 which screened level overnight capital costs for four coal technologies. The estimate was based on B&V's proprietary estimating templates and experiences. B&V noted that capital cost estimates for all power generation technologies were exhibiting considerable upward trends and that market pricing of technology components, coupled with commodity and labor demand worldwide, was rapidly escalating capital costs. 2006 dollars indicated the cost of a SPC coal plant, exclusive of owner cost or escalation, to be $1,540/kW (**Figure 2**). B&V projected a 2012 cost based on the same assumptions to be $2,925/kW.[119]

However, as noted in the CRS November 13, 2008 Report for the U.S. Congress, construction costs for power plants have escalated at an extraordinary rate since the

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

[119] Black & Veatch, January 2007, Clean Coal Technology Selection Study, Final Report, Table 1-5, page 1-6

beginning of the decade and the cost of building a power plant increased by 131% between 2000 and 2008. Costs were reported as increasing by 69% just since 2005. The factors cited for the cost increases were:[120]

- *High prices for raw and semi-finished materials, such as iron ore, steel and cement.*
- *Strong worldwide demand for generating equipment. China, for example, is reportedly building an average of about one coal-fired generating station a week*
- *Low value of the dollar.*
- *Rising construction labor costs, and a shortage of skilled and experienced engineering staff.*

Nine SCPC coal plants ranging from 580MW to 1000MW were studied in the November 2008 CRS Report with COD projected in 2012 or 2013. The average overnight cost per kW was $2,519 and the rounded average was $2500/kW.[121] These costs are added to the previous graph in **Figure 2**, along with both the Iatan Unit 2 project control budget estimate of 2006 and the June 2010 forecast at completion (shown in red). The Iatan cost rates are calculated by dividing the CBE of $1.685B and the June 2010 completion estimate of $1.988B (respectively), without AFUDC, by 850 kW.

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[120] Congressional Research Service (CRS), Report for Congress, "Power Plants: Characteristics and Costs", November 13, 2008, page 18

[121] Congressional Research Service (CRS) Report for Congress, "Power Plants: Characteristics and Costs", November 13, 2008, page 73 - 75

