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March 21, 2012

Jeffrey Johnson, Chairman
Guam Public Utilities Commission
Suite 207, GCIC Building
Hagåtña, Guam 96932

Re: Review of GPA Fuel Hedging Petition—PUC Docket 10-03

Dear Chairman Johnson,

This letter is in response to the January 11, 2012 request of the Public Utilities Commission ("PUC") of Georgetown Consulting Group, Inc. ("GCG") to review the fuel oil hedging petition of the Guam Power Authority ("GPA") dated December 22, 2011. GPA's petition requests approval by the PUC of a new Fuel Hedging Protocol which GPA proposes to implement to mitigate the volatile impact of changes in fuel oil prices on consumers.

Regulatory Background

GPA has had in place a fuel oil hedging program for over a decade. This program consisted of using no-cost collars (the simultaneous acquisition of calls and off-setting puts) whereby GPA would establish an upper and lower band around a price of fuel oil. The costless collar hedging mechanism was in place through the 2000's and into late 2008 at which time worldwide fuel markets were extremely volatile resulting in a total collapse in the market price of crude from approximately \$135 per barrel to \$35 per barrel, with refined oil dropping to below \$50 per barrel. GPA had no price protection below the put values associated with its then existing costless collars. As a result, Guam residents and businesses were required to incur a significant loss as a result of GPA hedging activities. Based on the data provided by GPA in its petition, the cumulative loss for the hedging program since its inception was somewhere on the order of \$60+ million. While the objective of the hedging program as implemented was clearly stated to provide a smoothing of volatile price movements and not to seek a "profit" or gain from this activity it is of obvious concern that such a program, using fuel experts from the industry, could result in a substantial loss to consumers – a consequence not envisioned by the experts. Evaluation of the proposed program must keep in mind this experience and monitor results closely to prevent to the degree possible this from reoccurring.

During the period of the 2000's through 2008 relatively few regulatory constraints on GPA's hedging program were in place, other than GPA had requested and the PUC had approved costless collars as the only means of hedging. In transmittals to the PUC, GPA also indicated that it would follow a "disciplined approach" to regularly executing hedges every quarter and believed that the program would be beneficial to consumers. There did not exist any periodic reporting and review of the hedging procedures—other than GPA responses to information requests from the PUC as part of the semi-annual LEAC filing process wherein it would provide basic information on the hedges it had executed and implemented. Based upon a limited review during the late 2000's and from interim discussions with GPA, it appeared that GPA was not following those procedures that it had committed to—disciplined approach of executing costless collars—previously approved as permissible by the PUC, for various reasons but mainly because the volatility of the fuel market and low fuel prices had forced GPA into a very negative position because of its credit exposure on its hedging positions. GPA was kept whole on all hedging losses by providing rate relief through the LEAC rate but the margin calls required by the Third Parties in the hedging process placed an inordinate liquidity strain on GPA until all hedges were settled.

In September 2010 GPA filed a petition with the PUC for approval of a "revision" to its fuel hedging program that would allow GPA to include in its toolbox of hedging instruments the ability to purchase call options in addition to the use of the costless collar hedging instruments previously authorized by the PUC. The PUC expressed concern at the time that the proposed addition of the ability to use call options as part of its fuel oil hedging strategy would not have protected consumers from a market price collapse similar to the one that occurred in late 2008. The PUC requested that GPA revisit the proposed modifications to its fuel hedging program and, further, to seek technical assistance to improve the proposed hedging program. GPA contracted its regulatory consultant, R.W. Beck, Inc.—which was subsequently acquired by Science Applications International Company, ("SAIC")—to assist it in the development of a revised fuel hedging program. Since late 2010, SAIC has been working with GPA to develop this revised fuel hedging program.

GPA, in conjunction with SAIC, has completed the changes it proposes to GPA's fuel hedging program. In developing these changes GPA, in conjunction with SAIC, has: (i) identified hedging instruments to manage the risk tolerance GPA management believes appropriate including the elimination of significant reduction of margin calls that will be required by the hedging program, (ii) developed a hedging model for use by GPA in making the hedging decisions, (iii) tested the hedging model by back-casting its performance over the most recent volatile period, (iv) held training sessions with GPA personnel, and (v) held informal briefings with the CCU.

