

JACOBS CONSULTANCY

5995 Rogerdale Road
Houston, Texas 77072 U.S.A.
+832.351.7800 Phone +832.351.7887 Fax

November 20, 2006

Mr. John R. Coleman
Consolidated Edison Audit Project Coordinator
New York State Department of Public Service
3 Empire State Plaza
Albany, New York 12223-1350

Subject: Response to RFP Regarding Consolidated Edison Electric Emergency Outage Program
(Case: 06-M-1078)

Dear Mr. Coleman:

Jacobs Consultancy Inc. is pleased to offer this proposal to perform an independent audit of Consolidated Edison Company of New York's performance in its response to outage emergencies and planning for restoration of service. As part of our assessment of Consolidated Edison's electric emergency outage program, we will recommend actions to improve emergency outage planning, preparation, management, outreach and public communication, and restoration efforts. Our proposal, structured in accordance with your RFP (Case: 06-M-1078) dated October 18, 2006, is a firm offer for a 180-day period.

As the Responsible Officer, I certify (1) the accuracy of all information in the proposal; (2) Jacobs Consultancy is committed and able to perform all the work contained in our proposal; and (3) compliance with all Request for Proposal requirements.

In aligning an experienced team of consultants, Jacobs Consultancy believes that the interests of the New York ratepayers and the public will be fully met. In addition, we believe the New York Public Service Commission's expectations for a meaningful, independent, and timely evaluation will be fulfilled. If you should require additional information or details, or if there is any matter that requires clarification, please contact me at (702) 434-7361, or via email at Salvatore.Marano@jacobs.com.

Jacobs Consultancy appreciates the opportunity to submit this proposal to the New York State Department of Public Service for the proposed scope of work. We look forward to the privilege of working with you on this important assignment.

For Jacobs Consultancy,



Salvatore D. Marano, P.E.
Director, Energy & Utilities Practice

Enclosure



Consolidated Edison Electric Emergency Outage Program

Case: 06-M-1078

Prepared for

**State of New York
Public Service Commission**

November 20, 2006

Submitted by

Jacobs Consultancy Inc.
5995 Rogerdale Road
Houston, TX 77072

Table of Contents

1. Introduction	1
2. Scope And Objectives	4
3. Approach, Methods, Procedures, And Project Management.....	7
4. Areas And Issues For Review	17
5. Consulting Staff Organization	31
6. Schedules And Budgets	41
7. Qualifications Of The Firm	45
8. Exhibits	65
Exhibit I: Project Team Résumés	
Exhibit II: Work Sample	
Exhibit III: Conflict of Interest	
Exhibit IV: Terms & Conditions	

1. Introduction

Jacobs Consultancy Inc. (Jacobs Consultancy) in response to a request for proposal (RFP) hereby proposes to lead to a comprehensive, independent, and objective audit of Consolidated Edison of New York Inc.'s ("Con Edison" or "the Company") performance in response to outage emergencies and planning for restoration of service. We believe our detailed work plan and approach to complete the Scope of Work will fully address the New York Public Service Commission (Commission or NYSDPS) desire for an independent third-party consultant's assessment.

This year Con Edison customers endured four major power outages where hundreds of thousands of customers waited from five to nine days for power to be restored. Given the events over the course of the year and previous history of performance in this area, the Commission must continue to provide effective stewardship in this dynamic changing environment to assure that the State and its energy consumers receive the full benefits and services offered by Con Edison. In addition, the Commission must ensure the adequacy of safety, reliability and service that is expected by the customers of Con Edison, particularly in times of electric emergency outages.

The Commission stewardship is evidenced by initiating a proceeding "to conduct an independent audit of the Company's system-wide operations, practices, and procedures as they relate to emergency planning, response to outages, and restoration of service." The purpose of this audit is to determine the adequacy of the Company's management of its electric emergency outage response and restoration, as well as to address recent concerns regarding the timeliness of Con Edison's restoration of service and the ability of customers and State and City Officials to obtain accurate and timely information about the extent and duration of the outage. The audit should also identify opportunities for improvement that will enhance Con Edison's operations, plans, management, and public communication practices as they relate to outage emergencies throughout its territory.

Jacobs Consultancy's intent is to conduct a comprehensive, fact-based, balanced review and investigation of emergency response pre-planning, implementation and post-assessment by the Company to confirm or refute the reasonableness and prudence of the management operations and business practices being followed to assure that there is effective response and prompt restoration of electric service during electric emergency outages. We believe a comparison to industry standards and best practices of comparable electric companies can provide further objective insight regarding the Company's electric emergency outage program, and confirm or refute whether the Company provides adequate, effective, and prompt restoration of electric service in response to emergency outages.

A seasoned Jacobs Consultancy management team, with first-hand utility management experience in this area with a comprehensive understanding of the technical issues and how they relate to emergency outage planning and restoration, will perform this audit. We believe

that Jacobs Consultancy's staff provides the Commission real world operating and utility management experience with specific backgrounds in all the areas of the Company's operations that impact their performance relating to emergency preparedness, planning and response. The proposed team for this project includes the same Jacobs Consultancy staff engaged by the New Jersey Board of Public Utilities (NJBPU) to provide reliability consulting support regarding the proposed merger of Exelon and Public Service Enterprise Group (PSEG).

Our Exelon and PSEG merger assignment had a broad focus in the areas of safety, reliability and adequacy of service for the electric and gas delivery businesses and the customer care function. The focus in that assignment—as it is with this audit—was to ensure that the levels of service and safety were maintained or improved post-merger. As a result of our extensive review of the potential impact of the merger of the utilities' energy delivery businesses, we have unique insight into the operations of PECO Energy Company (PECO), Commonwealth Edison Company (ComEd), and PSEG. To determine whether Exelon implemented best practices and maintained high level industry performance standards relating to emergency planning and response at PECO and ComEd, we performed extensive review in the following areas for PSEG, PECO, and ComEd and provided numerous recommendations to assure future performance standards:

- Process of identifying and communicating with critical care customers during emergency outages
- Statistics related to customer satisfaction indices after emergency outages
- Vegetation Management Programs
- Outage Management Systems employed
- Company standards established to assure the response to electric emergencies is conducted in a timely manner and with appropriate resources
- Procedure manuals describing responses to major storms
- Statistics for major storms showing date, customers interrupted, number of interruptions, number of company and contract field forces responding, and length of time to restore last customers
- Standards during larger emergency situations to supplement field crews, number and types of trained employees supplementing the field forces, local electrical contractor services, and assistance from neighboring electric utilities
- Edison Electric Institute (EEI) Mutual Programs in restoring electric service during major emergencies
- Crisis Management Program documents, including Continuity of Operation Plans, Comprehensive Emergency Management Plan, an Emergency Response Plan
- Critical Facility System Enhancement Program documents, including Master Plans, Security Standards, Security Feasibility Studies, Security Assessments, and security services contracts

In addition to this specific and recent work, our team brings the following additional experience and capabilities:

- Members of our team have held high level operating positions in the following utilities: PSEG, PECO, NUI Corp, Puget Sound Energy, Colorado Springs Utilities, Mountaineer Gas and CenterPoint Energy.
- Members of our team have had direct experience and responsibilities for planning, preparedness, front line management, and post-incident critique of emergency response in their operating roles.
- Direct operating experience and responsibilities for the management of utility emergency response.
- A clear understanding and technical knowledge of the underlying causes of electric outages and the factors and policies required to prevent these occurrences.
- Consulting experience in the development of Y2K assessments, contingency plans and multi-company and State testing of those contingency plans for operating effectiveness as well as the key element of communications.
- Crisis management and security expertise and qualifications for numerous government agencies and private industries.

In conclusion, our experience and operating and management knowledge will enable us to provide substantive and actionable recommendations in the various areas where opportunities are identified to improve the Company's emergency response planning and performance as well as identify potential areas of concern that should be monitored going forward. We feel strongly this audit must include not only the management aspects of the policies and procedures but also the technical elements of the management of the electric systems and quality and functionality of the outage management systems employed.

Our recommendations will be supportable and defensible because they will be based on factual information and our team's extensive experience in utility operations and management.

We believe the following proposal is fully responsive to meeting the issues and challenges raised in the Request for Proposal. The team Jacobs Consultancy proposes for this project is committed to providing unequalled service to the New York Public Service Commission and Staff, as attested by our references.

2. Scope and Objectives

Scope

We understand the purpose of this RFP is to conduct an independent audit of Consolidated Edison Company of New York's (1) emergency outage preparedness and response, (2) performance during outages, and (3) service restoration. The audit will result in recommendations for actions that the Company should take to improve its emergency outage planning, preparation, outreach, and restoration efforts throughout its service territory.

Jacobs Consultancy will conduct a comprehensive, fact-based audit of the Company's electric emergency outage restoration capabilities from three primary perspectives:

- Planning/Preparedness
- Performance/Effectiveness
- Best Practices

We believe a comparison of the Company's electric emergency outage planning and restoration activities to industry "best practices" of comparable utilities will provide further objective insight regarding the performance and management of the Company's Electric Emergency Outage Program. The audit will document the extent to which the Company is presently providing adequate, efficient, reliable, and safe service to its customers during times of electric emergency outages. The findings will not only identify opportunities for improvement but also identify best practices that the Company is or should consider employing in the areas of electric emergency outage response.

This review, investigation and analysis will focus on the following specific issues:

- Effectiveness of the Company's emergency response plan and actual performance
- Organizational structure for managing service restoration
- Adequacy of available resources
- Planning and preparation for multiple outages
- Communications and outreach efforts
- Management of outside resources
- Data collection processes and systems
- Implementation of best practices

Data and information relating to the key issues will be gathered primarily through interviews with management and a cross-section of employees, as well as data requests from the Company.

In some cases, a statistically valid sample of records will be reviewed to assess the adequacy of management processes and control. Analysis will include both the quantitative and qualitative effects of the Company on its ratepayers.

Our findings-in-fact, conclusions and recommendations will be documented in a final report. The report will allow the reader to track each recommendation back to the source documentations.

The deliverables include:

- Draft Work Plan
- Final Work Plan
- Draft Final Audit Report
- Final Audit Report
- Work Papers

Auditing Standards

All work will be done in a professional manner in accordance with the United States General Accounting Office's *Standards for Audit of Government Organizations, Programs, Activities, and Functions*, as applicable to public utilities, with audit emphasis on issues of management economy, efficiency and effectiveness; the National Association of Regulatory Utility Commissioners' *Consultant Standards and Ethics for the Performance of Management Analysis*; and the American Institute of Certified Public Accountants' *Statement on Standards for Consulting Services*.

Litigation Support

Jacobs Consultancy will provide expert testimony, when necessary, regarding any litigation resulting from audit work done as part of this contract.

Objectives

We understand the objective of this assignment is to perform a thorough examination of the Company's management of its electric emergency planning, outage response, and power restoration operations to assess the Company's performance and identify opportunities for improvement.

This audit will address the need for proper electric emergency preparation and response planning processes to ensure there is effective response and prompt restoration of electric service each time an emergency outage occurs and to reduce the likelihood and impacts of

future outage events. The Company's electric emergency outage performance is affected by many different factors, including proper emergency response planning and training, management of resources, the data collection process and accuracy of systems in place used to determine the extent of outages, restoration processes, and communication and outreach efforts. As such, the Company's systems have some unique characteristics and issues that must be considered and focused upon as part of the audit. Among the specific issues confronting the Company are the following:

- Enhancing network reliability
- Improving customer counting methods
- Reviewing secondary system monitoring
- Reviewing network shutdown process
- Enhancing Corporate Emergency Resource Center communications
- Enhancing the use of mutual assistance for underground systems

A seasoned management team from Jacobs Consultancy, with first-hand utility management experience, and clearly understands the technical issues and how they relate to the business aspects of the organization, will perform this audit. Our operating and emergency response experience and security crisis management knowledge will enable us to provide substantive and actionable recommendations. We will provide recommendations in the various areas where opportunities are identified to improve emergency response performance and system reliability, as well as identify potential areas of concern that should be monitored going forward.

3. Approach, Methods, Procedures, and Project Management

Approach

Jacobs Consultancy will employ a workflow process to accomplish the audit in an efficient and concurrent approach that minimizes disruption to Staff and the Company. The Jacobs Consultancy team will conduct this audit employing a process consisting of four principal stages:

Project Initiation Stage

This stage involves the initial meetings with Staff and the Company and provides Jacobs Consultancy a thorough understanding of the Commission's expectations. At the completion of this stage, the Commission will receive a detailed final work plan.

Investigation, Data Gathering and Fact-finding Stage

Based on the detailed work plan and schedule as mutually determined in the Project Initiation Stage, Jacobs Consultancy will begin its detailed review of the Company to determine if the appropriate management controls, systems and processes are in place and to identify significant problems, if any, requiring additional focused analysis. We will:

- Collect benchmark data and metrics
- Document the regulations, laws, and other performance standards that apply
- Conduct interviews with the Company's personnel
- Identify current key processes, policies, practices and procedures that affect emergency outages
- Schedule and visit business offices and contractor locations as necessary
- Provide ongoing communications and project status as mutually determined with Staff

Analysis Stage

In this stage, we will focus on testing, when appropriate, the internal controls and documents to determine whether the controls actually exist, are effective, and are working.

Our analysis makes use of quantitative and qualitative assessments techniques:

- **Quantitative Assessments** are based on the information gathered through our review of documents, development of a statistically valid and defensible sampling plan, and the testing and validation of records.
- **Qualitative Assessments** are based on the information gathered during interviews with knowledgeable individuals and the professional experience of our consulting team.

The results of our investigation, data-gathering, fact-finding and transaction analysis may lead to preliminary cost benefit analyses to affirm the need for focused audits.

Reporting Stage

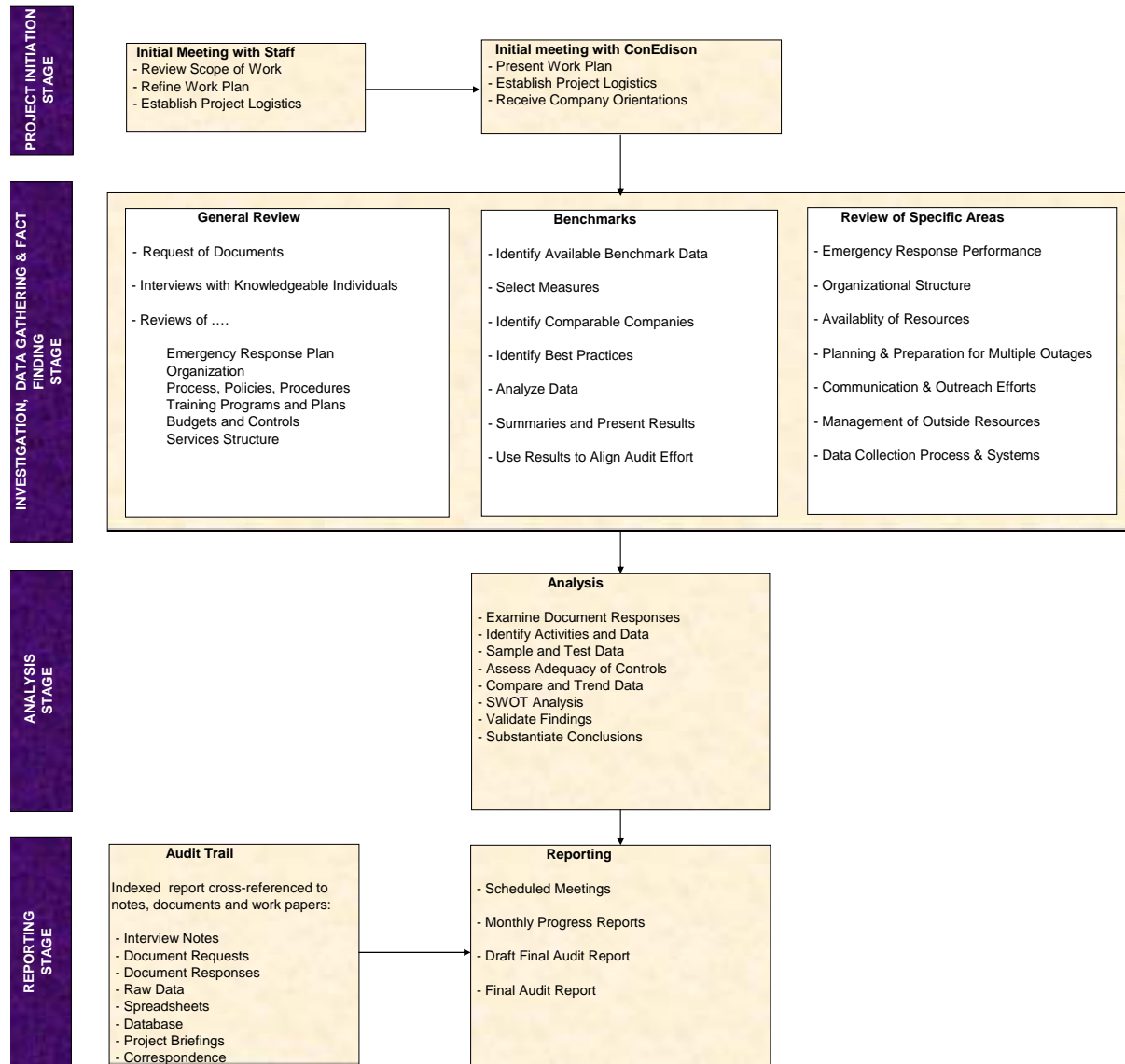
This is an ongoing process consisting of regular audit updates and monthly progress reports in addition to the Draft and Final audit reports. The monthly report includes a summary of completed activities, next month's activities, project issues, and project budget status in the format approved by Staff in the project initiation meeting. Jacobs Consultancy will develop and prepare our findings, conclusions, and recommendations in a report format approved by Staff.

Following the analysis stage, we will report our results in terms of findings, conclusions, and recommendations and solutions to Staff.

- **Findings**—represent facts supporting strengths, weaknesses, opportunities and threats that can be directly tied to documents, interviews, or observations.
- **Conclusions**—summarize the findings and suggest necessary improvement actions.
- **Recommendations**—represent our comments regarding proposed improvements, alternative standards, or solutions. Recommendations will be well defined, and Jacobs Consultancy will provide a cost/benefit analysis for implementation.

This management process will ensure the Commission that each of the issues and deliverables presented in the RFP will be fully addressed.

The flowchart below illustrates our proposed work plan and flow:



Work Papers

Our project organization and management process will ensure that Staff, at any given time, has access to all audit work papers. This means that each recommendation is supported by specific conclusions, that each conclusion is backed by our findings-in-fact, and that all findings are documented by interview notes, data responses, or other work papers. Simply put, the indexing system will allow a reader of the audit report to track supporting documentation for any part of the report.