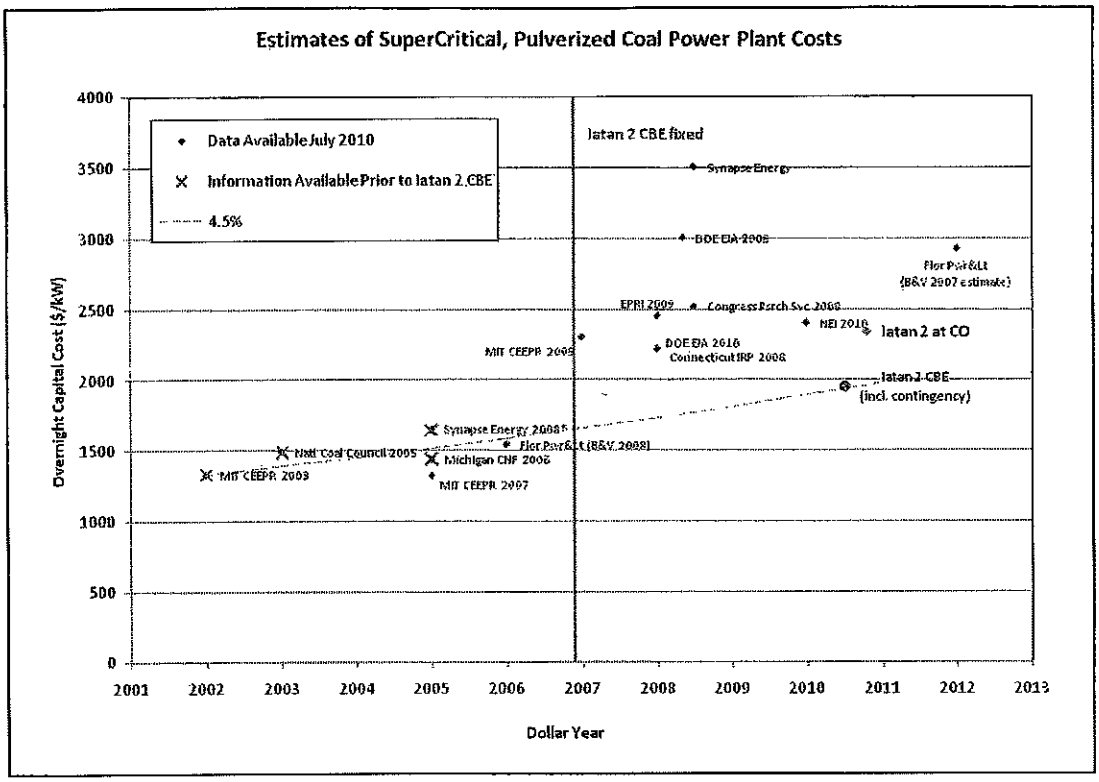

Figure 2- Study estimates of coal plant overnight costs, 2003 - 2009 analyses.

In January 2008, the Brattle Group, under contract to Connecticut Light and Power and United Illuminating, published an Integrated Resource Plan (IRP) for the state of Connecticut. The IRP assumed the overnight capital costs for a SCPC plant to be $2,214/kW[122]. The Nuclear Energy Institute (NEI) prepared a model in 2010 from cost estimates from recent regulatory filings for projects that provides an EPC cost for a SCPC of $2250/kW and a total cost (includes EPC cost, owner's costs, and financing) of $2400/kW.[123] An April 2008 presentation at the Energy Information Administration

[122] January 1, 2008 Integrated Resource Plan for Connecticut, The Brattle Group, Table C.2, page C-4
[123] Nuclear Energy Institution February 2010 White Paper "The Cost of New Generating Capacity in Perspective", page 12

(EIA) 2008 Energy Conference indicated that the cost of a new pulverized coal boiler, including financing costs would in the range of $2500-$3500/kW.[124] The 2008 Synapse report included the following findings and conclusions:

> *"Construction cost estimates for new coal-fired plants are very uncertain and have increased significantly in recent years. The industry is using terms like "soaring", "skyrocketing", and "staggering" to describe the cost increases being experienced by coal plant construction projects. In fact, the estimated costs of building new coal plants have reached $3500 per kW, without financing costs, and are still expected to increase further. This would mean a cost of well over $2 billion for a new 600 MW coal plant when financing costs are included. These cost increases have been driven by a worldwide competition for power plant design and construction resources, commodities, equipment and manufacturing capacity. Moreover, there is little reason to expect that this worldwide competition will end anytime in the foreseeable future.*[125]

Similar increases were noted in several of the materials reviewed. For instance, in the report done for the National Coal Council in 2004, the total plant cost of a SCPC plant in 2003 dollars was only $1,290/kW with the total capital requirement being $1,490/kW.[126] The Center for Energy and Environmental Policy Research (a joint center of the MIT Department of Economics, MIT Energy Initiative, and Sloan School of Management) prepared an update on the cost of nuclear power in May 2009 that compared nuclear to

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[124] EIA Presentation by J. Heller, April 8, 2008, "New Baseload Coal Generation: Warts and All", Slide 17
[125] Synapse Coal Fired Power Plant Construction Costs, July 2008, page 1
[126] Opportunities to Expedite the Construction of New Coal-Based Power Plants, National Coal Council Report, Library of Congress #2005920127, page 27

the cost of coal.[127] Included within the May 2009 update was a discussion of the 2003 MIT Future of Nuclear Power study that was performed, which estimated that for a 1,000MW pulverized coal burning plant, in 2002 dollars the cost would be $1,300/kW capital cost. Also included within the May 2009 update were numbers from the 2007 MIT "Future of Coal" study which evaluated a broader set of coal-fired designs, including supercritical pulverized coal, and had a standardized overnight cost range of $1,280kW to $1,360/kW in 2005 dollars. The 2009 MIT study analyzed four SCPC plants whose overnight cost estimates ranged from just under $2,000/kW to just over $3,000kW. The MIT study noted that its central estimate of $2,300/kW was very close to the EPRI (2008) figure of $2,450/kW for a conventional supercritical pulverized coal plant.[128]

These capital costs estimates are consistent with other research that has been performed on the cost of constructing SCPC coal plants.