Current Fuel Hedging Environment

In late December 2011, GPA proposed and presented to the PUC its revised fuel hedging program. The revised fuel oil hedging program is a substantial departure from the more passive approach that GPA has employed in the past to mitigate fuel oil pricing risks. The proposed program employs a more complete and complex toolbox of financial hedging instruments and a statistically driven methodology to identify fuel volatility and to simulate

various fuel hedge transactions that allows users to determine the optimal hedge transactions. Simply put, the revised fuel hedging program is very proactive.

The proposed revised fuel hedging program is a major undertaking and will involve the day-to-day management of market pricing risks on approximately \$300 million of commodity purchases using a risk analysis tool (model) developed for GPA specifically for this purpose. The proposed program will focus on a “disciplined” approach by which GPA will determine how it can best put in place financial hedge instruments to protect consumers and itself against the exposure to fuel price volatility (risk). The goal of the revised fuel oil hedging program, as presented in GPA’s petition, is to balance the competing objectives of protecting consumers from increasing fuel costs while also enabling significant participation in periods of market weakness (decreasing fuel costs). In order to achieve the goals of the revised hedging program the model indicates and recommends the purchase of call options on a disciplined basis as well as the purchase and sale of put options. GPA has indicated it intends to use put options to minimize the amount of funds paid for the purchase of call options while allowing it to participate in any steep market declines. The new program represents a substantial improvement to GPA’s existing hedging program; however, with these improvements come a more complex operating environment which will require more resources to implement and manage the program on a day-to-day basis.

GPA has requested that the PUC approve its revised fuel hedging program and its key elements. Specifically, GPA in its hedging petition has requested the PUC to:

1. Approve its revised fuel hedging program,
2. Authorize GPA to purchase and sell put and call options in any combination as supported by the hedging model and within the risk parameters established by the CCU,
3. Authorize GPA to monetize any fuel hedging gains when consistent with the output of the model, and
4. Finally, approve the separate policy and procedure manuals developed by GPA, in conjunction with SAIC, to assist GPA personnel in the use of the hedging model and the management of its fuel hedging program. These two documents were submitted to the PUC and GPA has requested that the PUC approve both manuals.

Objective of this Review

GCG was asked by the Commission to perform a high level review of GPA’s revised fuel oil hedging program, including the proposed policy and procedures manuals. While undertaking this assignment on a high level, it is important for the PUC to recognize that a hedging operation with potentially \$300 million of annual financial transactions is a complex matter that could continue to have unintended consequences as in the previous program and should not be initiated unless adequate tools, resource commitments, training, and safeguards are in place to avoid increasing the risk to consumers. Accordingly, we have conducted this review

with this understanding and have provided comments to the PUC on matters such as the following:

- The prudence of adopting a disciplined approach using the proposed statistical model including the reasonableness of the proposed hedging model.
- The level of due diligence GPA has performed in the review and modification of its new Fuel Hedging Program.
- The potential impact that the revised hedging program incorporating the proposed hedging model and disciplined approach will have on reducing fuel oil pricing volatility.
- The appropriateness of expanding the number of financial instruments in GPA's toolbox of hedging tools.
- GPA preparedness to undertake the activities and dedicate the resources necessary to run the hedging model and to manage a disciplined fuel oil hedging program.

GCG in conducting its review has had the opportunity to examine relevant information pertaining to the implementation of the new Fuel Hedging Program. Our review has included, but is not limited to, the following information:

1. GPA Petition for approval in GPA Docket No. 10-03, comprised of:
 - Transmittal Letter dated December 22, 2011 requesting approval of the revised fuel oil hedging petition.
 - Memorandum to the Public Utilities Commission dated December 21, 2011 from the GPA General Manager Joaquin Flores requesting approval of the revised fuel oil hedging program.
2. GPA Petition dated September 3, 2010 to the PUC in GPA Docket 94-04 requesting approval of a revised fuel oil hedging program.
3. GPA Petition dated March 15, 2010 to the PUC in GPA Docket 07-10 requesting approval of a revised fuel oil hedging program including a summary of the proposed fuel hedging program.
4. Proposed fuel oil hedging methodology including:
 - GPA Hedging Model (Excel spreadsheets)
 - GPA Hedging Simulation Results
5. Proposed Policy and Procedures Manuals, including code of conduct.