Organizationally, the work papers will include:

- Facts gathered and documents obtained

- Computations and analyses performed
- Other pertinent data relating to the audit

The project manager will document all interview and document requests and maintain all interview summaries, document responses and working papers. Each document will contain an index number, the source of the information, and the nature and extent of the work. In addition, the work papers will show the name of the auditor who prepared the paper and will be clearly titled and dated. Index numbers in the final report will allow the reader to cross reference the source documents.

Jacobs Consultancy understands the need for confidentiality and agrees that all trade secret or security-sensitive documents offered by the Company need to be used within the premises of the Company and may not be taken from the premise. To facilitate the sharing of analysis and control of report revisions, Jacobs Consultancy will use its web-based document control facility for all electronic files. This facility will allow Staff, the Company, and Jacobs Consultancy's team members 24/7 access to any work in progress. If agreed to by all parties, Jacobs Consultancy suggests that select reference documents be uploaded to this web-based document control facility. For more information regarding this web-based tool, please see page 14.

Jacobs Consultancy will retain working papers, including appropriate supporting data, for six (6) years from the date of receipt of the Jacobs Consultancy's final payment and will be available to the Commission or Staff when requested. During this period, the working papers (hard copy and/or electronic) will be available to the Company if requested.

Project Management

Any effort to deliver a quality audit requires in-depth analysis and the participation of specialized professionals. To ensure the efficient and effective use of consultant time requires diligent project management. This level of management requires sound plans, clearly established responsibilities, and adequate controls. Jacobs Consultancy uses the following tools for project management:

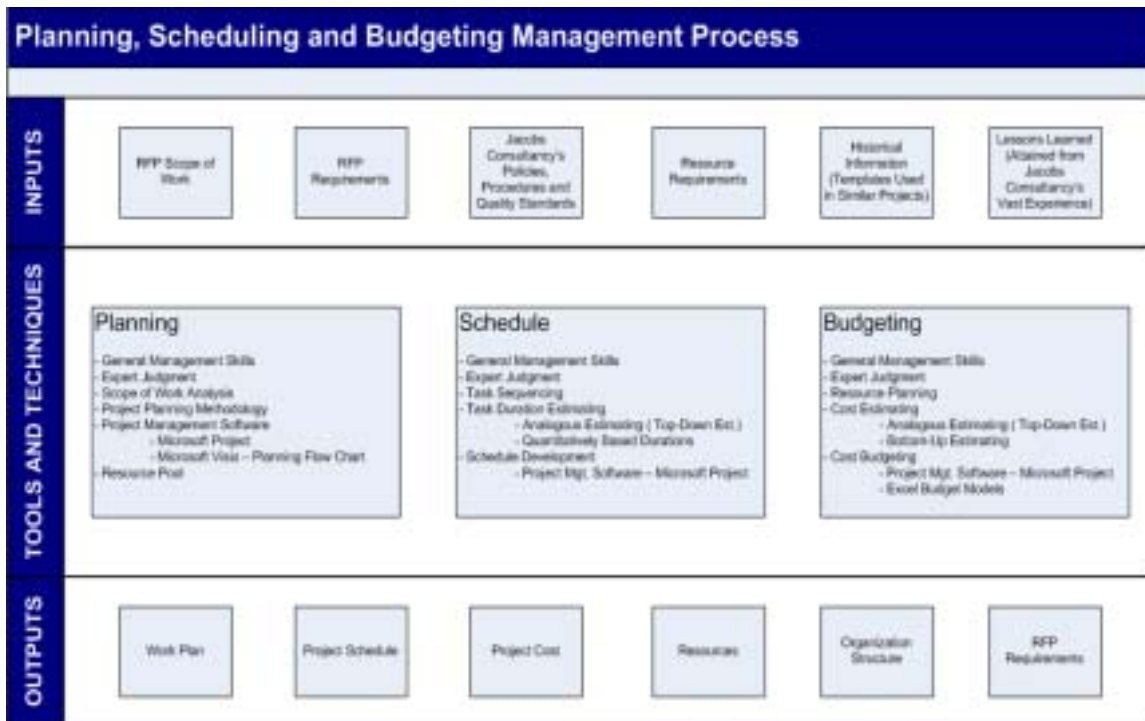
- **Project Team Organization**—Our organization plan identifies the key project team members and their communication channel, both within the team and with the client. The key project team members include a Responsible Officer, Project Manager, and several task managers as noted in the organization chart in Consulting Staff Organization section. A summary of their experience is found in the Qualifications of the Firm section of this proposal; copies of their résumés are provided in the Exhibits section.
- **Senior Project Oversight**—This oversight mandates the Responsible Officer, Project Manager, and supporting managers review all aspects of the work being performed including the analysis methods, finding, conclusion and recommendation development, and

report preparation. This oversight entails continuous supervision of the other team members.

- **Project Work Plan**—This plan provides the basis for managing an assignment of this magnitude by clearly indicating tasks, responsibilities, consultant hours, target dates, and milestones. Jacobs Consultancy will confer with Staff to prepare and submit an initial and final draft work plan to Staff subsequent to the initial orientation meetings. This work plan will include, at a minimum:
 - Our approach to performing the scope of work, with emphasis on the techniques to be used for collecting and analyzing data.
 - The sequence of the Company's areas to be audited.
 - The methods to be used in managing the project.
 - Anticipated time for each task to be completed.
- **Client Discussions**—These discussions are designed to highlight key issues, facilitate project status reporting, identify next steps in the process and resolve any open issues. Staff will be notified in advance of meetings and copied on all correspondences with the Company, unless we are otherwise directed. We expect to work through the Commission Staff, when necessary to resolve any conflicts with the Company.
- **Team Meetings**—These meetings give team members a forum for discussing the issues arising and identifying issues that transcend functional boundaries. Whenever possible, these meeting are conducted by video conferencing, net media, conference calls, as well as face to face meeting.
- **Working Papers**—Jacobs Consultancy maintains copies of documents it receives and provides access to working papers and copies of any computer diskettes developed during the course engagements. These items will be kept locally and will be made available for inspection by authorized representatives during normal business hours upon reasonable notice.

Project Planning

The following flow chart best illustrates Jacobs Consultancy's management process for planning, scheduling and budgeting:



Project Coordination

Jacobs Consultancy recognizes the imperative of working closely with Staff in an audit of this nature and duration to fully achieve the Commission's objectives. Project coordination is another one of our proposal cornerstones.

We will report directly to Staff. All written and oral communications will be through Staff. If a situation is urgent, Staff will be notified immediately. Jacobs Consultancy will be ready to discuss the audit's progress with Staff as necessary. We plan to ensure proper project coordination with Staff through the following means:

- **E-mail**—The Staff Project Manager is copied on any correspondence with the Company, i.e. meetings, interview schedules, document requests, and field site inspections.
- **Conference Calls**—At the outset, we expect to have weekly telephone conference calls. As the project progresses, the Staff Project Manager can expect biweekly telephone conference calls.
- **Client Meetings**—While onsite, we will schedule a weekly face-to-face meeting and an exit interview upon completion of onsite work.
- **Interviews & Field Inspections**—We plan to coordinate interviews and site work whenever possible to facilitate Staff attendance and participation in these activities.

- **Project Briefings**—Weekly project briefings with Staff will include Jacobs Consultancy’s Project Manager and the Responsible Officer as necessary. Whenever possible, we will coordinate our on-site work activities to correspond with the Project Briefings. As needed, Staff may contact Jacobs Consultancy to request that a member of our key management team or consultants provide verbal briefings on an aspect of project activities, progress, schedules, observations, recommendations or other project issues. Briefing schedule, content and format will be according to the mutual agreement of both parties.

Staff Participation

Jacobs Consultancy values the importance of working closely with Staff in the manner necessary to fully achieve the Commission’s audit objectives. This has been a cornerstone in the preparation of our proposal. For this reason, we believe it is critical that at the initial meeting:

- Jacobs Consultancy and Staff complete a client expectation survey, which will result in the preparation of a Client Satisfaction Improvement Plan the Project Manager shares with each member of the audit team. This plan communicates the actions that we as a team and as individuals must take to exceed your expectations.
- Jacobs Consultancy and Staff confirm the areas in which Staff will actively participate as desired during the audit—interviews, document requests, process reviews, transaction audits, project updates, draft report review, etc.
- Jacobs Consultancy’s Project Manager and Staff Project Manager establish a schedule of formal and informal project update briefings.

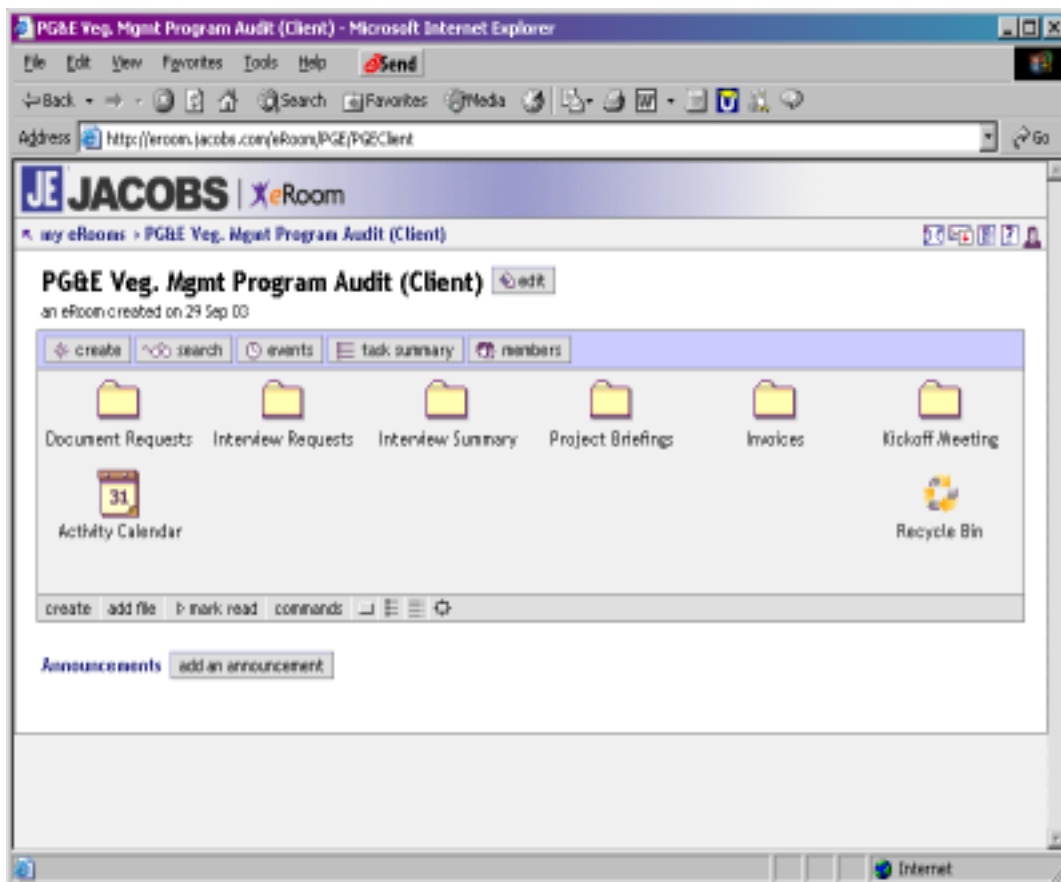
As part of our audit process, Staff will be copied on and informed of all requests for documents, interviews, and meetings. All meetings, interviews, and site work will be conducted at the utility’s offices.

We also understand the needs of Staff to report to the Commission and to answer questions from time to time regarding the progress and status of the audit. To facilitate this communication, as well as to be kept abreast of meetings, interviews, documents collected, and project briefings etc., we propose to employ our web-based eRoom facility. The eRoom will provide Staff and Jacobs Consultancy’s Team a shared, secure workplace on our server for distributed project team members to do their work and monitor the progress of the audit. The eRoom will enable Staff and Jacobs Consultancy to discuss issues, share information, and make decisions, all within a central location. The eRoom also provides built-in project functionality for managing content, thus enabling the integration of content and collaboration in our work process. Staff will have access to the data, information and shared work product 24 hours per day, 7 days per week. An eRoom has been successfully employed for the California Public Utility Commission’s audit of PG&E’s Vegetation Management Program and for the New

Jersey Board of Public Utilities evaluation of the joint petition of Public Service Electric and Gas Company and Exelon Corporation for approval of a change in control of Public Service Electric and Gas Company.

For more information on our eRoom facility, please visit our service provider website <http://www.documentum.com/products/glossary/erom.htm>.

This facility will augment, not replace, face-to-face and telephone communications.



Meetings and Progress Reports

Orientation Meetings

Upon the award of the contract, Jacobs Consultancy will schedule and attend a meeting with Staff and/or the Commission to discuss all pertinent items relative to the audit. In addition, we will meet with representatives from Con Edison to establish project logistics and receive company orientations.

Interim Conferences

Jacobs Consultancy will attend meetings to discuss any and all pertinent items as requested by Staff.

Monthly Progress Reports

Jacobs Consultancy will submit a monthly written report to Staff for any month in which work was performed. The written monthly progress report submitted to Staff by the tenth business day following each month's end includes (1) a narrative briefly describing progress in relation to the project schedule as contained in the final work plan and discrepancies between the schedule and actual progress, (2) a list of interviews and site visits completed in the previous month, (3) a monthly report of staff-days expended by activity in each task area, (4) a report showing data requested and date received, and (5) any matters of significance that would, if adopted, improve the Company's electric emergency outage response. The monthly progress reports will be in the format approved by Staff in the project initiation meeting. Our typical status report format provides the client with an update containing:

- Summary of accomplishments since the last update
- Observations regarding the work in progress
- Status of the work in progress
- Identification of any project issues, corrective actions being taken, and their status
- Summary of charges
- Project schedule
- Goals between now and the next update

Other Documentation

In addition to the monthly progress reports, Jacobs Consultancy will provide other written reports or documentation as necessary during the course of the audit. Reports that will be prepared for electronic distribution include:

- A report of interviews and site visits scheduled, if applicable, for the following week. This will serve as a report on interviews conducted.
- A document request log kept onsite at the utility, showing data requested and date received.

Audit Reports

Draft Final Audit Report

We will provide a draft of the final audit report including a summary of the audit process, and all recommendations will be submitted in accordance with the contract schedule. After appropriate review and authorization by Staff, Jacobs Consultancy will release the draft report to the Company for its review. The Company's critique of the draft report will be confined to factual discrepancies, which will be communicated to Staff. Jacobs Consultancy, in consultation with Staff, will give consideration to the Company's comments in producing revised draft reports as necessary. Subsequently, Staff will authorize the preparation of the Final Audit Report.

Final Audit Report

Jacobs Consultancy will present the final report to Staff. The Company will then have the opportunity to submit its comments on the final report to Staff. We will provide printed copies of the final report if requested by Staff.

4. Areas and Issues for Review

To accomplish the objectives of the assignment and provide a thorough review and assessment of the electric emergency outage restoration capabilities of the Company, we will investigate the key specific issues from three primary perspectives: (1) planning/preparedness, (2) performance/effectiveness, and (3) best practices.

Planning/Preparedness

We will review the adequacy of the Company's overall emergency preparation and response planning process as well as the Emergency Response Plan. The review of the planning process will include the activities Con Edison takes in anticipation of an electric emergency outage. To thoroughly review electric emergency outage planning and preparedness, Jacobs Consultancy will:

- Review the overall objectives of the emergency outage plan and preparedness
- Look for evidence that the objectives are embedded in the field operations
- Assess the intended emergency response process
- Analyze the response organizational structure
- Assess the resources to respond to major events
- Evaluate the adequacy of emergency response training
- Review the Emergency Response Plan's adequacy
- Evaluate the Emergency Response Plan's incorporation of system protection considerations
- Evaluate customer outage data collected for the outage planning process
- Review the process by which information is gathered to determine the extent of an outage and required resources
- Review and assess the internal, external, and related communications needs
- Assess the ability to manage multiple large-scale outages.

The details supporting the above areas of investigation into the emergency outage planning and preparedness are as follows:

- Review the overall objectives of Con Edison's emergency outage plan and preparedness.
 - a. Determine if these objectives are comprehensive and at the level needed to establish an integrated perspective on emergency response.
 - b. Convey an overarching corporate philosophy that prompt restoration of service is job number one.
 - c. Contain senior management's strongest endorsement.
- Look for evidence that a thorough response and prompt electric restoration philosophy is embedded in field operations.

- a. Observe at various levels in the Company the use of emergency response metrics, customer surveys, and stakeholder opinions as a means of internal communications.
 - b. Interview a small random sample of employees to determine if the need for prompt emergency response is compromised by other corporate priorities such as: reduce operations and maintenance (O&M) expenses; minimize capital expenditures; reduce overtime; reduce number of scheduled employees, etc.
 - c. Review operating procedures to ensure that they enable implementation of Con Edison's corporate restoration philosophy.
 - d. Analyze incentive and bonus pay programs to see if they reward top electric restoration performance.
- Conduct an assessment of Con Edison's intended emergency response processes. This will include an evaluation of planning provisions for the following elements of an effective plan:
 - a. Review the intended state of readiness of resources, systems, and infrastructure.
 - b. Review the intended actions to be taken in anticipation of potential major events, both in terms of seasonality and forecasts of discrete events.
 - c. Review plans for any pre-event mobilization tasks to be undertaken once a probable event is identified.
 - d. Review plans, procedures, and work practices in place to reduce the impact (outage size & duration) of a major event.
 - e. Review plans for post-event follow-up intended to return the system to normal, including provisions of making permanent repairs.
 - f. Review outage mitigation provisions intended to reduce the adverse impact of a major event on affected customer classes, including those with special needs.
 - g. Review the Plan's provision for conducting formal post-event failure finding ("lessons learned") assessment.
- Perform an assessment of the Con Edison organization to manage major events impacting its electrical system and its customers.
 - a. Assess the accountability and documented actions of senior corporate management and the Board of Directors in assuring that emergency response and overall reliability of the electric distribution system is given appropriate priority supported by continuous improvement initiatives.
 - b. Document how major event planning is prioritized and implemented at all management levels in the electric distribution department and in departments outside of electric distribution that own key pieces of the major event response.

