Accountants and Management Consultants

Slater, Nakamura & Co, LLC

November 20, 2013

Fred Horecky, ESQ

Guam Public Utilities Commission
Suite 207, GCIC Building
414 W. Soledad Avenue
Hagatna, Guam, 96910

Dear Mr. Horecky:

Re: Report on the review of the proposed contract with WiPro Technologies under GPA Docket No. 14-01

Slater, Nakamura & Co, LLC is pleased to present its report on the review of the costs for the proposed contract with WiPro Technologies to implement the Oracle Customer Care and Billing (CC&B) software package for both the Guam Power Authority (GPA) and the Guam Waterworks Authority (GWA). The request to retain WiPro Technologies (WiPro) was approved by the Guam Consolidated Commission on Utilities (CCU) under CCU resolution number 2013-51/02-FY2014. The amount requested for implementation for both GPA and GWA is $4.5M. The contract will be a fixed price contract. GPA / GWA took this approach to mitigate the risk of implementation based upon historical issues in software implementation projects within both Authorities.

Our approach for this high level review was to:

- Review the traditional areas of risk in packaged software implementations to determine if GPA and GWA have accounted for these areas.
- Benchmark costs against other utilities who have deployed the same software package.
- Provide a list of recommendations to GPA and GWA to mitigate their project risks.

The results of our review are contained in the attached report.

Sincerely,

Roger D. Slater

Managing Partner

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BEFORE THE GUAM PUBLIC UTILITIES COMMISSION

)	
The Guam Power Authority (GPA) and Guam Waterworks Authority GWA))	**GPA Docket 14-01**
Request for PUC Investigation)	
for Purchase of Implementation Services for the Oracle Customer Care and Billing (CC&B) software package)	

Report on the Investigation of the Implementation Costs for the Oracle Customer Care and Billing (CC&B) Software Package

For Guam Public Utilities Commission

GPA Docket 14-01

November 20, 2013

Revision History

Version	*Changed By*	*Date*	*Revision Description*
Draft	J. Steadley	10/27/2013	Completed framework and initial draft
Report for review	J. Steadley	11/17/2013	Completed report for review and comments
Report review	Roger Slater	11/18/2013	Report review

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1.0 EXECUTIVE SUMMARY

Overview

Our investigation analyzed the following areas:

- Review the traditional areas of risk in packaged software implementations to determine if GPA and GWA have accounted for these areas.
- Benchmark costs against other utilities that have deployed the same software package.
- Provide a list of concerns / recommendations to GPA and GWA to mitigate their project risks.

Findings

- The cost for the deployment seems higher than the cost for similar agencies.
- There are areas of risk that require a risk mitigation strategy to be developed before project commencement.

Recommendations

- The ALJ recommend that the Commission approve the contract pending resolution of the recommendations below.
- GPA consider changing the level of funds retention from 5% to 10%.
- GPA consider funding post deployment support for six months after go-live
- GPA develop a risk mitigation strategy for each of the areas listed in Section 4 Table 6.

2.0 BACKGROUND

In this section is presented information related to the purchase of the CC&B

Under GPA Docket 14-01, the Guam Power Authority (GPA) and Guam Waterworks Authority (GWA) petitioned the Guam Public Utilities Commission (Commission) to approve a contract with WiPro Technologies to implement a Customer Care and Billing software package.

GPA purchased a Customer Information System (CIS) software package named Utiligy in 2003. The software was implemented in 2005.

Although Utilitgy was a significant improvement over the prior billing software, significant business issues remain:

- The Utiligy software program is no longer maintained by the vendor
- Utiligy does not have the functionality and flexibility to support integration and data interchange with the smart grid program
- Some routes take 12-15 hours to process - the process was turned over to the vendor to run bills which is a significant expense
- GPA has a significant weakness cited in its audit each year due to the fact that there is no audit trail for meter read changes and security settings

All of these issues led to GPA conducting a procurement process to replace Utiligy.

In October 2012 , GPA purchased the Oracle CC&B package. Shortly after that GPA issued a RFP for software implementation services. GPA selected the vendor Wipro Technologies as most qualified. However, GPA was unable to agree to a contract cost and suggested the parties enter into a contract to perform Phase I planning work while negotiations continued. Based upon the conclusion of the Phase 1 effort, GPA is requesting approval to enter into a contract for implementation of the CC&B software.