GCG has reviewed each of the documents contained in the petition. Because we were requested to perform this review at a high level GCG did review the hedging simulation results, but we have not independently verified or reviewed the actual hedging model. In conducting our review GCG found both GPA and SAIC to be extremely forthcoming. GPA made available not only its internal staff, but has provided unrestricted access to its consultant, SAIC. We have taken advantage of this access and have held meetings with both GPA staff and its fuel oil hedging consultant, and participated in several meeting and

teleconferences concerning the proposed fuel oil hedging program. The level of cooperation from GPA has been unprecedented and has aided us tremendously in this review and analysis.

Below we provide a summary of questions or issues we explored with GPA and its hedging consultant, our observations concerning the proposed modifications to GPA's fuel hedging program, an assessment addressing the objectives GPA has identified for its fuel hedging program, and our conclusions and recommendations.

Summary of Observations and Conclusions

Unlike most mainland utilities which typically rely on cost stable fuels (i.e., hydroelectric, coal, nuclear, or renewables), GPA is currently totally dependent on fuel oil for the production of electricity. This exposes GPA to a very high degree of volatility. And, while GPA has the ability to pass onto consumers any increases in actual fuel prices incurred in the generation of electricity, this does not occur without negative impacts. First, there is the negative impact on the economy of Guam in terms of the higher costs paid by residents, business, and government consumers. The direct cost paid by Guam consumers as well as the indirect multiplier effect on the Guam economy resulting from the loss of consumer income represents a permanent lost from Guam's economy of the income which could have been used for investment and discretionary purchases—both of which represent economic value to Guam.

In addition, from GPA's perspective, these higher costs paid by consumers are expected to result in a reduction in the use of electricity which translates into a direct reduction in GPA's financial operating margins. GPA proposes to hedge a portion or all of its fuel requirements in order to smooth the pricing volatility of the price of oil to the extent possible. These hedging contracts typically overlap, with different levels of hedging expiring over time. Likewise in this proceeding GPA is proposing to re-implement its hedging program to reduce its exposure to both volatility and potentially rising fuel costs.

With this backdrop we undertook our analysis and review of GPA's proposed changes to its fuel hedging program. While it is easy for one to get lost in the "weeds" or details of the proposed fuel hedging program, we undertook our analysis and review based upon examining a broad spectrum of questions and potential issues concerning the proposed modifications to its proposed fuel hedging program, such as:

1. Objectives of the proposed fuel hedging program:
 - Ability to identify exposures to movements in fuel prices.
 - Ability to quantify the impact of these exposures on consumers and GPA's financial position.
 - Can it mitigate impacts of exposures consistent within a defined risk tolerance?
 - Can the program be monitored and its effectiveness in managing risk assessed?