- c. Examine in depth the organizational entity directly responsible for major event emergency response planning.
 - d. Examine the organizational position, staff, budget, reporting relationships, training, and major event/storm drill exercise planning and performance.
 - e. Examine in depth the function and effectiveness of Con Edison's Emergency Operations Center (EOC).
- Perform an assessment of the resources within the Con Edison organization to respond to major events.
 - a. Document how all levels and trade skills of personnel, both internal to the electric distribution department and the supporting groups outside of electric distribution, focus on restoring power in a timely fashion.
 - b. Assess ability to assign adequate numbers of dispatch personnel, trouble assessment personnel, stores personnel, and material transportation personnel to support field crews.
 - c. Assess availability of field crews and work rules, worker safety requirements or union agreements that impact the availability of the crews to work effectively during major events.
 - d. Assess the equipment required by field crews in an emergency event with a focus of identifying gaps between normal field crew daily use equipment and equipment that would be useful, but not regularly available, during large scale interruption events.
 - e. Assess the electric distribution office and stores facilities to assure personnel and material are located strategically to respond to interruptions.
 - f. Assess the availability and reliability of redundant or backup IT and communication systems during emergency conditions
 - g. Assess the ability of the Supply Chain Management organization to provide and deliver electrical power replacement devices and cable, associated material, including both consumable and non-consumable items and specialized tooling to both Con Edison crews and crews from other utilities or contractors.
 - h. Determine what contracting arrangements are in place to facilitate planned emergency expansion of the workforce.
 - i. Document management's philosophy, inventory budgets, emergency inventory stocking levels and inventory financial goals with respect to the procurement of physical plant inventory.
 - j. Document the historical results of efforts to supplement its workforce via sister utilities during major events.

- Perform an assessment of Con Edison's emergency response training effort and orientation during outage events.
 - a. Interview operators and field personnel to determine how familiar they are with both the Electric Operations Emergency Plan and the emergency plan for the regional Electric Operations organizations.
 - b. Review and document the program to provide emergency response training for those personnel assigned service restoration responsibilities that are different from their normal duties.
 - c. Evaluate the storm drills that are conducted to determine if:
 - Appropriate personnel, departments, and outside resources are involved.
 - Simulations of the operation of the distribution system are realistic.
 - Multi-contingency scenarios are adequately covered.
 - Issues arising from the drills are captured and addressed.
 - d. Assess methods for managing and evaluating the effectiveness of the emergency response training program, such as oral or written exams given after formal training and provisions for critiquing the drill procedures.
 - e. Review the ongoing training provided for employees with underground emergency responsibilities, including training for equipment failure and manhole events.
 - f. Assess the training provided in communication and reporting techniques, including emergency communication.
 - g. Assess the 18-month apprenticeship program for field personnel to assure the training is effective and practical.

- Conduct an assessment of the Con Edison Emergency Response Plan's provisions for addressing known strengths and weaknesses in the Transmission and Distribution (T&D) system energy delivery infrastructure. The review will include an evaluation of awareness and contingencies for:
 - a. Known areas and elements of vulnerability and weakness
 - b. Known areas of operating constraint
 - c. Critical systems and elements of infrastructure

- Complete a general assessment of Con Edison's Emergency Response Plan provisions for incorporation of T&D system protection considerations into the restoration planning process.
 - a. Review current transmission circuit, substation, and distribution circuit protection schemes and coordination strategies as related to major events.

- b. Review practices related to updating and maintaining coordination and protection studies in anticipation of major events.
 - c. Review the priority given to the restoration of critical customers and loads.
- Review and evaluate the customer outage data that Con Edison collects for its emergency outage planning process.
 - a. Identify and document the data collected, archived and used for service interruption planning and preparedness
 - b. Determine how outage and service interruption data is collected.
 - c. Document customer-initiated data collection procedures and available data.
 - By automated response unit
 - By customer reps and emergency response operators
 - d. Document the nature and extent that system load data is available for outage contingency planning in the primary and secondary distribution systems.
 - System demand (system load) at the area substation and network levels
 - System load and demand response for large customers
 - Customer priority classifications
 - e. Identify aspects of customer-initiated data collection processes that may affect the completeness, quality or accuracy of the outage data and determine whether the Company maintains relevant process statistics:
 - Call wait times, call transfer procedures and call abandonment rates
 - Sufficiency of call center staffing and communications bandwidth
 - Design of ARU menu trees (service interruption priorities and choices)
 - Type of information collected
 - Questions asked / not asked
 - Status information provided to customers
 - Ability to handle numerous calls and communicate updated status to customers
 - f. Identify aspects of company-initiated (customer outreach) data collection processes that can affect quality or completeness of data or the outage response effort.
 - Ability to identify and reach appropriate contacts at large customers that could be affected.
 - Processes for contacting customers, identifying sensitive customers, identifying customer-owned generating capability, requesting demand

- reduction and determining the demand reduction potential for individual large customers.
- Availability of data and/or processes to estimate the potential demand reduction response to mass-media requests for demand reduction.
- g. Determine the extent to which data is accurate and the potential for misinterpretation of data.
 - h. Determine what internal controls exist to maintain the integrity of data as it is collected and processed.
 - i. Determine how the company makes use of all available data in developing its outage planning/preparedness procedures.
 - General customer outage data (from Outage Manager)
 - Individual customer load, sensitivity and generation capability data
 - System fault/open circuit data
- Perform a comprehensive assessment of the entire process by which Con Edison assembles information and data to determine the extent of damage to its equipment, to determine the total number of discrete trouble events that must be responded to by repair crews and to estimate the number of customers experiencing interruptions.
 - a. Review the SCADA (Supervisory Control and Data Acquisition) systems that provide real time information on the status of power distribution devices
 - b. Review trouble management information technology systems that automatically link customer calls to the probable cause of an interruption, information systems that estimate the probable duration of customer outages, telecommunications systems that permit interrupted customers to notify Con Edison easily and promptly that they are experiencing a problem and systems to notify customers of expected interruption durations.
 - c. Assess the ability of the various systems and personnel to manage the massive data requirements associated with major events.
 - d. Review the methodologies by which Con Edison responds to information from the public and governmental entities regarding dangerous conditions and how Con Edison protects the public from dangerous situations pending availability of repair crews will be reviewed.
 - e. Review the ability of the Con Edison systems to document individual trouble situations to assure that records accurately reflect customer counts and interruption times.
 - Perform a thorough assessment of Con Edison's communication policies and procedures by determining how the Company addresses the following issues:

a. Internal Communications

- Properly communicating defined expectations and telling employees what is expected? Clearly, the better people understand why they've been asked to complete a task, the more ownership they will take seeing it through successfully.
- Articulating the use of advanced communication technologies (such as secure Internet access) to encourage an integrated corporate approach to electric outages.
- Encouraging data to be shared real-time between different constituent organizations that need to be intimately involved for effective restoration.
- Utilizing refined metrics to ensure concise communications between the emergency operations center and employees.

b. External Communications

- Articulating a proactive management of communication with the customer integrated across multiple media channels.
- Supporting public outreach as a multifunctional strategy. Does it call for meetings with the community and various civic groups as well as one-on-one contact with those affected?
- Articulating the use of advanced communication technologies (such as secure Internet access) to encourage an open and honest interaction with various stakeholders.
- Encouraging the use of service restoration approaches tailored to customer class-specific needs.
- Requiring outage restoration plan to encourage the use of service restoration approaches tailored to various specific stakeholder needs.
- Ensuring employees are properly trained to communicate to customers when responding to emergency outages.

c. Other Communication Related Items

- View other utilities committed to support service restoration by mutual aid agreements as service providers with whom the company can share data real-time.
- Monitor and assimilate communications and messages from various external sources. Where appropriate, utilize information to influence outage restoration planning.

- Review Con Edison's plans to manage multiple large-scale outages.
 - a. Document how multiple large-scale outages are handled.
 - b. Understand the organizational strategy to respond to large-scale outages.
 - c. Review provisions for resources and mutual aid in the context of large-scale outages.
 - d. Review the plan for data and information transfer in the event of multiple large-scale outages.
 - e. Review the communications plan in place in the event of multiple large-scale outages.

Performance/Effectiveness

We will review Consolidated Edison's actual electric emergency outage performance, including execution of its Emergency Response Plan. Our focus will be on the effectiveness and efficiency of outage performance and include an assessment on historical performance. To thoroughly review the Company's electric emergency outage performance and effectiveness, Jacobs Consultancy will:

- Review and analyze system performance during major events between 1999 and 2006
- Evaluate the effectiveness of the total response to the major events
- Assess Con Edison's ability to implement the Emergency Response Plan
- Review how the data collected affected the company's response to electric emergencies and its ability to quickly restore power
- Assess the performance of the T&D system for over-current protection during each of the four major events
- Document the ability to supplement its normal workforce during large unusual events
- Evaluate the effectiveness of various outreach efforts
- Assess if restoration activity functions effectively within the National Incident Management System framework

The details supporting the above areas of investigation into the emergency outage performance and effectiveness are as follows:

- Perform a review and analysis of the Con Edison system performance during major events between 1999 and 2006 as well as identify both strengths and weaknesses with the current operations.

- a. Analyze Con Edison's ability to assess the extent of the emergency event and respond in an aggressive and competent manner to restore service.
 - b. For each event, perform a comprehensive evaluation of the methodologies and actual performance in restoring electrical service, including total customers interrupted, timeframes for restoration of service, number of personnel both employees and contractors responding to the event, and weather conditions contributing to the event.
 - c. Review major event storm management policies and other significant major event factors and how they were reflected in the actual response.
- Evaluate the effectiveness of Con Edison's total response to major events.
 - a. Compared Con Edison's performance to that of other New York state electrical utilities. Major events attributed to the unique Con Edison service territory, such as the underground system, will be distinguished.
 - b. Determine if recommendations and lessons learned from previous events have resulted in documented changes.
- Assess the ability of Con Edison to implement the emergency response plan.
 - a. Conduct structured interviews with management and field personnel in the Emergency Operations Center, Field Management and Supervision, Field Workforce Crews and Support Function Personnel to better assess the perceived strengths and weaknesses of the system from the viewpoint of the actual workers.
 - b. Review the root-cause-analysis methodologies used to determine weaknesses of the system and how corrective measures are developed and implemented.
 - c. Identify strengths of the system and changes to procedures.
 - d. Evaluate the impact in subsequent events.
- Review the data collected by Con Edison to determine how it has affected the Company's response to electric emergencies and its ability to quickly restore power. According to the Comprehensive Report on the July 2006 LIC event, several days into the event the Company's Outage Manager system indicated an estimated 2,000 outages when approximately 25,000 customers, as determined by field survey and manual count, were actually out of service. In this case, Outage Manager's out-of-service log did not provide an accurate indicator of customers not in service, and this impeded the Company's ability to identify—and therefore restore—service to many customers.

This will include a review of the collection and use of outage data from 1999 through 2006 to determine whether it assisted or impeded the Company's electric emergency outage

performance. It will involve the results of interruption reporting systems, data collection process accuracy, and require the following steps:

- a. Identify significant outage events and document the data that was collected during these events and the systems and processes used to collect it.
 - b. Evaluate data collected during outage events and assess its use to determine whether it assisted in or impeded the outage response and service restoration process.
 - c. Evaluate customer call data to see how it was used, particularly in network areas, to determine the locations and extent of service outages.
 - d. Determine whether call center and emergency control center communications facilities had sufficient capacity to handle customer outage reports during the events.
 - e. Determine whether insufficient capacity limited the Company's ability to collect data and respond to outage reports.
 - f. Determine whether the outage management and distribution systems were sufficiently close to the state-of-the art (spatial-based systems with graphical interfaces) to maximize the ability to effectively use available outage data.
 - g. Review service request data collected in the emergency control system to determine how it was used to prioritize and dispatch trouble tickets.
 - h. Determine whether crews dispatched to restore power in the secondary network collected data concerning possible outage conditions that were not necessarily called in by customers.
 - i. Determine the extent to which outage data was transmitted and used in a timely fashion to estimate the number of crews needed to restore power
 - j. Evaluate the availability of data concerning the status of secondary network components and the likely locations of problems within the network.
- Conduct a general assessment of the performance of Con Edison's T&D over-current protection system during each of the four major events:
 - a. Assess the over-current protection devices on T&D lines and in substations and their effectiveness in quickly isolating and interrupting electrical faults.
 - b. Determine the role system protection plays in determining the duration and number of customers affected during an outage.
 - c. Review the performance of the transmission, substation, and distribution circuit protection system.
 - d. Assess the automatic and manual emergency load reduction actions taken to relieve and isolate system overload conditions.

- Document the results of contractors and EEI Mutual Assistance Programs in supplementing the Con Edison workforce during major events.
 - a. Assess types of work done by contractors who routinely supplement the Con Edison workforce and also those contractors who perform work only during emergencies.
 - b. Identify types of work that could be assigned to local contractors and assess the ability of the electrical contractors in the New York region to provide skilled workers to match the needs.
 - c. Analyze the ability of Con Edison to use these crews effectively including housing, feeding, fueling, headquartering, material and equipment procurement, and worker safety issues will be reviewed.
 - d. Assess the interface for determining scope of work at specific trouble site and communication with contract employee management and supervisions.
 - e. Assess the ability and effectiveness to deploy non-traditional or non-essential Con Edison personnel to assist the total restoration effort, including an assessment of training provided for the tasks assigned.
- Assess the communications contributed to the overall outage restoration results:
 - a. Determine through interviews of the field workforce if they understood why they were directed to complete a particular outage related task.
 - b. Examined the free flow of information and data between various corporate entities.
 - c. Assess whether consistent and detailed metrics were used to help communicate between the emergency operations center and employees.
 - d. Review logs of meetings held with the community and various civic groups as well as other public outreach efforts.
 - e. Examined the types of communication technologies used to encourage open and honest interaction with various stakeholders.
 - f. Review restoration data to determine if customer class specific needs were taken into account.
 - g. Examined any written mutual aid and contracts with service providers to ensure they can be deployed properly.
 - h. Examine media reporting that took place during the outages to ensure that proper communications were maintained with various constituencies.
- Assess if restoration activities function effectively within the National Incident Management System (NIMS) framework and protocols.

- a. Collect all available relevant background information regarding Con Edison's consequences management programs. Jacobs Consultancy will examine the following Plan aspects:
 - Mission Statement
 - Operations and functional requirements.
 - Existing Consolidated Edison Comprehensive Emergency Management Plan (CEMP).
 - CEMP interface with planned future projects.
 - Document Security/Safeguarding requirements
 - Legislative requirements
 - Review of the Consolidated Edison Continuity of Operations Plan
 - Organized labor requirements.
 - Intelligence gathering capabilities.
- b. Review the CEMP in place and identify gaps and deviations from NIMS and industry best practices and.
- c. Review any usages of the CEMP in the last year to identify key measures of compliance and implementation.
- d. Review effectiveness of implementation and knowledge of the Plan by key employees and functional areas of the Company.
- e. Review Company plans and policies for stockpiling critical spare parts and equipment needed for crisis response.

Best Practices and Prevention Strategies

We will review Consolidated Edison's use of industry best practices within its electric emergency outage program and its strategies in reducing the likelihood and impacts of future outage events. Our focus will be on recognizing which best practices are employed, noting which best practices are not employed and recommending others that might be suitable. To thoroughly review electric emergency outage adoption of best practices and prevention strategies, Jacobs Consultancy will:

- Identify industry best practices related to the Company's electric emergency outage program
- Compare Con Edison to industry best practices and perform a gap analysis
- Identify opportunities for improvement to mitigate and reduce the effects of outages
- Review Con Edison's approach to asset management activities intended to preserve and maintain the energy delivery system

Jacobs Consultancy will use its experience from consulting reviews of other utilities coupled with the specific strengths and weaknesses as determined by our actual detailed analysis of Con Edison to determine specific major event/emergency response best practices that would have positive impact reliability. Jacobs Consultancy believes that effective emergency response starts with a commitment by senior management to provide excellent electric service restoration efforts. Jacobs Consultancy is knowledgeable of specific actions taken by electric utilities that have improved both electric reliability by reducing the number of interruptions and the length of interruptions. Excellence in management of routine interruptions and smaller emergency events form a building block for effective major event response.

The details supporting the above areas of investigation into the emergency outage best practices and prevention strategies are as follows:

- Identify industry best practices related to the Company's electric emergency outage program.
 - a. Collect benchmarking data from comparable utilities with similar operating environments in the following areas:
 - Planning
 - Mobilization
 - Damage Assessment
 - Performance of energy delivery system infrastructure
 - Management of restoration resources
 - Management of support services
 - Managing information and communications (e.g. supply chain)
- Compare Con Edison to industry best practices and perform a gap analysis.
 - a. Determine what reliability and service restoration metrics are currently tracked, and how this can be expanded to improve both storm response and daily reliability,
 - b. Investigate benchmarking and continuous improvement efforts Con Edison has made to-date that make use of industry best practices.
 - c. Determine the source of the best practices, including EPRI or EEI, specific contracting with emergency planning consultants or benchmarking consultants, and internal resources devoted to continuous improvement of the process.
 - d. Identify industry best practices for key elements of the major event emergency response process and conduct comparative analysis to determine performance gaps in Con Edison's practices and process.
- Identify opportunities for improvement to mitigate and reduce the effects of outages.
 - a. Develop a comprehensive listing of improvement opportunities, along with a business case targeted at high value opportunities.

- Review Con Edison's approach to asset management activities intended to preserve and maintain the energy delivery system.
 - a. Assess philosophy and strategies for asset assessment and maintenance, as related to preventing and mitigating the impact of outages. This review will cover the following broad topics:
 - Transmission Circuits
 - Substations
 - Underground networks
 - Underground Distribution Feeders
 - Overhead Distribution Feeders
 - Vegetation Management

5. Consulting Staff Organization

Regulators have come under ever-greater scrutiny to demonstrate strong stewardship of the utilities to ensure that continued safe, reliable, and fairly-priced utility services are available. With access through our parent organization, Jacobs Engineering Group, to more than 43,000 employees including economists, transaction advisors, financial analysts, engineers and scientists, Jacobs Consultancy has the expertise to assist our clients in meeting the challenges of today's market. Our geographic coverage includes over 60 offices worldwide with two major offices in New York.

Jacobs Consultancy has extensive management experience and a tremendous diversity of in-depth regulatory and utility industry consulting experience. We bring a number of desirable qualities to the Commission. These qualities include:

- A proven reputation for delivering practical management and technical solutions.
- Extensive utility operations management, accounting and finance, as well as business process knowledge and experience, combined with a real world understanding of the issues and business objectives facing our clients and the utility industry.
- A proven methodology for performing management, financial and technical audits and in-depth reviews.
- Highly experienced project management and an experienced project manager.
- Global utility operations management knowledge and experience, combined with a real world understanding of the issues and regulatory objectives confronting regulators like the New York State Public Service Commission to ensure safe, reliable service.
- "Hands-on" utility business and operations management experience.
- Proven ability to advise and complete assignments for state utility boards on a wide array of issues.
- A 43,000 employee organization with diverse consulting and engineering capabilities, which will be available to support and augment the Commission Staff in a timely, on demand basis.
- A one-stop-shop for most of the skills required to support a variety of assignments.
- Utilization of a proven web-based project management tool (eRoom) for enhanced communications and document control.
- The ability to provide the "bridge" between technical issues and consumer interests.