Along with resolving the issues discussed above, the CC&B solution will address current business needs for GPA. Some of these are:

- CC&B will be able to take advantage of the additional data that will be available once the GPA Smart Grid deployment is completed
- There are potential cost savings from the reduction in printing paper bills since CC&B will allow e-Billing
- Billing costs will be reduced since CC&B will automate processes that are currently manual
- Customer service will be improved through the use of new features like Interactive Video Response (IVR)

As part of the deployment strategy, and in recognition of the common customers shared with GWA; it was decided that GPA / GWA would conduct a joint implementation of the Oracle software.

GPA seeks authorization to contract with Wipro Technologies in the amount of $4.5 million for the implementation of CC&B CIS software.

SAIC will perform the role of trusted advisor to assist the GPA internal project manager.

3.0 INVESTIGATION APPROACH

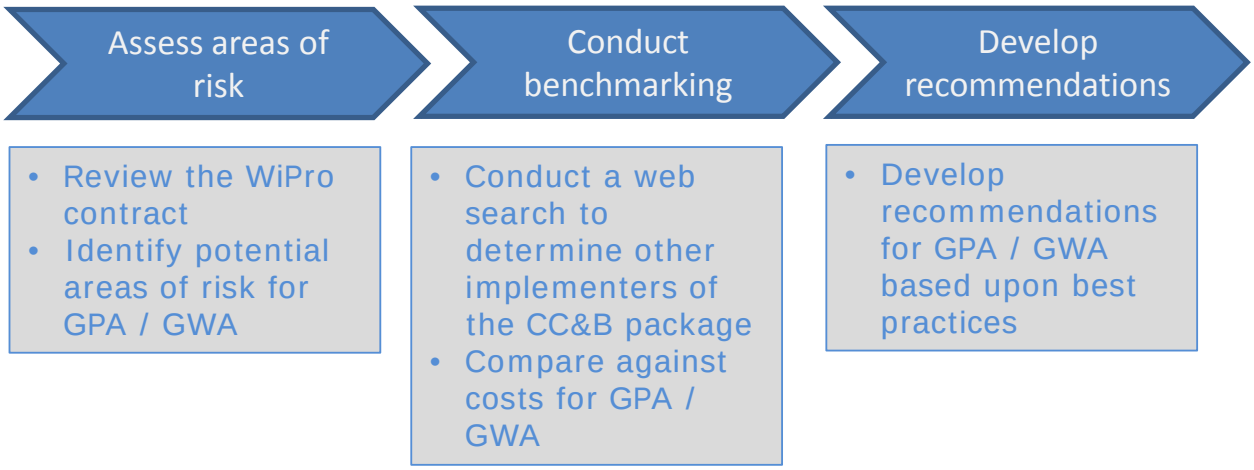
In this section, we will describe the tasks we executed as part of the investigation.

Due to the limited scope of the study, no formal Statement of Work was created. The process steps that were followed as part of the study are discussed below:

STATEMENT OF WORK

The overall approach for the investigation is shown in Figure 1:

Figure 1 – Investigation Approach



4.0 ANALYSIS SECTION

This section presents the analysis of the project costs and risks.

OVERVIEW OF THE ANALYSIS

The focus of the analysis is to address the following questions:

1. Are the costs proposed for the GPA / GWA CC&B implementation in line with similar implementations?
2. Are the appropriate risk mitigation strategies in place?
3. Have all the potential costs been identified?

COST OF IMPLEMENTATION

In the petition to the Commission to approve the contract for WiPro; GPA provided documentation to show that the cost of implementation fell within the benchmarks provided by the software vendor and other sources.

There are many variables which complicate getting to a true cost comparison for implementation costs.