2. Fuel pricing alternatives:
 - Could the hedging program be used to set fuel prices out 12 months? 24 months?

- Could GPA use the program to fix the price of the physical transaction?
 - Option under the existing contract to price oil at other than the spot price?
 - Can the hedging tools be used to determine the lowest price available?
3. LEAC outlook:
 - Could the LEAC rate be fixed for a longer period on a going forward basis?
 - How often should reviews of the hedging protocol occur? 12 months? 24 months?
 - Can future LEAC petitions include a discussion of outlook? A back-cast?
 4. Does the back-cast of the proposed hedging program provide economic assurances?
 - Does the hedging model provide assurance that price volatility will be reduced?
 - Does the model indicate that hedging could result in beating market prices?
 - Does the probability exist to beat market prices and decrease pricing volatility?
 5. Verify proposed hedging model approach:
 - Does it produce a disciplined approach?
 - Will it result in non-emotional involvement in the hedging process?
 - Does the model provide measures of risk?
 6. Does back-casting the 2008-2009 timeframe using the model indicate that:
 - GPA's hedging program objectives can be met?
 - That the disciplined approach could have converted the earlier \$60 million loss to a safe position?
 - The proposed hedging process works and would have caused GPA to have better managed its hedging program and avoided large losses?
 7. Operating characteristics of the proposed hedging program:
 - How often will GPA look review its hedging environment and the results of the model? Daily, weekly, bi-weekly?
 - What will be the criteria for mid-course changes to its hedge positions?
 - What will be the near-term role of SAIC? Longer-term role?
 - Will SAIC shadow the hedging activities of GPA?
 - Will GPA know when to lift a hedge?
 8. Adequacy of resources committed to the proposed hedging program:
 - Level of human resource commitment? Succession planning.
 - Training and cross-training activities.
 - Simulation and shadow hedging activities.
 - Executive management involvement.
 9. Future refinements and hedging program alternatives:
 - Role of instrument structure.
 - Flexibility to expand the hedging instruments.

Our analysis reviewed these as well as other questions and/or issues relevant to the proposed hedging program. Our review was aided greatly by GPA's openness. During the course of our meetings and subsequent conference calls every question we raised was addressed. In the event we identified questions or issues concerning the hedging model or its interpretation GPA or its consultant, SAIC, quickly responded to our requests. This interaction and responsiveness allowed us to gain a good understanding of the proposed program. For instance, during our meeting with SAIC we were able to walk through how the proposed hedging program and model will work. Specifically, this exercise allowed SAIC to identify proposed hedging instruments, to demonstrate how the proposed disciplined hedging program will meet the goals/objectives for the program, and to demonstrate how this program had it been in effect during the 2008-2009 timeframe would have resulted in a safe position and not the level of losses incurred by consumers as a result of the previous hedging program. Meetings and teleconference with SAIC also allowed for the candid discussion of the skill levels and resources necessary for personnel to operate the hedging model and to make hedging transactions.

As a result of our investigation and discussions with GPA and SAIC we were able to become comfortable with the program. This led to our identification of the program strengths as well as recommendations that we believe will lead to further strengthening of the proposed fuel hedging program. There are 14 of these recommendations which we believe will strengthen the program all of which we had the opportunity to discuss with GPA and SAIC. The recommendations are summarized in Appendix A. During the base rate regulatory session we had the opportunity to meet with GPA executive management as well as its hedging consultant, SAIC, via teleconference for the purposes of discussing the recommendations. We believe, subject to initiating the fuel hedging program as outlined in GPA's petition, that GPA does not take issue with considering and potentially including these recommendations in future modifications to the fuel hedging program. In fact, the time schedule contained in Appendix A associated with each of the recommendations was developed collaboratively between GCG and GPA hedging consultant, SAIC. In short, it is our understanding that GPA at this time believes that the recommendations are reasonable, but should not be a cause to delay the initial proposed implementation of the revised fuel hedging program proposed by GPA.

Based upon our review and analysis of the fuel hedging documentation, our various meetings and discussions with both GPA personnel and SAIC we offer the following observations and conclusions concerning GPA's proposed Fuel Hedging Program:

- *Consumer Impact*—the proposed fuel hedging program is designed to not only identify future consumer exposure to movements in fuel prices, but to quantify the impact of these exposures and to mitigate the impacts of these exposures by effectively putting in place the necessary instruments to manage within a defined risk tolerance these exposures. While the past is not necessarily indicative of what the future may hold GPA has used back-casting techniques to examine how the proposed fuel hedging program would have performed given the results of 2008-2009. The result of this back-casting demonstrated that the proposed fuel hedging program was far more favorable to consumers than the actual result achieved by GPA and resulted

in a safe position. The proposed fuel hedging program potentially could have averted the negative performance of the prior program and in that sense is in the consumer's interest.