We possess extensive experience in performing management and technical audits of electric and gas utilities in the US and abroad. We are currently providing energy reliability consulting services in connection with the Exelon-PSEG proposed merger for the New Jersey Board of Public Utilities. In addition, we are performing a three-year, \$1.1 million Vegetation

Management Audit of PG&E for the California Public Utility Commission, which is focused on the improvement of the business processes utilized and the service reliability aspects of the program. Boards or agencies for which our team has worked with include the following:

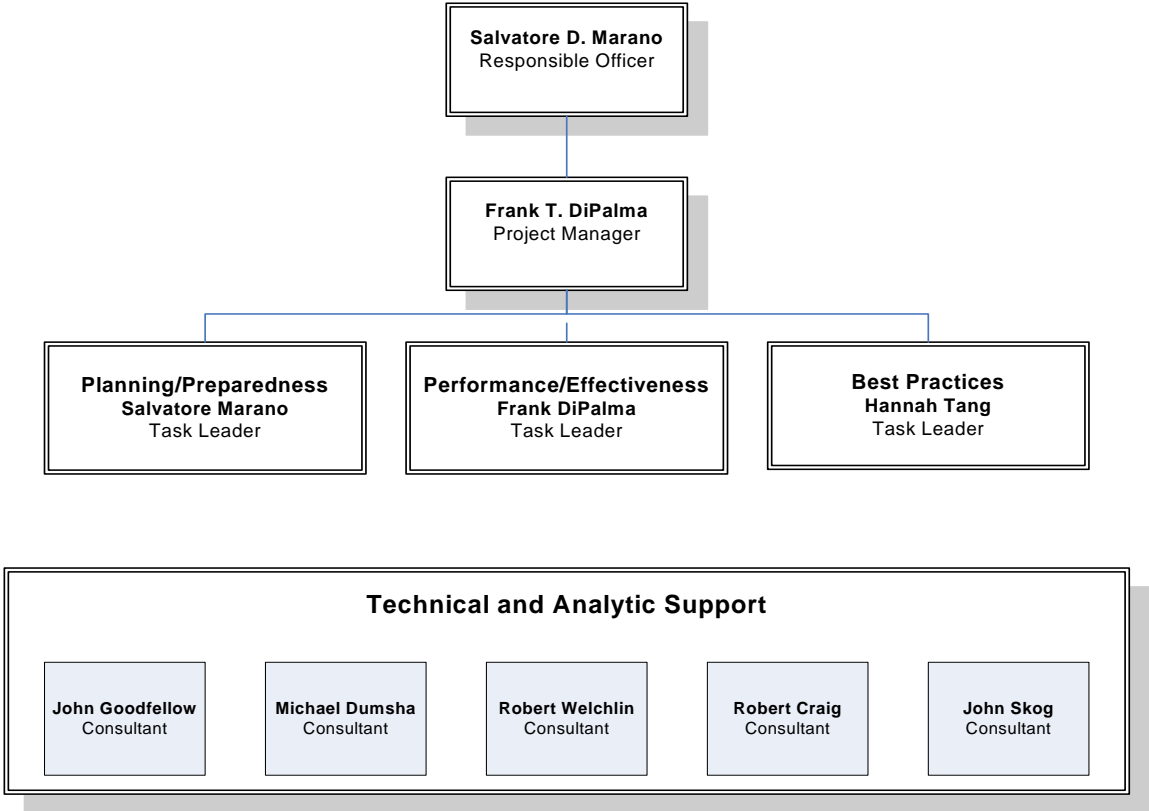
- New Jersey Board of Public Utilities
- California Public Utility Commission
- Connecticut Department of Public Utility Control
- New Mexico Public Regulation Board
- Regulatory Board for the State of Victoria, Australia
- Kentucky Public Service Commission
- Wyoming Public Service Commission
- Kansas Corporation Commission
- New York Public Service Commission

Our management audit experience and tremendous diversity of in-depth utility industry consulting experience bring a number of desirable qualities to this proposal.

Our proposed **Project Manager**, Frank DiPalma has over 30 years of consulting and utility experience. Salvatore D. Marano, P.E. will be the **Responsible Officer** for all aspects of this assignment. He has held numerous utility operating and management positions for over 20 years in the New Jersey / New York area.

Organization Chart

The organization chart on the next page shows the overall management structure and the personnel who will work on each aspect of the evaluation.



The chart below identifies the personnel who will be assigned to the specific task areas and their expected time commitment.

Task Assignments		
Task	Consultant	Hours
Planning/Preparedness		
Review the overall objectives of the emergency outage plan and preparedness	Marano/DiPalma	100
Look for evidence that the objectives are embedded in the field operations	Marano/DiPalma	120
Assess the intended emergency response process	Goodfellow/Skog	160
Analyze the response organizational structure	DiPalma/Dumsha	160
Assess the resources to respond to major events	DiPalma/Dumsha	200
Evaluate the adequacy of emergency response training	Tang	120
Review the Emergency Response Plan's adequacy	Goodfellow/Skog	140
Evaluate Emergency Response Plan's incorporation of system protection	Goodfellow/Skog	100
Evaluate customer outage data collected for the outage planning process	Tang/Welchlin	160
Review process by which information is gathered to determine extent of outages	Tang/Welchlin	120
Review and assess the internal, external and related communications needs	DiPalma/Dumsha	160
Assess the ability to manage multiple large-scale outages	Marano/DiPalma	120
Performance/Effectiveness		
Analyze system performance during major events between 1999 and 2006	DiPalma/Dumsha	100
Evaluate the effectiveness of the total response to the major events	DiPalma/Dumsha	160
Assess Con Edison's ability to implement the Emergency Response Plan	Goodfellow/Skog	200
Review how data collected affected the response to electric emergencies	Tang/Welchlin	200
Assess the performance of T&D system for over-current protection	Goodfellow/Skog	100
Document the ability to supplement its normal workforce	DiPalma/Dumsha	120
Evaluate the effectiveness of various outreach efforts	DiPalma/Dumsha	160
Assess restoration activities within National Incident Mgmt System framework	Craig	100
Best Practices		
Review industry best practices related to electric emergency outage program	Marano/DiPalma	160
Compare Con Edison to industry best practices and perform a gap analysis	Marano/DiPalma	160
Identify opportunities for improvement to mitigate and reduce the effects of outages	DiPalma/Dumsha	160
Review asset management strategy to maintain energy delivery system	Goodfellow/Tang	120
	Total Hours	3400

Location

Through our parent company, Jacobs Engineering Group, we have the following presence in New York:

New York City, NY

260 Madison Avenue
 12th Floor, Suite 1200
 New York City, NY 10016 U.S.A.
 Phone: 212.268.1500
 Fax: 212.481.9484

Purchase, NY

2900 Westchester Avenue,
 Suite 302
 Purchase, NY 10577 U.S.A.
 Phone: 914.253.6744
 Fax: 914.253.6836

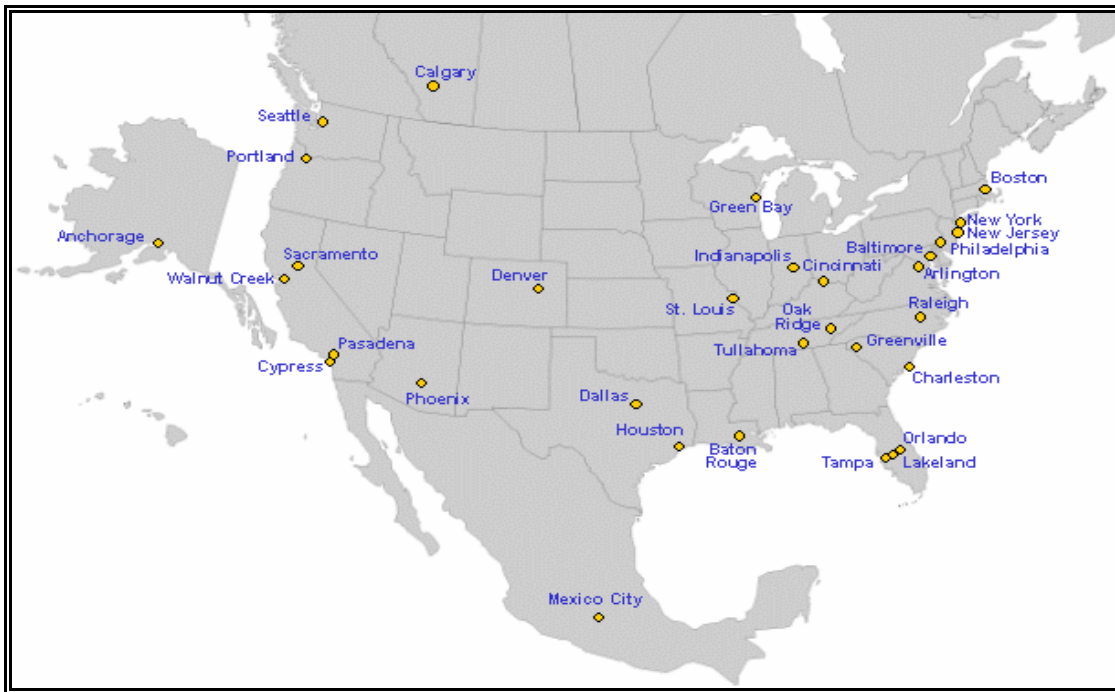
Our proposed **Project Manager** is conveniently located in Easton, Pennsylvania and will be available on a regular, as needed, timely basis to the Commission and Staff.

Frank DiPalma
Jacobs Consultancy Inc.
608 Prestwick Drive
Easton, PA 18042
Phone: 610-438-4998
Fax: 831-576-6685
Email: frank.dipalma@jacobs.com

Our proposed **Responsible Officer** will also be available on a regular, as needed, timely basis to the Commission and Staff.

Salvatore Marano
Jacobs Consultancy Inc.
Phone: 702-497-7986
Fax: 702-434-5454
Email: salvatore.marano@jacobs.com

Our North America office locations are shown below:



About Our Team

Our project team brings the capabilities and qualifications to effectively meet the technical, regulatory, and management issues of this assignment as demonstrated by our team's résumés, references, and experience.

The individuals that comprise our team have a long history of working with governmental agencies and as managers and/or advisers to utility companies. Our consultants are in the unique position of having extensive experience in all aspects of utility management, coupled with an understanding of the emergency planning, operations and maintenance practices and procedures related to electric service reliability. Additionally, we are experts in the pragmatic best practices necessary to dramatically improve utility management and particularly service reliability. We believe our team's extensive experience and qualifications, related to every aspect of this project, will satisfy the Commission's desire for a comprehensive, fair and balanced, and qualified audit of Consolidated Edison's electric emergency outage program.

For this proposal, Jacobs Consultancy Inc. will serve as the prime contractor and will have overall responsibility for the project. Supporting our project effort will be four (4) sub-contractors:

- Overland Consulting—Robert Welchlin
- Independent Consultant—Mike Dumsha
- Independent Consultant—John Goodfellow
- Maintenance and Test Engineering—John Skog

Jacobs Consultancy recently collaborated with Overland Consulting and Mike Dumsha in the Exelon/PSEG proposed merger project. John Goodfellow partnered with the Jacobs Consultancy team in the PG&E Vegetation Management audit project.

Jacobs Consultancy and Jacobs Engineering Group

JACOBS CONSULTANCY

Jacobs Consultancy Inc. is the wholly owned management and technical consulting subsidiary of Jacobs Engineering Group Inc. (NYSE:JEC), one of the largest professional services firms in the world. Our consultants provide technical, economic, and management consulting services to clients in the electric, power, water, natural gas, refinery and petrochemical, and transportation sectors around the world. Jacobs Consultancy’s practice areas, core services and company goal are the following:

<p>Our Practice Areas:</p> <ul style="list-style-type: none"> ▪ Refining, Chemicals and Petrochemicals ▪ Energy and Utilities ▪ Safety, Health and Environment ▪ Development and Technology ▪ Organizational Management and Asset Advisory ▪ Transportation 	<p>Our Core Services:</p> <ul style="list-style-type: none"> ▪ Due Diligence in Support of Mergers and Acquisitions ▪ Asset Valuation and Appraisal ▪ Systems and Process Analysis ▪ Benchmarking and Best Practices ▪ Supply/Demand/Price Forecasts of Energy and Chemicals ▪ Independent / Lender’s Engineers ▪ Strategic and Business Planning ▪ Plant Siting Analysis ▪ Organizational Assessments and Design ▪ Litigation Support and Expert Witnesses ▪ Feasibility Studies ▪ Plant Performance Modeling, Monitoring and Optimization ▪ Transport Investment Appraisal ▪ Transport Policy and Strategy
<p>GOAL: Assist our clients in lowering costs and increasing efficiency, and in providing them in superior solutions needed to survive and prosper.</p>	

JACOBS **Jacobs Engineering Group Inc.**, our parent company, is one of the world's largest and most diverse providers of professional technical services. With annual revenues over \$7 billion, we offer full-spectrum support to industrial, commercial, and government clients across multiple markets. Services include scientific and specialty consulting as well as all aspects of engineering and construction, and operations and maintenance. Our primary markets include:

Automotive and Industrial	Infrastructure
Basic Resources	Oil and Gas
Buildings	Pharmaceuticals and Biotechnology
Chemicals and Polymers	Utilities
Defense and Aerospace	Refining
Federal Programs	Technology
Food and Consumer Products	

Our fundamental business strategy is building long-term client relationships. With more than 50 years in the industry, we have attracted and retained clients by providing superior customer value—in fact, over 90 percent of our work is repeat business from loyal clients. The combination of a loyal client base and steady growth enables us to attract and retain the industry's top talent. As a result of this sound business strategy, we are prospering in diverse markets, worldwide. Our global network includes about 60 major offices in over a dozen countries. We have operations in the Americas, the United Kingdom, Europe, India, Australia, and Asia.

While our international presence is far reaching, we pride ourselves on being one company around the globe. We sustain this single culture by remaining true to our three core values:

1. We are a relationship based company

This first core value is also our fundamental business strategy: we focus on forging strong, long-term relationships with our clients, as we consider sound client relationships the most important contributor to our success. We cement these relationships by providing superior customer value and by continuously improving our performance.

2. Growth is an imperative

Our clients' needs drive our business, so we grow in pace with their growth. Indeed, the neck-and-neck global marketplace demands *growth*. And profitable growth is what all our stakeholder groups—clients, employees, shareholders—desire most from us. Our goal is to grow our business by 15 percent, every year.

3. People are our greatest asset

Employee talent is the cornerstone of our success: Their expertise and capabilities win us the work, perform the work, create value for our clients, and generate loyalty in our investors. So we

create an environment where our employees meet fresh, exciting challenges and experience the satisfaction of a job well done. Ours is also an environment that is flexible to change and open to innovation. At Jacobs, every employee contributes to value-added performance.



Further in-depth information regarding Jacobs Engineering and Jacobs Consultancy can be found on our website at www.jacobsconsultancy.com.

Overland Consulting, headquartered in Overland Park, Kansas, provides technical and creative advice to the telecommunications, electric, natural gas, water and railroad industries in the areas of economics, finance, accounting and management. Our practice consists of expert testimony in regulatory proceedings and in civil litigation, regulatory accounting and auditing, business and asset valuation, and management consulting. Our clients have included regulators, law firms, utilities, industry vendors, investors, large consumers and research groups. By maintaining open lines of communication, Overland Consulting smoothly integrates professional skills with industry knowledge in all areas of our expertise.

Overland Consulting staffs professionals with strong financial and management backgrounds including Certified Public Accountants, MBAs and former utility executives. These consultants have experience with regulatory commissions, utilities, public accounting firms and other corporations. By combining the appropriate mix of expertise from these disciplines, our staff provides advisory teams that offer a fresh outside perspective in creating innovative, sound alternatives to complex problems.

At Overland Consulting, our interest lies in timely yet thorough analyses of client needs, perspectives and interests. We are committed to providing the highest quality services and products that exceed the expectations of our clients. Our strengths include:

- Experience and integrity.
- The ability to address a wide range of financial and technical issues.
- A successful track record in completing complex consulting projects.

- Focus on emerging trends in the industries we serve.
- Wide recognition in the regulatory and management consulting field.
- A commitment to quality, professionalism and client service.

More information about our firm is available at <http://www.overlandconsulting.com>

6. Schedules and Budgets

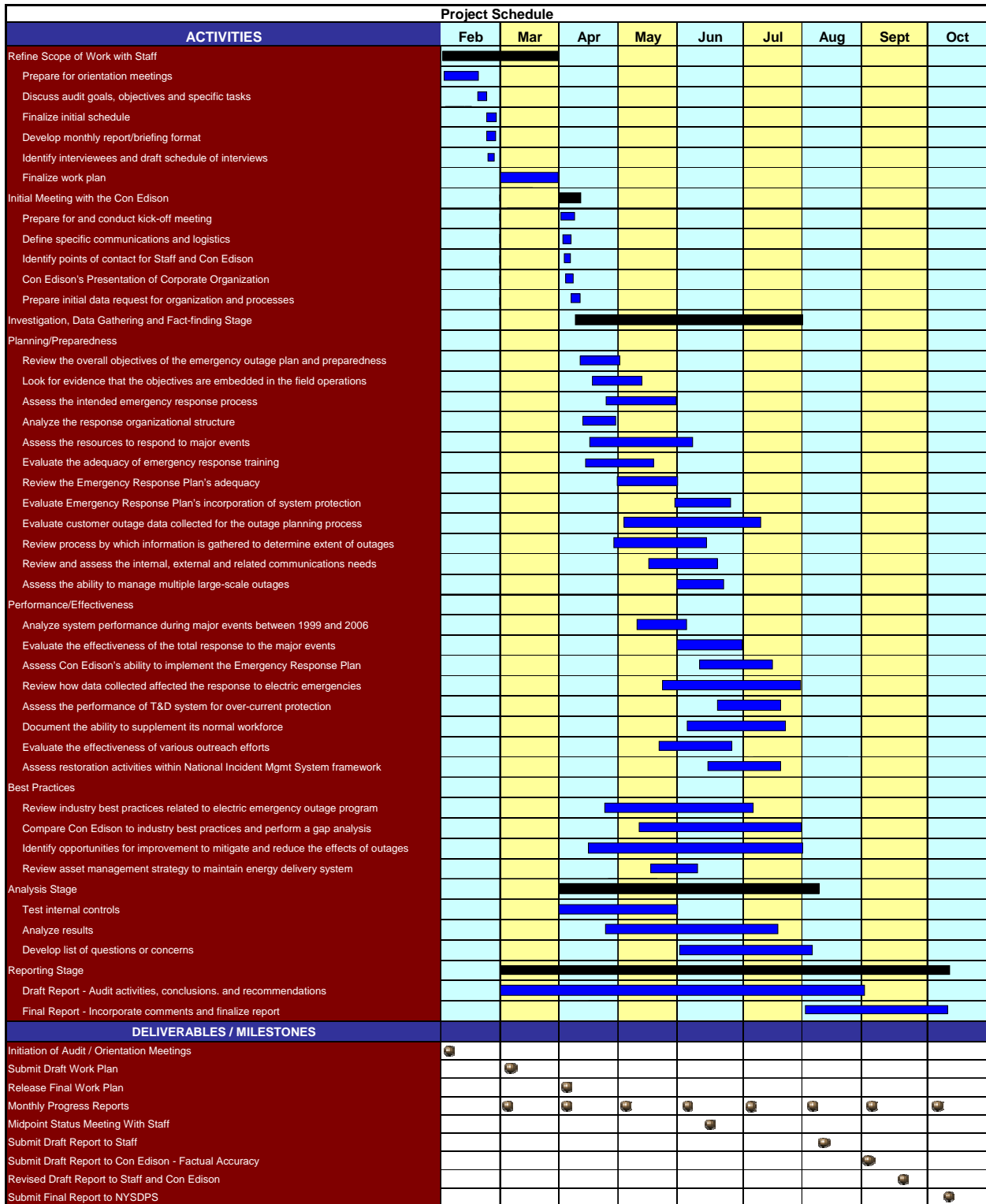
Contract Schedule

Jacobs Consultancy will meet with the Staff to discuss project logistics and refine the proposed project schedule and deliverables soon after receiving written authorization. The initial and final draft work plan submitted to Staff will include a detailed schedule, including milestones, for the remainder of the review. In preparing our schedule, we will consider the following to assure meeting Staff's target deadlines:

- Holidays
- Vacations
- Commission Meetings and Hearings
- Interview requests—10 business day notices
- Document response—10 business day notices
- Receipt of records—5 day turnaround

Our team has planned, scheduled, and budgeted the project according to our direct experience successfully conducting these tasks during similar audits. Jacobs Consultancy's management team is highly experienced and knowledgeable in effective project and personnel management and of the considerations and needs to contain costs as much as practical without sacrificing work quality or effectiveness. We will apply this direct knowledge and experience to most appropriately control time and dollars expended for this project.