- Not all projects are the same. Some organizations, like GPA, utilized a third party to serve as an independent quality assurance arm. Some organizations did not. It is not always easy to determine if this cost was included in the cost of implementation.
- Forms / reports / interfaces / conversion / enhancements (FRICE) can significantly impact the cost of packaged software implementation. Systems integrators, in general, will include the cost of some customization of reports in their cost estimates. However, most integrators will not conduct conversion activities and will limit the number of interfaces. If organizations want more of the FRICE items, this will drive up the cost of implementation.
- Post implementation support is also a significant cost driver. Many organizations require a systems integrator to leave staff on-site for up to six months to assist the staff in operating the new software package. This can add up to significant costs.
- Hardware procurement and management includes the purchase of the new operating environment. In general, systems integrators will recommend the hardware that should be purchased but they do not install operating systems or maintain the environment. At least three environments must be established; one for development, one for testing and one for operations. Each of these environments may be on separate physical hardware or may be on virtual machines on shared hardware. However, the cost of operations is borne by the organization, not the systems integrator.
- Costs of internal staffing. Although considered a sunk cost by many, since individuals are employed by the organization; many software projects require full time support from the organization that purchased the software. These costs can be significant since staff should be assigned away from their regular assignments and placed in the project organization.

Cost of implementation for GPA / GWA

Based upon information provided by GPA, the cost of the implementation of the CC&B software package will be:

Table 1: Summary of CC&B costs

Cost area	Estimated costs ($K)
Contract with WiPro Phase 1	$100
Contract with WiPro Phase 2 for GPA	$4,500
Contract with SAIC	$250
Software licensing costs	$800
Annual software licensing fee	$120
Cost of GPA staff (estimated)	$500
Cost of GWA staff (estimated)	$200
Cost of hardware (estimate)	$50
Total estimate cost	$6,520

Cost of other deployments

In evaluating whether the costs for implementation are reasonable, we conducted a search of other utilities who implemented the Oracle CC&B package. As part of the justification provided by GPA for the project; GPA was told by the software application firm that the cost of implementation should range from $40 to $70 per customer. Based upon an Oracle representative who has recently supported a utility that implemented CC&B; the estimate is considered a good rule of thumb.

Due to the lower incremental costs of the GWA portion of the contract, we only focused on the GPA portion for the comparison for costs per account.

Based upon the information provided above, the average cost per customer is roughly $105 per customer account assuming a 50K customer base. This does not fall within the rule of thumb range discussed by GPA.

In some cases we were able to obtain the actual Request for Proposals (RFP's) or the awarded contracts. In other cases, we were able to obtain information provided to the approval body which contained additional detail

In the following table, we present a summary of those CC&B implementations where we were able to obtain more detailed information and compare the costs to GPA.

Table 2: Cost per account comparison between GPA and other agencies

Organization	Cost of Deployment ($K)	Number of Customers (K)	Cost per account
GPA	$5,270	50	$105.40
Orange County (FL) Utilities	$12,016	200	$60.08
Jackson Energy Authority FL)	$8,400	350	$24.00
Denver Water	$10,311	173	$59.60
Cleveland Water	$20,453	450	$45.45

What is not understood from the figures of the other agencies is if they included the total cost of deployment or merely the cost for services for the systems integrator and the cost of the software package purchase. These other costs represent 15.7% of the total cost of deployment for GPA. Using 15% as the accelerator for the other utility costs, the cost per customer account is shown below:

Table 3: Cost per account comparison adjusted for other expenses

Agency	Cost of Deployment ($K)	Number of Customers (K)	Cost per account
GPA	$5,270	50	$105.40
Orange County (FL) Utilities	$12,016	200	$69.09
Jackson Energy Authority FL)	$9,660	350	$27.60
Denver Water	$11,857	173	$68.54
Cleveland Water	$23,520	450	$52.27

Based upon this comparison, the GPA costs are still disproportionately higher.

There is a premium for both doing work in Guam. The cost of travel and lodging is higher than most other localities and can substantially increase the cost of managing a project. Based upon this, an assumption of 15% greater costs for services in Guam were used to adjust the value of the benchmark accounts. This resulted in the cost per account benchmark going up as reflected in the table below:

Table 4: Cost comparison adjusted for cost of doing projects on Guam

Agency	Cost of Deployment ($K)	Number of Customers (K)	Cost per account
GPA	$5,270	50	$105.40
Orange County (FL) Utilities	$12,016	200	$79.46
Jackson Energy Authority FL)	$11,109	350	$31.74
Denver Water	$13,636	173	$78.82
Cleveland Water	$27,048	450	$60.11

At this point, the Guam costs are within 30% of the two higher cost projects.