- *Best Industry Practice*—the proposed hedging activities proposed by GPA are consistent with industry best practices currently being pursued by electric and natural gas utilities within the mainland United States that are exposed to high levels of fuel price volatility. As utilities seek to minimize the impacts on consumers and financial operating margins they have increasingly relied on the ability of hedging programs to identify the exposure to movements in fuel prices, to quantify the impact of these exposures on consumers and to mitigate the impacts of exposures within a defined risk tolerance.
- *Enhancement to Fuel Hedging Program*—the underlying parameters, using a disciplined approach, the employment of additional financial instruments, and use of the proposed statistical model represent an appropriate evolution from the rudimentary costless collar approach which GPA has used in the past. The enhancements provide increased flexibility to assess exposure to pricing volatility and to address such exposure on a more proactive basis.
- *Due Diligence Assessment*—GPA has performed sufficient due diligence in the development of its proposed fuel hedging program. It has assessed industry best practices, retained the service of risk management professionals, developed risk management tools including a market simulation model, initiated training activities, and developed hedging protocols and reporting systems. GPA has taken appropriate steps to validate the approach it has taken to develop and implement its proposed fuel hedging program.
- *Selection of Appropriate Financial Instruments*—GPA has indicated that initially it will operate its fuel hedging program using a limited number of financial instruments which include the purchase of call options on a disciplined basis as well as the purchase and sale of put options. GPA has further indicated it intends to use put options to minimize the amount of funds paid for the purchase of call options while allowing it to participate in any steep market declines (lower fuel prices). The use of these instruments is an enhancement on its current program; however, there are other instruments that we believe GPA should consider (see recommendation 1 in Attachment A) and GPA has agreed that these instruments will be discussed with counterparty agencies and considered. We believe that with counterparty discussions and consideration of other financial instruments that GPA will have developed a reasonable toolbox of instruments to operate a successful hedging program.
- *Implementation Challenges*—the proposed Fuel Hedging Program is more complex and demanding than past hedging activities. GPA will face a number of challenges in the implementation of the revised fuel oil hedging program. We believe that GPA is aware of these challenges; however, it critical that all stakeholders including the PUC

understand these challenges and that it employ strategies to meet them. Specifically, it will be necessary for GPA to be aware that the:

- Complexity of the hedging program consistent with the proposed procedures manual will require the dedication of specific internal resources committed to the successful operation of the hedging program. While GPA has indicated that it has identified existing personnel it is not clear that the individuals selected will have their other duties transferred to other parties such that they have sufficient time to perform hedging duties. Recommendation 5 in Attachment A addresses this concern. It will be critical that the appropriate human resources be committed to this program.
- Adequacy of qualified and experienced external resources will be important in the near-term. GPA has never operated a hedging program with this degree of sophistication. Consistent with Recommendation 2 of Appendix A, SAIC should shadow GPA activities during the first six-twelve months of hedging operations. This activity should continue until GPA has in place adequate internal resources having the necessary availability to devote the majority of their time to hedging activities, and who possess the right experience, knowledge, and training for critical skill sets. This can be accelerated once GPA identifies full-time personnel that can be trained by SAIC on model operations; that the designated personnel demonstrate a complete understanding of the model and what the model is doing; and that SAIC run the model in parallel and perform hedging transaction with the designed GPA personnel for a period of six to 12 months.
- Integrity of the model is a concern that should be addressed by GPA. Recommendation 11 of Appendix A suggests that the model and transaction instruments be integrated. In addition, the model is currently Excel based instead of a more secure software platform. Excel models can represent an unreasonable risk since they can be intentionally or unintentionally tampered with or accidentally changed while still performing and appearing to deliver acceptable results. Someone will need to periodically verify the integrity of the model and be responsible for model updating. Long-term GPA may want to consider adopting a different computational platform less susceptible to these risks (examples could include OLF, SolArc, Allegro).
- Personnel risk cannot be ignored given the specialization of skills required to operate the proposed hedging model and to execute hedging transactions. There are not sufficient personnel available with the required skills set and it will be critical that GPA implement Recommendation 13 of Appendix A to insure that the hedging program is not placed at risk due to personnel leaving for whatever reasons. It will be critical to cross-train personnel and have someone trained that can step in to take over the program in the event of such loss.