The DOE's EIA provides publically available documentation for the National Energy Modeling System (NEMS) model which it uses to project future energy trends for the United States. EIA's documentation includes the assumptions made by EIA regarding the capital and operating costs of system to generate electric power. In the May 2010 U.S. Carbon Sequestration Council Report, 2008 dollars are provided for a number of new

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[127] MIT Center for Energy and Environmental Policy Research, "Update on the Cost of Nuclear Power", by Yangbo Du and John E. Parsons, May 2009, pages 22-23

[128] MIT Center for Energy and Environmental Policy Research, "Update on the Cost of Nuclear Power", by Yangbo Du and John E. Parsons, May 2009, pages 27-28

power plants, including pulverized coal.[129] The overnight cost per kW was $2,223. As noted in this report:

> "*The general trend is that prices* [for aluminum and copper] *were stable for several years prior to 2003, then rapidly escalated through mid-2008 (typically doubling earlier costs) then declined through early 2009 before recovering somewhat in the last half of 2009. Power plant cost estimates based on price behavior to 2004 did not anticipate this jump in construction material costs, and there is no certainty regarding where future commodity prices will stabilize, or if they will stabilize.*
>
> *A 2009 analysis by CERA* [Cambridge Energy Research Associates] *concluded that power plant capital costs had more than doubled between 2000 and the third quarter of 2009.*"

Q: What is Pegasus-Global's conclusion relative to the current cost of the Iatan Unit 2 project versus its original plan cost in comparison to similar plants being constructed?

A: The current ** [redacted] ** of the Iatan Unit 2 project is comparable to other similar coal plants being constructed in the same period. The cost overruns and delay in commercial operation date are also comparable to other SCPC plants constructed over the same period for similar reasons. Pegasus-Global notes that other utilities have made similar comparisons in their cost per kW comparisons and found similar results. For example, Paul Thompson, Sr. Vice President Energy Services of Louisville Gas and

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[129] May 2010 U. S. Carbon Sequestration Council, "Prospecting for Power: The Cost of Meeting Increases in Electricity Demand, page 14

Electric Company and Kentucky Utilities, in his testimony regarding an adjustment of base rates regarding the Trimble County 2 project, noted that the current market estimate was between $2,400-$3,000/kW.[130] Further, Fitch, in its March 2009 rating on the MJMEUC series 2006A and 2006B for the Iatan Unit 2 project assigned a rating "A" noting that:

> *"The Project has experienced some delays and cost overruns that have increased the original estimated installed cost of $1,738 per kilowatt (kW) to the current estimate of $2,245 per kW. While this increase in the total project cost is notable, the projected "all-in" cost of power production is still competitive for the region."*[131]

It is Pegasus-Global's determination that the information available to KCP&L during the course of the Iatan Unit 2 project for its decision making process and decisions demonstrates that the decisions made by KCP&L were consistent with the industry information available to it and that the cost per kW and the cost overruns experienced by the Iatan Unit 2 project are comparable with those in the industry.

Delays in commercial operation dates range from two to nine months for SCPC projects for which Pegasus-Global has reliable data available (see **Table 4 Delays in Commercial Operation Dates**). The Iatan Unit 2 project delay is well below the average of five and half months.

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[130] Testimony of Paul W. Thompson, January 29, 2010, KY PSC, Case No. 2009-00548 and 2009 – 00549, page 7
[131] Business Wire, March 9, 2009, "Fitch Rates Missouri Joint Municipal Electric Utility Commission Revs "A"