There are other elements that may be impacting the higher costs for Guam. The proposed contract is a Firm Fixed Price (FFP) contract. Most systems integrators do not like to deploy software solutions using a FFP contract since this passes more risk to them. This may have resulted in the systems integrator increasing the cost of the bid by 20% or more.

As noted, this is a rule of thumb benchmark. As such, GPA needs to determine if their costs are reasonable based upon the complexity of the project along with the level of risk that is being assumed by both parties.

One final note on the cost comparison. We were not able to obtain actual contracts of the agencies shown in the tables above. At this juncture, it is not known if the other agencies required their systems integrator to deliver more interfaces, reports, data conversion and post implementation support. GPA is requiring a bare bones deployment from the systems integrator which means GPA is assuming more of the risk for development of reports, interfaces and data conversion. These elements, particularly data conversion, are often the cause of projects exceeding the stated timeline. We also were not able to do a comparison on post implementation support costs.

MITIGATING RISK IN PACKAGED SOFTWARE IMPLEMENTATIONS

This section will discuss areas of risk in GPA / GWA taking on the large business transformation project that is represented by CC&B. In identifying possible sources of risk, we will use a model from the Software Engineering Institute (SEI). The SEI serves as a global resource in software engineering, networked systems survivability, and process improvement.

In the document related to the capability and maturity of organizations to acquire software applications, the SEI observed that:

- 20 to 25% of large information technology (IT) acquisition projects fail within 2 years and 50% fail within five years. The factors contributing to this high failure rate include mismanagement, inadequate vendor selection processes, insufficient technology selection procedures, the inability to articulate customers' needs, poor requirements definitions and uncontrolled requirements changes.
- An overall key to a successful project is effective communications.

- Many organizations have not invested in the capabilities to effectively manage projects.
- Too often organizations disengage from the project once the vendor is selected. Too late they discover that the project is not on schedule, deadlines will not be met, the technology selection is not viable and the project has failed.[1]

These observations from a thought leader in the management of software projects reflect that many organizations are not ready to manage large technology projects. The lack of readiness can stem from a number of areas:

- Not having a feel for the cost and time of implementation for the project.
- Not having a project management culture in the organization.
- Not having a culture of change.
- Not having strong executive buy in.

In the book, Leading Change[2], Dr, John Kotter, the world's foremost professor on leadership, defined eight reasons why change efforts fail. Since CC&B is a large change effort with a technology foundation, examining the causes of project failure can lend support to assessing the readiness of the organization. The reasons are:

Error #1: Allowing Too Much Complacency – Transformation efforts always fail when complacency levels are high.

Error #2: Failing to Create a Sufficiently Powerful Guiding Coalition – Individuals, no matter how energetic or committed, will not pull off a major change initiative. Several individuals, including members of the senior team, MUST be committed to your program's success.

Error #3: Underestimating the Power of Vision – Vision plays a central role by helping stakeholders and the front line to align their actions. A "plan" will not substitute for a well-articulated vision.

Error #4: Under-communicating the Vision by a Factor of 10 – A one-time communication event or retreat, or a short-term effort at notifying the front line is not sufficient to ensure buy-in to the change.

Error #5: Permitting Obstacles to Block the New Vision – Obstacles can be organizational structure, procedures and policies, or supervisors and managers who resist the new change and therefore block the efforts.

Error #6: Failing to Create Short-term Wins – Transformation takes time and therefore short-term wins must be part of the strategy in order to keep everyone on the journey. How well have you planned short term wins and milestone achievement?

Error #7: Declaring Victory Too Soon – Because new methods and workflow takes time to sink deeply into the culture, be careful about assuming completion too early. How well are you maintaining vigilance and reinforcing the vision long after the project plans are completed?

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[1] Software Engineering Institute *CMMI for Acquisition* Version 1.2
[2] Leading Change by Dr. John Kotter, Harvard Business Press, 1996

Error #8: Neglecting to Anchor Changes Firmly in the Corporate Culture – When the new way of operating result in improvement and are also adopted by the next generation of leaders or front-line clinicians, then it becomes "the way we've always done things." How well are you planning for how leadership successors and new employees will be champions of the vision?

GPA should be able to address these points from both SEI and Dr. Kotter.