- Since the fuel hedging program is based upon reducing the volatility of GPA's purchase of fuel, a physical transaction, by using financial instruments it is important that all hedge transactions and physical consumption forecasts be accounted for appropriately, commonly referred to as the Book. Recommendation 10 of Appendix A addresses the need for maintaining and verifying that any risk associated with the Book model is eliminated. Someone specifically should have this assignment and ideally the fuel hedging model and Book model should be integrated into the same model or in the meantime the same spreadsheet.
- Reporting must be a critical element of the proposed fuel hedging program. We would expect consistent with our Recommendations 10 and 12 of Appendix A that there will exist both regulatory reporting with every LEAC filing, and that there will also be operational reporting to the CCU. All reporting should include a calculation of the VaR (Value at Risk), which is a widely used risk measure of the risk of loss on a given portfolio. GPA should include in its periodic reports a calculation of VaR. In addition, the personnel operating GPA's hedging operations should calculate VaR on a weekly, if not daily basis.
- Auditing is an important element as well. Consistent with Recommendation 4 of Appendix A we would expect during the first year there would be an audit done after the end of the first full year of operations. Thereafter, we would expect that an audit of hedging transactions would occur on a two-year basis.
- *Reassessment and Refinement of the Hedging Program*—Consistent with Recommendation 14 of Appendix A, we would expect that after the second year of operations that GPA and the CCU would conduct a comprehensive review and assessment of its fuel hedging program. This object of this assessment would be to review short-comings of the program and to implement enhancements to the program based upon operational experience.

Recommendations

As part of our recommendation to approve GPA's hedging petition, GCG's review has resulted in a series of 14 recommendations to GPA which can be found in Appendix A that require the subsequent review and consideration by GPA in accordance with the agreed upon timetables for consideration and implementation.

The 14 recommendations have been previously presented and reviewed by GPA, and GPA has represented to GCG that subject to the hedging program proceeding as outlined they are in agreement with consideration of the 14 recommendations based upon the timetables provided. The recommendations cover matters such as training GPA personnel to be fully conversant with the models, dedication of specific GPA personnel to execute hedges, adequately funding the hedging program, exploration with counterparties of additional margining and hedging strategies, selected enhancements to Policies and Procedures

Manuals, and most importantly GPA's reliance on SAIC for an initial six-twelve month period for key elements of the program including training, shadowing GPA's use of the hedging model and execution of hedging transactions.

Accordingly, we recommend the PUC approve GPA's implementation of a revised fuel oil hedging program including the authorization for:

- GPA to purchase and sell put and call options in any combination as determined by the hedging model.
- GPA to monetize any fuel hedging gains when consistent with the output of the model, and
- Approval on an interim basis the policy and procedure manuals

We caution the PUC that the success of the hedging program will be dependent upon providing the adequate resources necessary for hedging operations and the appropriate level of training. Our recommendations are predicated on assurances GPA has provided concerning (i) that it will commit the necessary resources (personnel, training, succession planning, hedging tools, models and reporting) to execute the various internal requirements for operating the hedging program on a day-to-day basis, (ii) that during the interim period—six to twelve months—that SAIC will be involved in making all hedge related decisions, (iii) periodic auditing and reporting during the first two years to the CCU and PUC, and finally (iv) a review and reaffirmation of the program by the CUC after the first two years of operations of the revised hedging program.

If you wish to discuss any and all of the above, please do not hesitate to call.

Respectfully,



Larry R. Gawlik

cc: Lou Palomo, PUC
Fred Horecky, Esq.
Graham Botha, Esq. (GPA)
William J. Blair, Esq.
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Appendix A
Recommendations and Implementation Path