An initial high-level schedule is shown on the next page.



It is the intent that all work will be completed within nine (9) months of contract award. Key dates identified in the Gantt chart above are also provided in the following table:

Task	Target Date
Consultant Selected	January 2007
Orientation Meetings	February 2007
Draft Work Plan Submitted	March/April 2007
Work Plan Approved by DPS	April 2007
Midpoint Status Meeting With Staff	June 2007
Draft Report Submitted to Staff	August 2007
Revised Draft Report to Con Edison – Factual Accuracy	September 2007
Revised Draft Report to Staff/Con Ed	September 2007
Final Report to NYSDPS	October 2007

Budget

Based upon our present understanding of the scope of work as described in the “Request For Proposal to Review the Adequacy of Consolidated Edison Company of New York, Inc’s Electric Emergency Outage Program” (Case 06-M-1078) dated October 18, 2006, Jacobs Consultancy estimates that the scope of services contained in Section II, can be completed for a fixed fee of **\$674,000** all expenses included.

Billing Rates

Current standard hourly rates for services, which have been discounted for this assignment, are provided below:

Professional Category	Hourly Fees (US\$)
Testifying Witness	500
Managing Director	360
Director	330
Group Manager	280
Senior Consultant	250
Consultant	210
Analyst	125
Administrative Support	75

In addition to the fees listed above, we propose a per diem rate of \$64.00 for all expenses, excluding hotel and transportation, which is consistent with IRS guidelines for the New York area.

Consultant @ Effective Billing Rate

Task	Rate \$	Marano 225	DiPalma 200	Tang 175	Craig 125	Goodfellow 150	Skog 150	Dumsha 125	Welchlin 190	Totals
Orientation Meetings		10	10	10	10	10	10	10	10	80
Prepare Work Plan		40	40	40	10	10	10	10	10	170
Conduct Interviews with Key Personnel		40	60	60	20	20	20	40	40	300
Review Electric Emergency Outage - Planning/Preparedness		190	260	250	0	100	50	60	160	1070
Assess Electric Emergency Outage - Performance/Effectiveness		120	150	120	40	100	50	60	100	740
Identify Electric Emergency Outage Planning - Best Practices		120	140	120	0	40	40	80	0	540
Prepare Audit Report		80	80	80	20	40	40	80	80	500
Total Hours		600	740	680	100	320	220	340	400	3400
Total Services Cost		\$ 135,000	\$ 148,000	\$ 119,000	\$ 12,500	\$ 48,000	\$ 33,000	\$ 42,500	\$ 76,000	\$ 614,000
Expenses		\$ 9,000	\$ 10,000	\$ 8,000	\$ 4,000	\$ 8,000	\$ 5,000	\$ 8,000	\$ 8,000	\$ 60,000
Grand Total Cost		\$ 144,000	\$ 158,000	\$ 127,000	\$ 16,500	\$ 56,000	\$ 38,000	\$ 50,500	\$ 84,000	\$ 674,000

All fees are net of taxes, which shall be the sole responsibility of the client.

This portion of the proposal will remain valid for 180 days from the date of proposal submittal.

7. Qualifications of the Firm

Qualifications of Individual Consultants

Our project team possesses significant consulting and operations expertise, including “hands-on” electric utility management and emergency response experience. We are able to address a broad range of technical, management, financial, economic, operational and regulatory issues facing governments, utilities, municipalities and private sector clients in today’s dynamic energy services sector.

Below is a brief summary of the experience personnel that will be engaged in this audit.

<p>Salvatore D. Marano, P.E. <i>Director</i> <i>Jacobs Consultancy</i></p> <p>BS, Mechanical Engineering Fairleigh Dickinson University</p> <p>MS, Management Science, New Jersey Institute of Technology</p> <p>Registered Professional Engineer, New Jersey</p> <p>Expert Witness:</p>	<p>Salvatore D. Marano, P.E., Director of the Energy & Utilities Practice, will serve as the Responsible Officer for this assignment. His extensive knowledge, vast experience and distinguished reputation in the energy and utility industry allows him to effectively manage the flow of information, while providing his valuable opinions and strategic insight to senior client leadership personnel. He has served as Responsible Officer on auditing efforts both domestically and internationally. Mr. Marano was Project Manager for numerous Y2k assessments for Domestic Gas and Electric Utilities including PGW, Nicor, NiipSCO, Peoples Gas, Questar and Providence Gas. He also managed the development of Contingency Plans and mobilization and communications tests of the Peoples Gas preparedness which included the participation of Nicor and NiipSCO and several Gas Transmission Companies. He has managed and critiqued emergency response preparedness and effectiveness while in operating roles during his career in the Utility industry. Mr. Marano has managed, as Responsible Officer, the California Public Utility Board audit of PG&E’s gas and electric distribution capital expenditures and the audit of PG&E’s Vegetation Management Program; the diagnostic management audit of Connecticut Power & Light for the Department of Public Utility Control and the audit of the Street-lighting financial and physical assets of CL&P. He has supported a performance audit for Imperial Irrigation District of California, where both electric operations and fuel supply issues were assessed. Mr. Marano was the Responsible Officer assisting the NJBPU’s analysis of how the Exelon-PSEG merger may or may not affect the reliability of electric and gas service and pipeline safety in the State of New Jersey, including the review of Exelon and PSEG’s emergency and security plans.</p> <p>Provided expert testimony and testified during the hearings relating to the proposed merger of Exelon and PSEG for gas regarding safety and reliability of the gas delivery business.</p>
--	--

<p>Frank T. DiPalma <i>Group Manager</i> <i>Jacobs Consultancy</i></p> <p>MBA, Finance Farleigh Dickinson University</p> <p>BS, Mechanical Engineering New Jersey Institute of Technology</p> <p>Expert Witness:</p>	<p>Frank T. DiPalma, Group Manager in the Energy & Utilities Practice, will serve as the Project Manager. Mr. DiPalma is a management consultant with over 25 years of experience. He has overall expertise in general and operations management, marketing, business development, customer service, process engineering, project management, strategic alliances, labor relations, strategic planning, supply chain management and regulatory compliance. Mr. DiPalma's operational experience includes: working in and with large electric and gas utilities that have gone through organizational change where downsizing, staffing levels and training were concerns. He has supported a performance audit for Imperial Irrigation District of California, where both electric and water operations were assessed. Recently, he was program manager for the California Public Utility Commission audit of PG&E's electric and gas capital distribution expenditures and Project Manager for the Management Audit of Connecticut Light & Power. In addition, Mr. DiPalma was the financial program manager for the Vegetation management audit of PG&E. He was also project manager assisting in the NJBPU's analysis of how the Exelon-PSEG merger may or may not affect the reliability of electric and gas service and pipeline safety in the State of New Jersey.</p> <p>Served as the NJBPU's expert electric witness testifying as to the electric systems reliability and safety both now and in a post-merger environment.</p>
--	---

<p>Hong (Hannah) Tang, P.E. <i>Senior Consultant</i> <i>Jacobs Consultancy</i></p> <p>MBA, Houston Baptist University</p> <p>BS, Electric Engineering University of Houston</p> <p>Registered Professional Engineer, Texas</p>	<p>Hannah Tang is a management consultant and Professional Engineer with over 7 years in the utility industry. While working at the energy control center for CenterPoint Energy, she developed scenarios and ran simulations for real-time operators, substation personnel, distribution field crews, and regional managers to train for emergency situations, such as black start, hurricanes, winter storms, area specific emergency load reduction, and system wide rotating load shed. Ms. Tang also participated in company-wide emergency response drills that often involved external entities, such as neighboring utilities and the Independent System Operator. Consulting experience has been concentrated in industry research, analysis, and project administration. Ms. Tang recently assisted in the Vegetation Management Audit of PG&E and NJBPU's analysis of how the Exelon-PSEG merger may or may not affect the reliability of electric and gas service and pipeline safety in the State of New Jersey.</p>
--	--

<p>Michael Dumsha <i>Consultant</i></p> <p>BS, Mechanical Engineering Villanova University</p>	<p>Michael Dumsha is a Project Manager with cross-functional experience leading a diversified array of major initiatives associated with electric and gas utility distribution systems. Skilled in: Strategic sourcing of construction services, Contracting, Electric Distribution System design, maintenance and operation. Mr. Dumsha’s operational experience at PECO Energy includes: managing supervisory and engineering groups responsible for construction, operation and maintenance of the electric distribution system, reviewing and approving distribution engineering plans, identifying and resolving electric reliability issues, and emergency response preparedness for storms and events impacting the distribution system. He is a degreed Engineer able to integrate business needs and technical solutions. He is also the key member in assisting the NJBPU’s analysis of how the Exelon-PSEG merger may or may not affect the reliability of electric and gas service and pipeline safety in the State of New Jersey. Mr. Dumsha is the lead analyst in a broad spectrum of areas associated with the reliability of electric distribution and transmission systems. Specifically, he reviewed electric reliability and safety both now and in a post-merger environment. Specific support activities for the NJBPU’s analysis of the Exelon-PSEG merger include: analysis of pre-filed materials, request and analysis of additional discovery, provide expert analysis and documentation of issues, participate during interviews with senior management of PSE&G and Exelon, develop cross examination, assist in electric testimony preparation given by Mr. DiPalma, developed specific merger conditions associated with electric reliability to permit the NJBPU to monitor PSE&G in a more timely and proactive manner.</p>
---	---

<p>John Goodfellow <i>Consultant</i></p> <p>BS, Environmental Resources Management SUNY College of Environmental Science and Forestry</p> <p>BS, Forestry Syracuse University</p>	<p>John Goodfellow has 28 years experience in the utility industry, having held positions of increasing responsibility for right-of-way (ROW) vegetation management, transmission & distributions (T&D) operations, maintenance, engineering, and construction at three large investor-owned electric & gas utilities. He has significant management experience with emergency operations and restoration work both as Manager of the Emergency Operations Center (EOC) at a large investor owned utility, and as General Manager of a contract services provider of emergency restoration resources. Mr. Goodfellow has direct experience with the practical application of Reliability Centered Maintenance (RCM) techniques in assessing electric T&D system performance including failure analysis and modeling, and forensic analysis. While at Puget Sound Energy (PSE), Mr. Goodfellow had direct responsibilities for design, transition of the workforce, implementation, and management of an innovative Service Provider BPO contract providing out-sourced T&D electric and gas engineering operations, construction, and maintenance services.</p>
--	--

<p>Robert Craig <i>Senior Security Specialist</i> <i>Jacobs Consultancy</i></p> <p>BS, Electrical Engineering University of Maryland</p> <p>ASIS - Certified Protection Professional (CPP)</p>	<p>Robert Craig has been involved in protection engineering for more than 20 years. He has provided security consulting, design services, crisis management to a variety of clients serving municipal, state, and federal agencies. Mr. Craig is Board Certified as a Certified Protection Professional (CPP) – the only recognized security professional certification. His expertise extends into the design of fire protection systems, allowing for resolution of life safety and security conflicts in each design project. He brings extensive design experience in sophisticated electronic security systems. Mr. Craig’s designs capabilities include integration of Anti-terrorism/Force Protection counter-measures with the hard and softscape designs of facilities. Mr. Craig’s expertise extends to design of traditional electronic entry control, explosives and weapons screening, intrusion detection, duress, intercommunications, electronic article surveillance, and closed circuit television systems.</p>
---	--

<p>Robert Welchlin <i>Senior Manager</i> <i>Overland Consulting</i></p> <p>MBA St. Edwards University</p> <p>BA, Accounting and Business Administration, Eastern Illinois University</p> <p>CPA</p>	<p>Robert Welchlin, a regulatory consultant to the telecommunications, cable, and utility industries, has 21 years of experience managing operational, financial and regulatory audits, reviews of rate filings and cost studies in the energy utility, telecommunications and cable industries. Mr. Welchlin served as Project Manager for audits of the affiliate relationships and cost allocations of Elizabethtown Gas, New Jersey Natural Gas, and South Jersey Gas conducted on behalf of the New Jersey Board of Public Utilities (BPU).</p>
---	---

<p>John Skog <i>Consultant</i></p> <p>MS, Electrical Engineering Washington State University</p> <p>BS, Electrical Engineering Washington State University</p>	<p>John Skog has over 30 years experience in the electric utility industry, ten plus years as a consultant and twenty years as an electric utility substation, metering, system protection and maintenance supervisor. More than three-quarters of his professional experience has been focused on customer metering, utility operations, substation equipment procurement, protection, testing, reliability improvements, and maintenance and life extension. Mr. Skog is a leader in the area of maintenance program optimization in the electric utility industry. John is recognized around the world as an authority on the use of Reliability Centered Maintenance (RCM) and Performance Focused Maintenance (PFM), techniques for optimization of routine maintenance. Mr. Skog is also a recognized expert in the application of Advanced-Meter Infrastructure (AMI) where he has guided utilities in the development of their business case, technology selection, integration, and implementation of advanced AMR/AMI services. As a senior consultant and business manager, he has concentrated his recent work in the area of Substation Maintenance, Automatic Meter Reading, Load Control and Business Development. He has provided maintenance optimization training and consulting services for utility clients across the U.S., Africa, Australia, the Middle East and Europe. Mr. Skog has also provided consulting support in the fields of utility operations and Advanced-Meter Infrastructure and Automated Meter Reading.</p>
--	---

Résumés

The project team is fully supported by the competent, capable and expansive resources of the entire Jacobs Consultancy Inc. organization and affiliate companies. The detailed résumés of the complete project team are found in the Exhibits section.

Qualifications of the Consulting Firm

Management, Safety and Reliability Audits and Reviews

Energy Reliability Consulting Services in Connection with the Exelon-PSEG Proposed Merger (2005-2006)

Jacobs Consultancy has recently completed a year long engagement for the New Jersey Board of Public Utilities analyzing the problem areas, deficiencies, and merits of the proposed acquisition of PSEG by Exelon, with specific emphasis on how the proposed merger may affect New Jersey ratepayers and the public interest. The scope of Jacobs Consultancy's assignment was to supplement the Board's analysis of how the merger may or may not affect the reliability of electric and gas service, pipeline safety and customer care in the State of New Jersey. The evaluation and analysis addressed the electric and gas system reliability and safety, as well as customer service, both now and in a post-environment.

Specifically the evaluation and analysis included:

- Electric and gas system's capability to provide reliable distribution service
- Capital improvement planning process
- Electric and gas reliability improvement programs
- Restoration of service due to failure or emergency
- Electric, gas and customer service organization structures
- Capital and operation and maintenance budgets adequacy
- Customer service function including information technology support systems
- Crisis management and critical facilities security programs



Specific support activities include: analysis of pre-filed materials, participate in discovery, conduct interviews of key Exelon and PSEG executives, provide expert analysis, provide expert pre-filed testimony, develop cross examination, provide expert testimony at evidentiary hearings, assist in reply brief preparation, develop merger conditions and support settlement discussions.

With respect to electric reliability we conducted an in-depth examination of PSE&G's, Com Edison's, and PECO's emergency planning documents and procedures, electric emergency response organizations, and the various outage management systems in use. In addition we reviewed many of the communication aspects associated with providing responsive customer

outage services. We also extensively participated in pre-settlement negotiations that would stipulate continued high levels of emergency response performance.

Also in connection with crisis management and critical facilities security programs, Jacobs Consultancy reviewed, provided testimony and made recommendations regarding PSE&G's, Com Edison's, and PECO's policies, procedures and practices.

Jacobs Consultancy Reference

Victor Fortkiewicz
Executive Director
State of New Jersey
Board of Public Utilities
Two gateway Center
Newark, NJ 07102
Phone: 973.648.4852
Email: victor.fortkiewicz@bpu.state.nj.us

Susan Vercheak
Deputy Attorney General- Section Chief
State of New Jersey
Division of Law
124 Halsey Street
P.O. Box 45029
Newark, NJ 07101
Phone: 973.648.3510
Email: verchsus@law.dol.lps.state.nj.us

Vegetation Management Program Audit of Pacific Gas & Electric (2003-2006)

Jacobs Consultancy was recently engaged in a multi-year independent quality assurance audit to ensure that PG&E's tree trimming and Vegetation Management Programs comply with the orders, rules and regulations of the Board and with applicable tree-clearance standards. The budget for the VM program is \$140 mil per year, which is the largest of any US company. Specifically, the quality assurance and audit is concerned with PG&E establishing various forward-looking programs and activities that promote vegetation management practices, public safety, and ensure compliance with statutory and regulatory requirements, including, but not limited to:

- Vegetation Control Performance
- Customer Refusals
- Vegetation Control Management
- Recorded Vegetation Control Costs

Jacobs Consultancy Reference

Robert Turner
Project Manager
Consumer Services Division
Utilities Safety and Reliability Branch
Phone: 415.703.4712
Email: RMT@cpuc.ca.gov

Management Audit of Connecticut Light & Power Company (2003)

Jacobs Consultancy conducted a management audit of Connecticut Light & Power Company (CL&P) for the Connecticut Department of Public Utility Control (DPUC). The objectives of this audit were to determine the broad-based business policies, practices and procedures in place at CL&P and to evaluate the appropriate, reasonable, timely and consistent implementation of these policies throughout the organization with respect to the business management operations of the company.