Based upon documentation provided by GPA, their risk mitigation strategy includes the following elements:

Table 5: GPA risk mitigation strategy

Strategy	Effectiveness
Use a Firmed Fix Price (FFP) contract to limit the potential for cost over runs.	**Moderately effective**. This approach, in general drives up contract costs since the systems integrator believes that they are assuming more risk.
Use of retention of funds to ensure that post deployment issues are resolved in a timely manner by the systems integrator.	**Effective**. Most retention of funds are set at 10% which represents a significant portion of the profit for a systems integrator. GPA decided to set the retention at 5%. This limits the effectiveness of the retention of funds.
Use of an independent third party to serve as either quality assurance or independent validation and verification (IV&V) staff	**Highly effective**. The State of California requires that all software projects over $10M have an independent IV&V consultant on the team. This has resulted in significant improvement in the State's success percentage for technology projects. The usual cost for these services is 10 to 15%. The $250K allocated to SAIC to provide these services is below this percentage. GPA may find that they will need to increase the amount of the SAIC support contract.

GPA has taken very positive steps to reduce the risk of the CC&B solution. However, there are areas where risk still exists in this project. Some of these areas are discussed below.

Table 6: Areas of risk for GPA

Area of Risk	Level of Risk
Insufficient project staffing	**Moderately high**. At the conclusion of

Area of Risk	Level of Risk
	the project, the systems integrator will no longer be supporting GPA. This means that the GPA staff will be responsible for the training and day to day operations of the solution. As such, there has to be a committed staff to the project that can learn from the experts on the systems integrator's team. These people should be removed from the normal duties in order to become the GPA experts. Without this defined level of commitment, the adoption of the solution and the ability to maintain the CC&B application will be suffer.
No post deployment support from the systems integrator	**Moderately high**. Related to the risk discussed above, it is a common practice to fund post go-live support from the systems integrator in order to have a resource familiar with the configuration to answer questions. Without this, GPA will have to contact the Oracle help desk for support. The customary period is a bucket of hours to be used over a six month period. Since this is not part of the GPA contract, the assumption appears to be that the deployment will not require this support.
Use of an inexperienced Project Manager	**Very high**. Although GPA has successfully deployed Oracle products in the past, the agency has not deployed this product. Additionally, it could not be determined if the assigned project manager had participated in a leadership role in the other software deployment projects for the agency. GPA can reduce this risk by sending the PM to classes offered by Oracle on the solution, supporting the PM to complete training from SEI or another standards based organization and selecting an individual with proven project management skills. Even with the support of SAIC, the PM will need to be strong. He will also need the endorsement from GPA leadership.
Need to perform report creation, interfaces and data conversion	**Very high**. Most systems integrators push as much of these activities on to

Area of Risk	Level of Risk
	the agency as possible. Based upon a review of the GPA agreement, the systems integrator for the CC&B project has done this to the agency. These tasks are time consuming, never as easy as described and require committed staff members. For example, if data is not converted in a timely fashion, the entire project is delayed. Although tools do exist to convert existing data to the new data format for CC&B; they are never 100% effective. By not requiring more support from the systems integrator in these three areas; GPA has assumed a significant risk.
Responsibility for hardware	**Low**. In general, Oracle has been encouraging customers of CC&B to deploy the application on Sun Microsystem servers. If the GPA IT organization is not familiar with the Sun servers; this will require training of the staff which is another cost.

GPA has taken thoughtful steps in the management of risk on this project. However, it appears there are some areas that require additional focus.

5.0 FINDINGS

The Findings section discusses the facts that can be derived from the analysis.

Based upon the analysis in Section 4, we reached the following findings:

- The cost for the deployment seems higher that similar organizations.
- There are areas of risk that require a risk mitigation strategy to be developed before project commencement.

6.0 RECOMMENDATIONS

The Recommendations section provides the recommendations to the Commission related to the petition to secure implementation services for the Oracle CC&B packaged software.

Based upon the investigation of the supporting documents, we recommend that:

- The ALJ recommend that the Commission approve the contract pending resolution of the recommendations below.
- GPA consider changing the level of funds retention from 5% to 10%.
- GPA consider funding post deployment support for six months after go-live
- GPA develop a risk mitigation strategy for each of the areas listed in Section 4 Table 6.

APPENDIX A – GPA RESPONSE TO QUESTIONS

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