Recommendations	Expected Benefit	Evaluation and Implementation Plan	Due Date
<p>R1. Target hedges for 100% of consumption prior to each 6-month LEAC period using fixed prices, swaps, calls, puts, participating swaps, and collars</p>	<p>Achieve certainty of maximum LEAC fuel price adjustment for next period.</p> <p>Determine how "100%" of consumption will be calculated and what transactions are allowed inside the 6 month LEAC period</p>	<p>Task R1.1. Under the management of GPA's CFO engage hedge counterparts (Counterparts) to better understand what instruments, execution constraints, and margin requirements (if any) are available for GPA's needs.</p> <p>Task R1.2. Consolidate and review historical consumption figures and establish integration between forecasted consumption and execution of the risk management strategy.</p>	<p>4/30/2012</p> <p>3/31/2012</p>
<p>R2. Execute hedges using GPA personnel to run models, execute trades, and report positions and risk. Activities to be shadowed by SAIC for the first six-12 months.</p>	<p>GPA needs to develop internal and independent capabilities</p>	<p>Task R2.3. Establish Interim Program to ensure models are fully integrated, personnel adequately trained, and resources available.</p>	<p>3/31/2013</p>
<p>R3. Ensure separation of duties</p>	<p>Contract administrator different from Manager of Energy Risk Control</p> <p>Manager of Energy Risk Control different from Manager of Hedge Execution</p>	<p>Task R3.0. Establish Management Directive to fund and ensure resources for the execution of the Risk Management Program</p> <p>Task R3.4. Review with CCU GPA's evaluation and implementation of the 14 recommendations made by GCG.</p>	<p>3/31/2012</p> <p>2/28/2013</p>

<p>R4. Independent audit every two years.</p>	<p>Task R4.5. Conduct an audit at least every two years of the execution of the risk management program</p>	<p>3/31/2014</p>
<p>Initially conduct audit on a shorter interval</p>	<p>Task R4.6. Conduct an audit at least once a year of the models and reports supporting the risk management program. See also Task R3.4.</p>	<p>2/28/2013</p>
<p>Schedule to verify or update the models at least annually</p>	<p>Ensure correct implementation of the strategy</p>	<p>See Task R11.9</p>
<p>Modify procedures as needed as credit and margin changes</p>	<p></p>	<p>See Task R4.6</p>
<p>R5. Identify new positions and hire personnel needed to execute on plan</p>	<p>Guarantee that implementation of the strategy is allocated sufficient resources</p>	<p>See Task R3.0</p>
<p>R6. Devise plan to train new personnel and run in parallel</p>	<p>See Task R3.0, and reinforced with the results from tasks associated with R4.5</p>	
<p>R7. Develop user manual based on Appendix F</p>	<p>Task R7.7 Develop user manual based on Appendix F of Procedures Manual</p>	<p>6/30/2012</p>
<p>R8. Design a simple interim plan to protect GPA LEAC from price volatility until personnel, models, and reporting infrastructures are in place</p>	<p>Recognizes a learning curve process</p>	<p>See Task R3.0</p>
<p>R9. Engage counterparties in exploratory discussions</p>	<p>Identify feasible instruments available for execution</p>	<p>See Task R1.1</p>

<p>R10. Create Quarterly reporting to CCU Physical/financial, buy/sell, mark-to-market, hedge effectiveness, Value at Risk (VaR), credit exposure (CDF spreads) / potential margin requirements</p>	<p>Easy to understand and track exposure</p> <p>See Task R10.8</p>	<p>Task R10.8 Develop a specific report template, format and content that is meaningful to GPA and CCU</p> <p>4/30/2012</p>
<p>R11. Integrate Models</p>	<p>Integrate hedge decision tool with hedge instruments model and risk reports</p>	<p>Task R11.9 GPA to Devise a plan for implementation process to integrate, maintain, and audit models and reporting to support Risk Management Policies and Procedures</p> <p>4/30/2012</p>
<p>R12. Enhance Reporting Capabilities and Process</p>	<p>Create models and reports backup and maintenance plan</p>	<p>See Tasks R3.0, R10.8, and R11.9</p>
<p>R13. Include backup plan to manage personnel risk</p>	<p>Backup designee(s) for loss of key personnel</p>	<p>See Tasks R3.0 and R3.4</p>
<p>R14. CCU verification of hedge strategy at least every two years</p>	<p>Periodic strategic direction from CCU</p>	<p>See Tasks R3.0 and R3.4</p>