The review, investigation and analysis of the management audit included the following key functional areas of CL&P:

- Organization & Management
- Financial Systems & Controls
- Marketing, Engineering & Operations (including tree trimming program)
- Information Technology & Customer Service Operations
- Relationships with Affiliate Companies

Our review resulted in 64 documented recommendations of which 63 were readily accepted by CL&P.

Jacobs Consultancy Reference

Robert H. Palermo
Project Manager
Connecticut Department of Public Utility Control
Phone: 860.827.2692
Email: robert.palermo@po.state.ct.us

Focused Audit of Street Lighting Assets (2004)

Jacobs Consultancy conducted a focused audit of Connecticut Light & Power's physical street lighting inventory, and accounting controls and records for the Connecticut Department of Utility Control. In attempting to establish the fair market value for these assets, the Connecticut

Department of Utility Control was concerned that the street lighting assets reflect a systematic over assignment to the street lighting rate base. This audit involved reviewing:

- CL&P's street lighting assets consist of over 163,000 streetlights in 142 towns with a reported net plant value of \$20.4 million.
- Actual plant value of streetlights assets which can be affected by accounting practices, unit cost allocations, incorrect asset records, and incorrect recording of expenses as capital.
- Employing a random sampling methodology to ensure appropriate sample size to meet the desired error term and confidence interval.

Jacobs Consultancy Reference

Robert H. Palermo
Project Manager
Department of Public Utility Control
Phone: 860.827.2692
Email: robert.palermo@po.state.ct.us

Capital Budget Audit of Pacific Gas & Electric Company (2002)

The State of California Public Utilities Board required that a Capital Budget Audit be conducted for Pacific Gas and Electric Company. The audit was to cover all electric and gas distribution construction expenditures in the year 1999. The Construction Expenditure Budget consisted of over 10,000 projects with aggregate value exceeding \$800 million. Salvatore Marano as Responsible Officer and Christopher Pioli as Project Manager, while both were with Stone & Webster Consultants, played a major role in the project. Significant challenges included: arriving at an approach that would be statistically valid and highlighting how the expenditures contributed to the reliability, integrity and growth of the distribution systems. This project was initiated and completed in 2002.

Jacobs Consultancy Reference

Eric Greene, P.E.
CPUC Project Manager
California Board of Public Utilities
505 Van Ness Avenue
San Francisco, CA 94102
Phone: 415.703.5560
Email: eql@puc.ca.gov

***Independent Assessment of Operations and Processes
Imperial Irrigation District of California***

The Imperial Irrigation District of California is a consumer-owned utility, which provides electricity and irrigation water to the Imperial Valley, located in the lower southeast portion of California. We were asked to conduct an independent assessment of the district operations and processes; staffing levels to meet the IID mission; staffing qualifications to perform the duties assigned to them by the district; and utilization of the district physical resources. This study, completed in 2001, included the following departments:

- Public Affairs Department
- Finance and Treasury Department
- Human Resources Department
- General Services Department
- Information Technology Department
- Resources Planning and Management Departments and
- All other Power Departments not part of the above that should be considered for inefficiencies

An important issue that developed, as a result of the security efforts, was the definition and identification of critical pipeline parts and an exchange program among pipelines and between pipelines and vendors. As a result, Jacobs Consultancy performed the following tasks:

- Reviewed definition of Critical Spare Part Items
- Reviewed and evaluate current industry spare part inventory practices and the practice for obtaining or sharing Critical Items between companies or from suppliers
- Evaluated current practice and strengthened formalization of emergency procedures
- Addressed the issue of non-availability of Critical Items from other companies or suppliers on a timely basis

***Audit of Cost Competitiveness of Design and Build Contractor
Southern California Edison***

Review the cost competitiveness of the client's contractor's design and construction charges, appropriateness of documentation, and assess the contract administration and management practices. Completed in February 2003, key features of the project included:

- Contractual and organizational difference between Design-Bid-Build and Design-Build
- Strategic Sourcing Process
- Contractor performance measurement

A total of \$10.2 million in facility projects examined ranging from service center to chiller plant to headquarter office remodeling.

Emergency Contingency Planning and Preparedness

Contingency Planning and Plan testing

Developed and coordinated a multi-state, multi-company test of the Y2K Contingency Plans, including communications between company control centers, field sites and upstream gas service providers. As part of this test, we developed blind scripts with simulations of different gas supply scenarios under changing communication failures. We developed observer evaluations, general instructions and coordinated events prior to, during and after test.

Jacobs Consultancy Reference

Emilia Arroyo
Peoples Energy Corporation
130 East Randolph Drive
Chicago Il 60601
Phone: 312.240.4912
Email: E.arroyo@pecorp.com

Willard S. Evans, Jr.
Vice President (PGLC)
Peoples Energy Corporation
130 East Randolph Drive
Chicago Il 60601

Multi Company Planning and Training

Sponsored a Y2K industry conference for the American Gas Association to training and facilitate planning for 20 utility companies. Papers presented included Managing a Y2k Effort, Approach to Embedded Systems Assessment, and Development of Contingency Plans.

Jacobs Consultancy Reference

Mr. Gary W. Gardner
Executive Director
American Gas Foundation
400 North Capitol Street, N.W., Suite 450
Washington, D.C. 20001
Phone: 202.824.7270
Email: ggardner@gasfoundation.org

Y2K Assessments and Remediation Planning

We completed Y2K assessments, remediation and contingency planning for several electric and gas companies for operations related equipment and systems including: NIPSCO, Sempra, Providence Gas, Philadelphia Gas Works, Bay State Gas, Philadelphia Gas Works, Peoples Energy Company, Nicor Gas, Miami-Dade Water and Sewer Department and Questar Energy.

Risk Management Assistance

A/E IDIQ Modernization Program Nationwide **Federal Aviation Administration**

Facility Security Risk Management - Provided security specialists to support FAA's Security Section in conducting Facility Security Risk Assessments at various FAA facilities. The onsite assessments and reports identified existing security conditions and deficiencies and issues associated with compliance with the 1995 DOJ report and with FAA Security Orders 1600.6D and 1600.69. The reports recommended security upgrades and provided rough order-of-magnitude cost estimates for the upgrades.

Blast and Weapons of Mass Destruction (WMD) Assessments - Supporting FAA Security Section personnel, we performed WMD assessments at various facilities including ATCTs, ARTCCs, and TRACONs. We prepared computer-assisted analyses to identify the effects of blast and WMD events on the facilities under different scenarios. We then made recommendations for improving the facilities' capacity to resist, or mitigate, the impact of blast and WMD events. Subsequently, we incorporated those recommendations that were approved by FAA into various follow-on design and construction projects.

Independent Review of Critical Spare Parts Inventory **Interstate Natural Gas Association of America (INGAA)**

Interstate Natural Gas Association of America engaged Jacobs Consultancy to provide an independent review and evaluation of the current natural gas industry critical spare parts inventory practices. Due to terrorist events, INGAA and several industry organizations took the initiative in addressing the issues facing the energy business. Particularly, INGAA aggressively and proactively developed a security program for the interstate natural gas pipeline industry. The main goal of this program is to protect the public and the economy from possible terrorist attacks against the long-line natural gas pipeline network.

Organizational Analysis Experience

Strength, Weaknesses, Opportunities, and Threats (SWOT) Analysis **Gwinnett County Department of Public Utilities (GCDPU)**

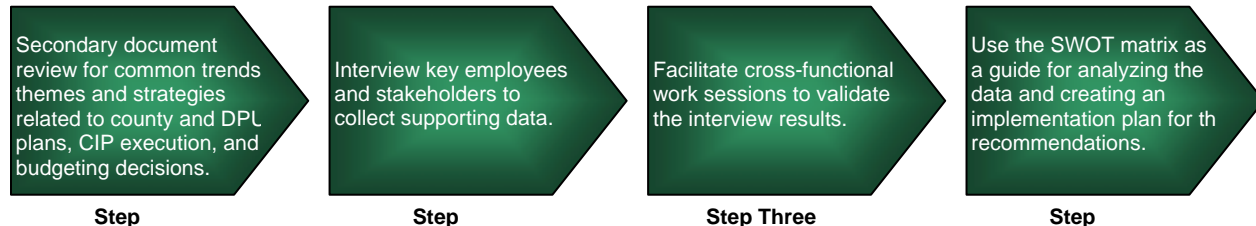
Gwinnett County Department of Public Utilities (GCDPU) secured the services of Jacobs Consultancy to assist in developing, executing, and delivering a successful five-year Capital Improvement Program to meet the water and sewer needs of one the country's fastest growing counties.

The county's rapid growth presented many challenges for GCDPU, who were eager to ensure their status as one of only twenty municipalities in the country with a Triple A Bond rating. The most pressing challenges were organizational in nature – specifically, there were potential staffing, planning and process deficiencies.

After conducting preliminary internal assessments, GCDPU called on Jacobs Consultancy to conduct a detailed front-end organizational analysis by adapting the traditional SWOT approach. The goal of the engagement was to identify areas with the potential to impede or prevent successful implementation of GCDPU's Capital Improvement Plan (CIP).

Jacobs Consultancy Tackles the Front-End Challenges

A SWOT analysis enables managers to identify organizational strengths, and weaknesses, and environmental opportunities and threats. Jacobs Consultancy used a four-step process to analyze the internal and external environmental factors that could impact the development and implementation of the CIP:



Closely following this straightforward four-step approach helped ensure that the SWOT findings were easily translated into recommendations to help GCDPU execute its strategy.

The secondary documents review, one-on-one interviews and facilitated work sessions together served as a thorough and effective means for data collection and obtaining buy-in and validation from all levels of the organization.

Once the data was gathered and validated, it was analyzed and categorized as a strength, weaknesses, opportunity or threat. Utilizing the matrix illustrated below, the categorized data was aligned to create actionable recommendations and assign timeframes for implementation.

The matrix facilitates the alignment of the factors and applies a timeframe for achievement as defined in the quadrants. The top left quadrant aligns two positives – strengths and opportunities – allowing for short-term wins. Conversely, the bottom right quadrant –

weaknesses and threats – requires a long-term implementation timeframe require repositioning as positives factors.

		External Factors	
		Opportunities	Threats
Internal Factors	Strengths	<p>What strengths should we apply to capitalize on these opportunities?</p> <p>Short-term</p>	<p>What strengths should we apply to mitigate or neutralize these threats?</p> <p>Mid-term</p>
	Weaknesses	<p>What weaknesses must we develop to capitalize on these opportunities?</p> <p>Mid-term</p>	<p>What weaknesses must we develop to mitigate or neutralize these threats?</p> <p>Long-term</p>

The SWOT matrix provides a template for aligning factors so that any organization can understand the internal and external environment, and to apply this awareness to enhance strategy and improve CIP execution.

Benefits of the Jacobs Consultancy Solution

The SWOT analysis enabled managers to understand the present state of their organization and identify external forces that affect the organization’s current and/or future state. This information can be used by managers to organize to enhance corporate strategy and improves CIP execution.

Management Audit of Connecticut Light and Power Connecticut Department of Public Utility Control (DPUC)

Project Background

The Connecticut Department of Public Utility Control (DPUC) conducted a management audit of the Connecticut Light & Power Company (CL&P). The objectives of this audit were to determine the broad-based business, policies, practices and procedures in place at CL&P and to evaluate the appropriate, reasonable, timely and consistent implementation of these policies throughout the organization with respect to the business management operations of the company.

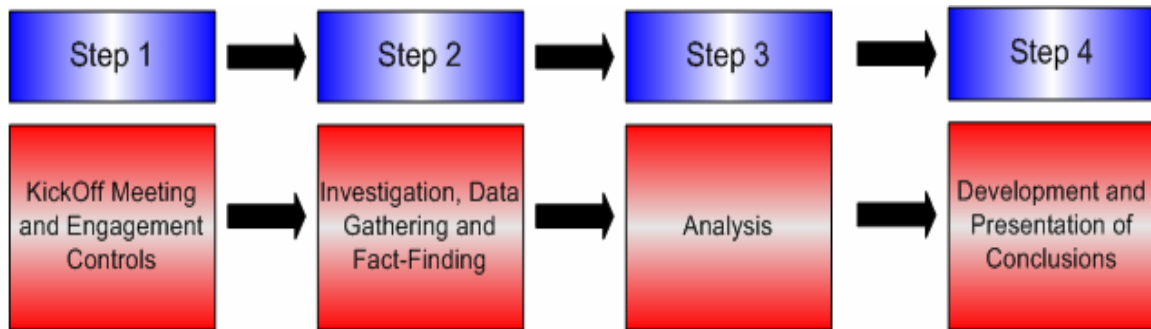
Project Method

The diagnostic review, investigation and analysis were comprehensive, focusing on five key CL&P functional areas:

- Organization and Management

- Financial Systems and Controls
- Marketing, Engineering & Operations
- Information Technology and Customer Service Operations
- Relationships with Affiliate Companies

A four-stage approach was developed to guide the management audit in each of the five functional areas:



The four-stage approach was utilized to guide the audit of the five functional areas and the integration of the results into the final report.

To ensure a comprehensive review of the Organization and Management area, five key components were examined:

- | | |
|-------------------------------|--|
| • Strategic Planning | • Management Processes |
| • Communications and Controls | • Company Policies, Practices and Procedures |
| • Organizational Structure | |

Using a best practices approach, the audit team set baselines for evaluating CL&P performance in each of the five components. The baselines were derived from the Baldrige Criteria for scoring the integration of best practices, and by adapting and combining aspects of current business approaches and theories for organizational design and strategy development and management.

The baselines included milestone-type measures, such as the design of an organizational architecture that best utilizes resources, development of a strategic planning process, as well as progress oriented measures for tracking and assessing communication and strategic integration of the organization.

The audit's investigation and data gathering stage applied secondary research techniques, including document review and mining information from previously developed reports. This background information was supplemented with one-on-one interviews with employees from all levels of CL&P in order to gain a broad understanding of the organization's performance within each of the functional areas.

At the conclusion of the engagement, audit results and findings, as well as recommendations for improving operations or correcting deficiencies, were integrated in a final report.

The report included a recap of the interviews, document reviews and ad hoc analyses that were completed during the audit. Using the results of the audit, an implementation plan for action was also delivered to CL&P.

Results

Translating the recommendations into an action plan was accomplished using an innovative approach for prioritizing the recommendations based on a rating methodology. This implementation plan will not only help CP&L organize and control human and other resources to create a high-performing organization, but will also create significant cost savings in operations and enhance system integrity and service.

Electric Distribution Technical and Maintenance Reviews

Case Study for Transmission and Distribution Support Applications Using Distributed Energy Resources.

Central Hudson Gas and Electric / EPRI

RDC conducted an analysis of DG as an alternative to several transmission and distribution (T&D) projects that were planned for Central Hudson Gas and Electric. They led an examination of the potential deferral of three T&D projects, each entailed reconducting a feeder and upgrading a substation and required several million dollars in investment. One project showed DG to be a clear winner and offered an option that was substantially more economic than the T&D option, potentially saving the utility millions over the life of the project. Both diesel-fired reciprocating engines and natural gas fired combustion turbines were evaluated. An analysis of the impact of DG on system reliability was also conducted, including providing redundant DG and enlisting the DG to improve reliability by providing grid backup in the event of an outage. This project was managed by and funded through EPRI.

Investigation of Distributed Generation

Hawaii Public Utility Commission (PUC) Docket No. 03-0371

The State of Hawaii, through its Public Utility Commission (PUC), anticipates that the use of DG will increase throughout the state in the coming years. Many uncertainties exist, however, as the type and application of DG that is most appropriate for Hawaii. Under the subject docket, a number of relevant DG issues were identified in the areas of planning, impact and implementation. The issues range from DG ownership options and the utility role, to system

impacts, cost allocation and interconnection. The Kauai Island Utility Cooperative (KIUC) is a party in the proceedings under this docket and engaged RDC to assist the utility as the DG consultant and expert witness.

RDC provided services covering both the technical and business aspects of DG, and addressed a range of issues, including appropriate forms of DG for deployment on Kauai, ownership options, KIUC's role regarding DG, market and distribution system impacts, and costs and benefits. RDC prepared expert witness testimony (written and verbal), strategized with KIUC staff and attorneys, and reviewed the positions taken by other parties in the proceeding, providing comment as appropriate.

The Benefits of Distributed Generation: A Spreadsheet Model
National Rural Electric Cooperative Association

This project was developed for the National Rural Electric Cooperative Association client to help identify and assess distributed generation (DG) opportunities, the characteristics of optimum locations for DG, and the economics of DG applications. The model assesses the benefits of DG to electric cooperatives in the areas of generation, transmission and distribution. This model determines these benefits based on specific DG technologies, sizes, and installation locations. These benefits may arise from baseload or peaking capacity support, reduced losses for power transmission, deferred system upgrades, increased peaking capability, or voltage/VAR support. The model is intended for use by the client's members to help plan an appropriate role for DG within their distribution system operations.

Merits of Underground Cables and Overhead Lines

The Highland Council

Jacobs Babbie has been retained by The Highland Council to provide advice on the relative merits of underground cables and overhead lines from technical, environmental and cost perspectives. The Highland Council's interest in these issues stems from Scottish and Southern Energy's proposal to build a new 150 mile-long, 400kV double circuit transmission line between Beaulieu substation in the Highlands and Denny substation near Falkirk.

The proposed route embraces some of Scotland's most striking and valued landscape, including the Cairngorms National Park, the Corrie-yairack Pass and the Gateway to the Highlands at the Drumochter Pass near Dalwhinnie. The new line is a necessary prerequisite for the export of electricity from proposed renewable generation schemes in the Highland area and also potentially from the Northern and Western Isles.

The landscape over which the preferred route passes presents significant technical challenges in both overhead line and underground cable design.

Electrical Power Distribution System Detailed Design

Quinn Glass - Elton Glass Container and Bottling Facility

Jacobs Consultancy was awarded the contract to carry out the detailed design for a major new glass container manufacturing and bottling facility. This included the design and specification of the on-site electrical power distribution system.

Jacobs Consultancy also handled the interface with the local electricity distribution network operator, to provide a 33kV supply of suitable capacity to site.

Our scope of work covered the design of the whole electrical infrastructure for the plant, ranging from the 33kV/11kV primary intake substation, the 11kV ring mains, 11kV compressor motors, the 11kV/LV package substations, down to the LV distribution boards and the emergency standby LV generation. Jacobs Consultancy's scope of work also included outline power system and protection design and the specification of circuit and plant ratings taking into account practicality of network operation and supply restoration requirements.

Based on this outline design, Jacobs Consultancy then prepared detailed specifications and drawings for the supply and installation of all equipment associated with the distribution infrastructure. These specifications were then issued for a tendering process for which Jacobs Consultancy carried out the technical evaluation of all bidders.

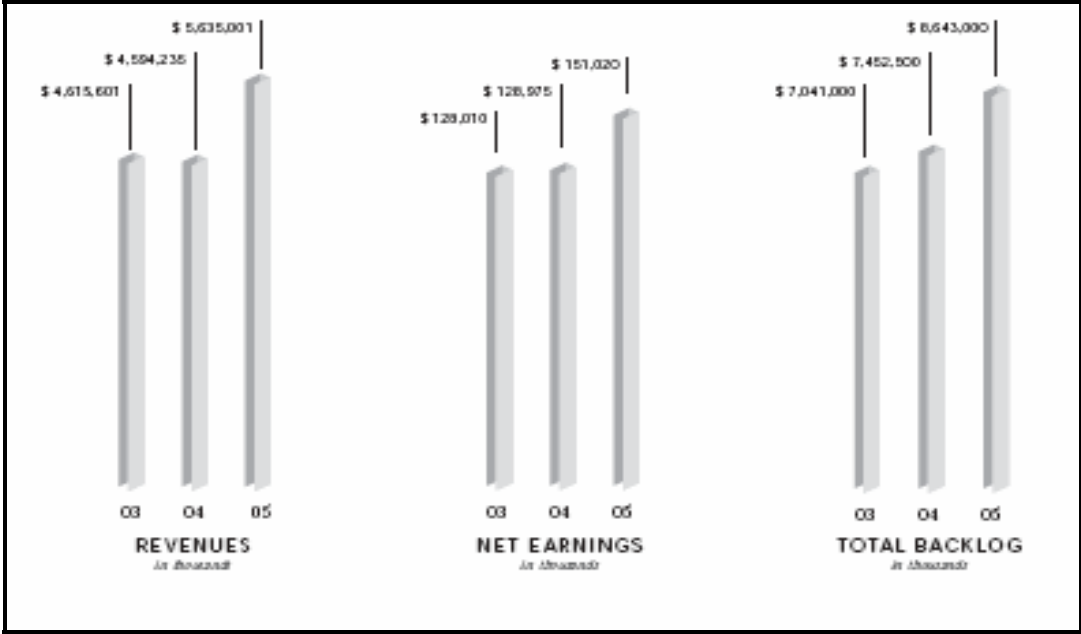
During the design stage of the works, Jacobs Consultancy undertook studies on the electrical distribution network to determine system fault levels, load flows, plant ratings and protection settings as well as an earthing design study to demonstrate the acceptability of proposed earth grid, and levels of touch, step and transfer potentials.

Following the award of a contract to the successful bidder, Jacobs has been retained to act as Client's Engineer for the overseeing of the detailed design and the substation installation works of the contractor.

Financial Capability

Shareholder Information	
New York Stock Exchange	
Stock Quote (JEC)	
\$81.22	
As of 11/15/2006 4:04 PM	

	2005	2004	2003
Revenues	\$ 5,635,001	\$ 4,594,235	\$ 4,615,601
Net earnings	151,020	128,975	128,010
Per share information:			
Basic EPS	\$ 2.65	\$ 2.30	\$ 2.32
Diluted EPS	2.57	2.25	2.27
Net book value	19.44	17.50	14.93
Closing year-end stock price	67.40	38.29	45.10
Total assets	\$ 2,353,721	\$ 2,071,044	\$ 1,670,510
Stockholders' equity	1,140,642	1,006,027	842,083
Return on average equity	14.08 %	13.97 %	16.71 %
Stockholders of record	1,076	1,016	961
Backlog:			
Technical professional services	\$ 4,329,000	\$ 3,989,000	\$ 3,383,200
Total	8,643,000	7,452,500	7,041,000
Permanent staff	27,200	24,400	21,100



8. Exhibits

Exhibit I. – Résumés

Exhibit II. – Work Sample

Exhibit III. – Conflict of Interest

Exhibit IV. — Terms & Conditions

Exhibit I.

Résumés

Name: SALVATORE D. MARANO

Title: Director

Education: New Jersey Institute of Technology, Master of Science, 1975
Fairleigh Dickinson University, BS in Mechanical Engineering, 1970
Licensed Professional Engineer- State of New Jersey

**Professional
Affiliations:**

(Current and past)

American Gas Association
Plastic Piping Materials Committee
Distribution Construction and Maintenance Committee
Distribution Engineering Committee
American Society of Mechanical Engineers
Gas Piping Standards Committee
ASTM - Plastic Pipe Committee
Western Energy Institute

Career Synopsis:

A professional engineer with extensive gas and electric utility operating and consulting experience in the areas of management, risk assessment, safety and reliability assessment, system planning, distribution engineering and field operations, gas transmission and gathering systems design and construction, distribution operation support services, and sales/marketing management.

Employment History:

Jacobs Consultancy Inc., 2002-Present
Director

Stone & Webster Consultants 1996 - 2002
Vice President/Director

Fusion Group Limited (T.D. Williamson, Inc.) 1988 - 1995
Manager, Distribution Products

NUI Corporation (Energy Holding Company) 1985 - 1987
Vice President

Elizabethtown Gas Company 1972 – 1985
General Manager, Operations Services and Special Projects Manager
Manager, Construction & Maintenance
Manager, System Planning, Production, and Gas Control

Consolidated Edison Company of New York 1970 - 1972
Engineer – Gas Department

Selected Consulting Responsibilities:

- Management Audits and Reliability Reviews – Directed a major management audit of the capital budget contributions to safety, reliability and adequacy of service for the gas and electric distribution operations of Pacific Gas & Electric, as mandated by the California Public Utilities Commission. Directed a management audit of Connecticut Light & Power for the Connecticut DPUC, including

budget impacts on reliability and adequacy of service and an audit of the physical assets and cost accounting issues related to CL&P's street-lighting assets. Directed an audit of the facilities contract for Southern California Edison. Assisted in the management audit of the Imperial Irrigation District. Audited the five- year capital expenditures for the three gas distribution companies for the State of Victoria, Australia. Currently directing a three year audit of the Vegetation Management Program of PG&E for the California Public Utilities Commission, focused on safety and reliability. Currently directing the review of the proposed merger of Exelon and PSE&G for the NJBPU relating to reliability, safety and adequacy of service for the gas and electric delivery businesses and customer care area. Provided expert testimony relating to the gas delivery business as well as assisting with the development of briefs and possible merger conditions.

- Operational/Safety Audits and Litigation Support - Follow-up of implementation of safety audit for major domestic gas distribution company. Review of Cast iron and Ductile Iron mains replacement program, risk models and budget adequacy for major international gas utility. Directed the audit of the implementation of numerous recommendations regarding policy, practices and procedures for a major international gas utility. Supported the litigation, as potential expert witness, relating to a gas explosion in London for Transco. Supported the litigation defense, as potential expert witness, for Transco against charges of "culpable corporate homicide" for a gas explosion in Scotland.
- Operations Budgeting and Forecasting - Analyzed five-year projections for international client in preparation for privatization. Assessed Alliance Partner contractual relationships for construction and maintenance for international gas utilities.
- Due Diligence Reviews associated with Merger & Acquisition Activity - Reviewed operations of international gas distribution and transmission company for U.S. client in preparation of bid submittals for acquisition of privatized company. Performed critique and assessment of planning process and construction management for new gas distribution and transmission systems for major gas/electric utility. Reviewed operations of domestic gas utility for acquiring electric utility prior to merger. Reviewed operations of large domestic gas utility with multi division and multi state service territory for international acquirer. Assisted international client with formulation of business model for use in U.S. market acquisitions. Assignment included model development, formulation of contact strategy, identification of potential target contacts and execution of plan.
- Year 2000 Compliance Study - Assessment of embedded systems and components for "Y2K" vulnerability for ten international and domestic gas/electric utilities. Development of contingency and emergency plans for the potential Y2K event for two U.S. Utilities. Developed and managed eight company communications tests for Y2K event.

Industry Assignments:

Engineering

- Supervised Planning & Budgeting, Design & Measurement, and Engineering Support Services. Duties included:
 - Supervised the preparation of Office of Pipeline Safety Operations inspections and reports.
 - Supervised the development of the annual budget submission for the Operations and Engineering divisions, including the distribution of resources following budget approvals. Audited the maintenance of accounts, supervised the monthly budget status reports, and prepared the monthly budget analyses for each budget area. Supervised the planning and design requirements related to the expansion, reinforcement, and improvement of transmission and distribution systems. Directed the evaluation of Plastic Pipe program.
- Responsible for planning and development of gas transmission and distribution systems. Duties Included:
 - Supervised the Corrosion Control Program. Coordinated the Engineering and Operations department Capital & Expense budgets. Developed and coordinated the Plastic Pipe Program.
 - Developed and coordinated Engineering and Operations management, technical skills and

training programs. Developed and implemented procedures for regulatory commission pipeline safety inspections. Acted as Chairman of the Standard Practices, and Product Evaluation committees. Acted as Project Manager for a transmission pipeline project and gas gathering system. Directed and coordinated the activities of contractor crews performing maintenance work. Evaluated and coordinated mains and service replacement and upgrading programs. Developed and monitored annual construction and maintenance budget expenditures. Coordinated and supervised special programs.

Operations

- Responsible for the installation, operation and maintenance of the gas distribution system. Duties included:

Developed and implemented (1) planning procedures for construction work, (2) cost estimating procedures for assignment work orders to contractors and (3) field and office work practices and procedures. Supervised construction of bulk propane storage and fill plant. Implemented a "good public relations program" through the establishment of better working relationships between division supervisors and customers, contractors and builders and government officials. Developed and implemented procedures for the storage and maintenance of emergency materials and equipment and the training of personnel. Developed and implemented supervisory performance evaluation procedures. Resolved labor contract grievances. Supervised the maintenance and security of the service center's buildings and grounds.

Managed the LNG facility, the Propane-Air production plant, and gas control center. Supervised the demolition of manufactured gas plant. Supervised the meter repair shop, industrial customer instrumentation, and gas control crews. Supervised the skills training, fleet maintenance, warehouse and theft of service departments.

Systems Planning

- Responsible for developing and planning of systems plan for incorporation of all data processing systems and applications of PC's.

Licensure & Certification:

Professional Engineer, NJ License

Name: FRANK T. DiPALMA

Title: Group Manager

Education: Fairleigh Dickinson University, MBA Management/Finance
New Jersey Institute of Technology, BS Mechanical Engineering
University of Michigan, Executive Development Program

Professional

Affiliations: American Gas Association
—Customer Service and Utilization Committee (Past Vice Chairman)
Southern Gas Association
University of West Virginia, Institute of Technology (Adjunct Professor)
Institute of Electrical and Electronics Engineers (Past Member)
Society of Gas Operators

Career Synopsis:

An operations oriented executive with a strong background in energy utilities, skilled at developing and executing sound operational strategies to achieve full profit potential and customer satisfaction; experienced in engineering and operations management, process improvement, construction, business development, marketing, customer service, project management, strategic alliances, labor relations, strategic planning, and regulatory compliance.

Selected Consulting Assignments:

Energy Reliability Consulting Services in Connection with the Exelon-PSEG Proposed Merger (2005-2006)

New Jersey Board of Public Utilities

Jacobs Consultancy is presently engaged in analyzing the problem areas, deficiencies, and merits of the proposed acquisition of PSEG by Exelon, with specific emphasis on how the proposed merger may affect New Jersey ratepayers. My role is to serve as overall project manager assisting the Board's analysis of how the merger may or may not affect the reliability of electric and gas service and pipeline safety in the State of New Jersey. In addition I served as the NJBPU's expert electric witness testifying as to the systems reliability and safety both now and in a post-merger environment in the following areas:

- Capability of the electric system to provide reliable distribution service
- Capital improvement planning process
- Reliability improvement programs
- Orderly restoration of electric service
- Distribution organization structures
- Adequacy to capital and operation and maintenance budgets
- Crisis management and critical facilities security programs

Specific support activities include: analysis of pre-filed materials, participate in discovery, provide expert analysis, provide expert testimony, develop cross examination, assist in brief preparation, developed merger conditions and support settlement discussions.

Vegetation Management Program Audit of Pacific Gas & Electric (2003-2006)
California Public Utilities Commission

Jacobs Consultancy is presently engaged in a multi-year independent quality assurance audit to ensure that PG&E's tree trimming and Vegetation Management Programs comply with the orders, rules and regulations of the California Public Utilities Commission and with applicable tree-clearance standards. My role is project coordinator of the financial aspects of the project. The budget for the VM program is \$140 million per year, which is the largest of any US company. Specifically, the quality assurance and audit is concerned with PG&E establishing various forward-looking programs and activities that promote vegetation management practices, public safety, and ensure compliance with statutory and regulatory requirements, including, but not limited to vegetation control performance, customer refusals, vegetation control management and recorded vegetation control costs.

Focused Audit of Street Lighting Assets (2004)
Department of Public Utility Control

Served as Jacob's project manager for a focused audit of Connecticut Light & Power Company's physical street lighting inventory; and accounting controls and records for the Connecticut Department of Utility Control. In attempting to establish the fair market value for these assets, the DPUC was concerned that the street lighting assets reflect a systematic over assignment to the street lighting rate base. This audit involved:

- CL&P's street lighting assets consist of over 163,000 streetlights in 142 towns with a reported net plant value of \$20.4 million.
- Actual plant value of streetlights assets, which can be affected by accounting practices, unit cost allocations, incorrect asset records, and incorrect recording of expenses as capital.
- Employed a random sampling methodology to ensure appropriate sample size to meet the desired error term and confidence interval.

Management Audit of Connecticut Light and Power (2003)
Connecticut Department of Public Utility Commission

Served as Jacob's project manager and lead electric analyst conducting a complete diagnostic review the major functions of Connecticut Light and Power (CL&P). The scope of the audit included: organization and management, financial systems and controls, marketing, engineering and operations, information technology, customer-service operations, and relationships with affiliate companies.

- Determined the broad base practices and policies in place and evaluated their appropriateness and consistent implementation throughout the organization.
- Reviewed the present practices and procedures in place and made 64 recommendations for modification or change to improve overall efficiency and effectiveness.
- Assessment of CL&P, whose revenues exceed \$2.5 billion per year, included conducting 65 interviews, reviewing 200 documents and benchmarking to comparable companies.

Audit of Capital Budget Expenditures of Pacific Gas & Electric Company (2002)
California Public Utilities Commission

The State of California required that a Capital Budget Audit be conducted for Pacific Gas and Electric Company. The audit was to cover all electric and gas distribution construction expenditures in the year 1999. The Construction Expenditure Budget consisted of over 10,000 projects with aggregate value exceeding \$800 million. While with Stone & Webster Consultants, was lead consultant for the review of electric projects. Significant challenges included: arriving at an approach that would be statistically valid and highlighting how the expenditures contributed to the reliability, integrity and growth of the distribution systems. The project planning process, engineering specifications, and construction work quality were examined and facilities inspected against company policies and procedures, and industry practices. This project was initiated and completed in 2002.

Independent Assessment of Operations and Processes (2001)
Imperial Irrigation District of California

The Imperial Irrigation District of California is a consumer-owned utility, which provides electricity and irrigation water to the Imperial Valley, located in the lower southeast portion of California. While with Stone and Webster, I lead the review of the Districts' electric distribution operations and processes; analysis of electric reliability trends and outage causes; budget review; staffing levels to meet the IID mission; staffing qualifications to perform the duties assigned to them by the district; and utilization of the district physical resources.

Industry Assignments:

Operations

- Responsible for the installation, operations and maintenance of the gas distribution system. Duties included:

Formation and administration of the strategic operating plan, including a responsive multifunctional organizational structure, efficient manpower planning, regulatory compliance programs, optimal supply and distribution methods, formation and implementation of distribution technology initiatives, and annual capital and expense budgets. Provided innovative and proactive solutions to operational and customer service challenges, managed over 400 employees and 16 locations including engineering, operations, customer service, call center, meter repair facility and training and development. Maintained effective external communications with legislative, regulatory, and industry leaders. Led the formation of a coalition of energy companies to influence statewide Department of Highway construction practices resulting in improved planning, design, scheduling, and reimbursement. Managed an operating budget for labor, materials, and services. Directed negotiations of five labor contracts establishing a five-year agreement, while achieving significant cost reductions. Increased pipe installations with no increase in employees, reduced inventory through supply chain management techniques and reduced meter reading costs due to employee innovation, improved processes and use of new technologies.

Engineering

- Managed the planning, budgeting, design, measurement and engineering support services. Duties included:

Coordinated the preparation, presentation and expenditures of the annual capital and O&M budgets. Oversaw the development of an innovative and highly functional automated mapping and facilities management system, which included Stoner distribution system analysis. Managed the regulatory compliance program including corrosion control. Sponsored teams for process re-engineering and use of new technologies. Developed and negotiated equipment servicing, performance contracting and new product development agreements. Oversaw the development and implementation of construction standards, engineering procedures and emergency manuals.

Quality Management/Process Improvement

- Designed implemented and promoted quality activities. Duties included:

Developed and implemented a culture change effort involving over 2,500 employees which advanced their empowerment, coaching and leadership skills. Facilitated employee teams in achieving enhanced levels of customer satisfaction, continuous improvement, employee involvement, and data based decision processes. Established a process orientation by coordinating a corporate wide assessment which define processes, established performance measures, analyze benchmark comparisons, and identify gaps which highlighted a significant cost reduction opportunities. Managed

an internal Baldrige assessment, which supported strong customer commitment and continuous improvement. Led a team charged with reviewing stranded electric utility assets and recommending a corporate strategy.

Technical Support and Regional Performance

- Developed a technology and performance focus to improve performance, reduce costs and improve customer service. Duties included:

Initiated and developed a comprehensive information system strategy that established cost/benefits methodology and priorities for mission critical information needs. Developed a joint venture to market a bar code activated electric and gas meter system. Employed technology to improve performance, reduce costs and strengthen customer service relationships. Managed the Public Utility Commission mandated audit. Coordinated the development of a work management system for the Electric and Gas Technical Maintenance Group, which resulted in supporting data based decisions and a reduction in staffing.

Marketing and Business Development

- Coordinated marketing, business development and customer service activities. Duties included:

Coordinated the development of the marketing strategic plan with the operating departments. Recommended corporate marketing resource allocations to insure new business profitability and the creation of revenue. Increased customer satisfaction through improved customer focus in appliance part delivery systems. Developed marketing strategies that repositioned a major customer segment resulting in increased revenues. Supervised the development of a financial model that analyzed the profitability of new business resulting in a reduction in new business expenditures. Managed the business development initiatives process, including idea generation, marketplace evaluation and company positioning. Established customer service policies and procedures and coordinated appliance repair activities. Responsible for the planning, development and implementation of the automated customer dispatch system. Supervised the creation of an industrial customer model to support sales engineers in the gas conversion market. Established a corporate strategy for dealing with the National Coalition Against Unfair Utility Practices.

Publications and Presentations:

Got DIMP? (Distribution Pipeline Integrity Management), presented to the Society of Gas Operators, 2005.

Utility Tree and Vegetation Management (UVM): An Introduction and Description of Successful Programs, presented at the National Association of Regulatory Utility Commissioners Summer Meeting, 2004.

Vegetation Management-Improved Approach, presented at the Western Energy Institute Annual Conference, 2004.

Pipeline Integrity Management Challenges, presented to the Society of Gas Operators, 2003.

Pipeline Integrity Management – Enhanced Safety, presented to National Safety Council 2002 Annual Conference.

Innovative Coil Pipe Trailer, paper presented by others at the American Gas Association Operating Conference 2000.

The Professional Engineers License, presented to West Virginia University, Institute of Technology 1999.

Results Achieved Using Coil Pipe, presented at the Southern Gas Association Annual Conference 1999.

Quality Management Experiences, presented to West Virginia University, Institute of Technology 1998.

Automated Mapping & Facilities Management Applications, presented at the Geospatial Information & Technology Association Conference 1997.

Reengineering - Increase Customer Satisfaction and Cut Costs, presented at the Management Forum Series Conference, sponsored by Scott, Madden & Associates 1995.

TQM and Work Management, presented at the North East Gas Council Quarterly Meeting 1995.

Employment History:

Jacobs Consultancy Inc. (2002 – Present)
Group Manager

Stone & Webster Consultants (2000 – 2002)
Associate Director

Mountaineer Gas Company (1996 – 2000)
Vice President of Operations and Engineering

Public Service Electric & Gas Company (1968 – 1996)
Manager of Quality Management
Manager of Technical Support
Manager of Regional Performance
Manager of Marketing and Business Development
Manager of Manpower & Cost Control
District Manager
Field Engineer

Name: HONG (HANNAH) TANG

Title: Senior Consultant

Education: Houston Baptist University, MBA, 2003
University of Houston, BS Electrical Engineering, Magna Cum Laude 1998

Registrations: Licensed Professional Engineer – State of Texas

Professional Affiliations: Institute of Electrical and Electronics Engineers (IEEE)

Career Synopsis:

Ms. Tang is a professional engineer with over 7 years electric utility experience in the areas of real-time operations support, SCADA and energy management system monitoring, power system simulations, relay protection schemes, and network analysis applications for electric transmission systems. Since joining Jacobs Consultancy in March 2006, Ms. Tang has assisted in several consulting projects for the Energy and Utilities Group.

Selected Consulting Responsibilities:

- Currently participating in the analysis of potential impacts of the proposed Exelon-PSEG merger on the safety and reliability of electric and gas service in the State of New Jersey. Researched utility post-merger assessment schemes and developed a presentation to evaluate the use of penalties to promote post-merger performance.
- Actively involved in a multi-year independent quality assurance audit to ensure that PG&E's tree trimming and Vegetation Management Programs comply with the orders, rules and regulations of the California Public Utilities Commission and with applicable tree-clearance standards. Developed correlations for tree related incidents and analyzed the financial aspect of the Vegetation Management Program.
- Developing an update of the AGA technical manual "Attention Prioritizing and Pipe Replacement/Renewal Decisions." Reviewed current material in the manual and contacted member companies and software vendors for new materials and references to include in the updated manual.
- Analyzed pipeline construction costs based on public and internal data as part of a study to determine the capital investment necessary to provide safe reliable service for a natural gas pipeline development project.

Industry Assignments:

- Supported Real-time Operations (RTO) and the Energy Management System (EMS) used to monitor the electric transmission system at the Energy Control Center. Maintained and tuned power applications and their associated databases and displays on the EMS system to accurately model the power system in the CenterPoint transmission service area and ERCOT.
- Project leader providing subject matter expertise in the areas of Automatic Generation Control (AGC), Interchange Transaction Scheduler (ITS), Load Shed, and Energy Accounting (EA) during

the factory acceptance testing, site acceptance testing, integration, and cut-over of CenterPoint Energy's latest Energy Management System.

- Developed a detail User's Manual for CenterPoint's Operator Training Facility, depicting all the tools available for the trainers and crew leaders to utilize in their training program. Documented procedures to start-up the Operator Training Simulator and use it as a backup EMS system.
- Managed projects to enhance CenterPoint's first Operator Training Simulator by writing proposals and coordinating with the appropriate personnel to implement features such as: automatic periodic snapshots of real-time power system, switching device event recorder, modeling under-voltage load shedding scheme, modeling distribution feeder load rollover.
- Coordinated ERCOT annually required Black Start system recovery training classes using the Operator Training Simulator (OTS) for 4 years. Developed different realistic blackout scenarios to simulate each year. The black start training involved about 150 engineers and operators from CenterPoint Energy, interconnected utilities, and generation companies in the CNP transmission service area.
- Designed a server program using sockets and daemons created from C programs and UNIX scripts to send static interchange profiles and dynamic schedules from the Interchange Transaction Scheduler application to the EMS system.
- Participated in design teams to create Mechanical, Electrical, and Plumbing (MEP) designs of apartment complexes and student housing projects by consulting with clients to determine their needs and developing MEP designs in accordance to NEC and city/state building codes.

Employment History:

Jacobs Consultancy Inc. (2006-Present)
Senior Consultant

CenterPoint Energy (1999 – 2006)
Senior Engineer

Raymond Engineering (1996 – 1999)
Engineer

Michael E. Dumsha



Summary: Project Manager with cross-functional experience leading a diversified array of major initiatives associated with electric and gas utility distribution systems. Skilled in: strategic sourcing of construction services, contracting, electric distribution system design, maintenance and operation. Degreed Engineer able to integrate business needs and technical solutions. Creative problem solver, practical and adaptable. Demonstrates a high level of verbal and written communications skills. Computer literate in Microsoft Office suite of programs.

Education: BE, Mechanical Engineering, Villanova University

Professional Experience:

2004 to Present

Associate – HBS

Business expense reduction consultant in the fields of electric and telecommunications services, and, management of unemployment and sales tax issues. The HBS affiliation is as an “independent contractor” and performed on a part time basis with commission only compensation.

2001 to 2003

Outside Plant Engineer – Yipes Communications

Managed the design and installation of a fiber optic cable network in the Philadelphia region. Principal duties included: approval of all engineering designs, coordinating all contracting operations, management of site owner relations and new customer start-up process.

1999 to 2001

Engineering Projects Support

Managed the rebuilding of approx. 35 ATT Wireless Construction Sites located on facilities of PECO Energy. Principal duties included: coordinating and approving all engineering plans, coordinating construction activities of 6 construction trade contractors, coordinating activities of ATT Wireless entities and PECO Energy entities, and responsible for contractor conformance to applicable safety standards.

Performed Contract Management functions associated with the installation of fiber optic underground cable network, approx. 16 miles of cable and 10 customer facilities, installed by Level3 Communications in the center of Philadelphia. Principal duties included: management of the entire RFP process, developing contract specifications and scope of work statements for construction trade activities, management of contractor conformance to specifications, management of relationships with all site owners where facilities were installed.

1968 to 1999 – PECO Energy

Sourcing Specialist/Contract Administrator – (1994 to 1999)

Principal specialist responsible for procuring construction services for the Power Delivery Group. Using knowledge and experience gained as an electric distribution engineer, implemented innovative contracting arrangements that reduced costs while improving contractor performance.

Project Manager/Senior Engineer (1990 to 1994)

Led projects requiring technical expertise in electric utility infrastructure, including: a customer information system computer upgrade, an analysis of Geographic Information System to manage utility records, major construction contractor relationship management, major project work scope development, Quality Improvement implementation in a 1200 person Transmission and Distribution group.

Division Engineer (1980 to 1994)

Managed supervisory and engineering groups responsible for construction, operation and maintenance of the electric distribution system. Principal duties included: Review and approval of all distribution engineering plans for a specific geographic area, identifying and resolving electric reliability issues, supervising work performance of approximately 8 engineers and 12 supervisors, emergency response preparedness for storms and events impacting the distribution system.

Electric Distribution Engineer (1968 to 1980)

Performed various engineering assignments associated with substation construction, underground cable design and installation, conversion of distribution systems to higher voltage levels, improving electric reliability and resolving customer quality issues.

John W. Goodfellow

Professional Experience Summary

Mr. Goodfellow has 28 years experience in the utility industry, having held positions of increasing responsibility for right-of-way (ROW) vegetation management, transmission & distributions (T&D) operations, maintenance, engineering, and construction at three large investor-owned electric & gas utilities. He has significant management experience with emergency operations and restoration work both as Manager of the Emergency Operations Center (EOC) at a large investor owned utility, and as General Manager of a contract services provider of emergency restoration resources. Mr. Goodfellow has direct experience with the practical application of Reliability Centered Maintenance (RCM) techniques in assessing electric T&D system performance including failure analysis and modeling, and forensic analysis.

Education

Bachelor of Science in Environmental Resources Management, SUNY College of Environmental Science and Forestry, 1978

Bachelor of Science in Forestry, Syracuse University, 1978

Work Related Experience

Currently: Independent Consultant focusing on utility operations, maintenance and construction with a focus on reliability and process efficiency. Services include RCM based analysis, T&D process analysis, Integrated Vegetation Management (IVM) systems, major outage investigations, and support of BPO initiatives.

'04-'06: Managing Director, Potelco Inc./Quanta Services. Strategic management of Quanta regional affiliate (Potelco) operations including electric, gas, telecommunications, and highway lighting and signals business units. Provided direct support to Quanta's corporate business initiatives nation wide including responses to RFI's and RFP's and participation on due diligence teams assessing BPO opportunities related to utility engineering, construction, operations, maintenance, and emergency restoration services.

'01 – '04: General Manager, PSE/Potelco Service Provider Organization, Potelco Inc./Quanta Services. Direct responsibilities for design, transition of the workforce, implementation, and management of an innovative Service Provider BPO contract providing out-sourced T&D electric and gas engineering operations, construction, and maintenance services to Puget Sound Energy (PSE). Scope of services included over-all management of outage restoration resources and efforts including technical staff, damage assessors, and field force crews during significant storm events.

'99 – '00 Independent Consultant providing technical, operational, and management consulting services to clients with special emphasis on contracting, power system reliability, and applications of RCM to electric T&D infrastructure. Conducted basic research on the electrical and physical characteristics of tree-initiated short circuit faults.

'98 – '99: Vice President of Business Development, Environmental Consultants Incorporated. Provided technical consulting to clients with special emphasis on power system reliability and applications of Reliability Centered Maintenance. Conducted basic research on the electrical and physical characteristics of tree-initiated short circuit faults.

'96 – '98: Manager Major Projects - Distribution, PSE. Responsible for design and construction services of large electric and gas distribution infrastructure projects. Managed PSE's Emergency Operations Center (EOC) during major interruption/restoration events.

'93 – '96: Manager Standards & Practices, Puget Sound Power & Light (PSP&L). Responsible for standards and standardization including electric T&D engineering and design;

construction, operations and maintenance standards as well as equipment specification. Managed PSE's Emergency Operations Center (EOC) including mobilization and deployment of restoration resources during major interruption/restoration events.

'92 – '93: Manager Operation, PSP&L. Responsible for creation and implementation of a reliability centered maintenance (RCM) program for the electric T&D system infrastructure. Work included root cause analysis & failure mode and cause modeling, forensic engineering, and management of maintenance work. Managed mobilization and deployment of contractor and foreign utility field forces from PSP&L's EOC during major interruption/restoration events.

'87 – '91: System Forester, PSP&L. Overall responsibility for creation, implementation, and management of a major initiative to establish an IVM program for the T&D system.

'82 – '86 System Forester, Wisconsin Public Service. Overall responsibility for creation, implementation, and management of a distribution ROW vegetation management and wood pole inspection and treatment programs.

'78 – '82: Division Forester, New York State Electric & Gas. Responsible for ROW vegetation management activities within the regional Division. Also responsible for forestry and environmental remediation activities associated with construction of major new transmission facilities.

Professional Affiliations

Utility Arborist Association (Past President), International Society of Arboriculture
Institute of Electrical and Electronics Engineers
Board of Trustees, Tree Research, Education, and Endowment (TREE) Fund.

Selected Publications & Presentations

"Tree Caused Interruptions, an Update on Ten Years of Research". International Society of Arboriculture (ISA)/Utility Arborists Association Annual (UAA) Conference, August 2006

"Investigating Tree Caused Faults", *Transmission & Distribution World*, Vol. 57 No 11, November 2005.

"Outsourcing Of Gas & Electric Utility Functions, The Service Provider Model", Edison Electric Institute (EEI) Distribution Committee, October 2001.

"Application of Reliability Centered Maintenance to Overhead Distribution Systems", IEEE PES Summer Power meeting, July 2000.

"Prescriptive Reliability for Distribution Systems". EEI T&D Committee, March 2000.

"Understanding How Trees Cause Outages: The Physics of Tree Related Faults". IEEE PES April 1999.

"Application of RCM Analysis and Practice to Vegetation Management", RCM for T&D Conference Proceedings, February 1999

"Engineering & Construction Alternatives to Line Clearance Tree Work", National Arbor Day Foundation Trees & Utilities Conference, February 1997; paper: *Journal of Arboriculture*, 21 (1) January 1995.

"RCM for T&D Systems", EEI Distribution Committee, 1995

John E. Skog P.E.

Professional Experience Summary

Mr. Skog has over 30 years experience in the electric utility industry, ten plus years as a consultant and twenty years as an electric utility substation, metering, system protection and maintenance supervisor. More than three-quarters of his professional experience has been focused on customer metering, utility operations, substation equipment procurement, protection, testing, reliability improvements, maintenance and life extension. Mr. Skog is a leader in the area of maintenance program optimization in the electric utility industry. John is recognized around the world as an authority on the use of Reliability Centered Maintenance (RCM) and Performance Focused Maintenance (PFM), techniques for optimization of routine maintenance. John is also a recognized expert in the application of Advanced-Meter Infrastructure (AMI) where he has guided utilities in the development of their business case, technology selection, integration, and implementation of advanced AMR/AMI services.

As a senior consultant and business manager, he has concentrated his recent work in the area of Substation Maintenance, Automatic Meter Reading, Load Control and Business Development. He has provided maintenance optimization training and consulting services for utility clients across the U.S., Africa, Australia, the Middle East and Europe. Mr. Skog has also provided consulting support in the fields of utility operations and Advanced-Meter Infrastructure and Automated Meter Reading.

Key Qualifications and Experiences-Maintenance and Asset Management:

Mr. Skog is directly involved in the development of continuous diagnostic systems for substation equipment. As a former utility superintendent, Mr. Skog served on the EPRI task force that developed the original guidance, references and software tools to support RCM and PFM program implementation in the power delivery arena.

Mr. Skog is a member of Cigré and serves on several committees.

Mr. Skog is a licensed profession engineer in the states of Oregon, Washington, Idaho and Alaska.



MAINTENANCE & TEST ENGINEERING, LLC

i) *T&D maintenance and maintenance management*

Over the past nine years, 50% of Mr. Skog's professional activities have been focused on T&D maintenance management issues. As a consultant, Mr. Skog has worked with Electric Utilities and Large Industries around the world helping them improve the effectiveness of their maintenance programs. Listed below in the section titled "Clients" are a partial list of clients with whom Mr. Skog has provided RCM (Reliability Centered Maintenance) and PFM (Performance Focused Maintenance) consulting services. These services were at the request of Executive and Upper level utility managers.

ii) *Equipment replacement strategies*

In the '60s, '70s and '80s, utility asset population grew significantly. Many of these assets had a nominal expected operating life of 40 years. Some assets, like cables never met these expectations while others like power transformers are generally exceeding them. Managing the failure rates and pre-emptive replacement programs has been a challenge for many utilities since few understand both the technical and regulatory implications. Mr. Skog has provided consulting to several investor owned utilities, assisting them in the development of effective life-cycle management strategies.

iii) *Spare part management*

As a utility Maintenance Engineer and Maintenance Manager spanning across 3 decades, Mr. Skog has experienced the challenges of managing spare parts inventories and obtaining parts from third parties when the Equipment Manufacturer has either gone out of business. The PFM process incorporates spare part availability and needs as part of the analysis process. PFM identifies the dominant causes of failure and the necessary spare parts are then projected. The management of the spare parts inventory then becomes a function of the CMMS.

iv) *IT and Computerized Maintenance Management System (CMMS)*

In the 80's, Mr. Skog developed one of the first PC Based CMMS systems in North America named SubMate. This was later transformed into a hugely successful CMMS product marketed under the name of Cascade. Recently, he has worked with a large Investor Owned Utility on the implementation of SAP's CMMS modules.

Mr. Skog has also worked with EPRI and served as the Subject Matter Expert in the development of Industry Databases for cables and transformers. ConEd was one of the collaborating utilities on the project.

As one of four Cigré A2.23 working group members, Mr. Skog and collaborators recently published a guide titled "Guide on Transformer Lifetime Data Management". A summary was published in the August 2006 edition of Electra.

v) *Total Productive Maintenance (TPM) and Performance Focused Maintenance (PFM)*

While the concepts of TPM were developed for the manufacturing and process sectors, many of the principles can be applied directly or with a little modification made relevant to T&D (Transmission and Distribution) maintenance. Mr. Skog has been working for EPRI (The Electric Power Research Institute) since 2000 to integrate the concepts of RCM and TPM and develop an approach to T&D Maintenance known as PFM (Performance Focused Maintenance). Mr. Skog has applied these techniques at:

Southern California Edison-Los Angeles California USA (2005). Developed and implemented Performance Focused Maintenance (PFM) and asset replacement strategies for:



MAINTENANCE & TEST ENGINEERING, LLC

- Medium voltage (15-35kV) power cables
- Distribution transformers
- Distribution switches
- Large Power Transformers (230 to 500kV, larger than 200 MVA)

Puget Sound Energy-Bellevue Washington USA (1996- 2005). Various projects including:

- Implementation of SAP Maintenance and Business Intelligence Software.

i) T&D Technologies

Recently, Mr. Skog has been developing a business case for implementation of power transformer on-line monitoring systems at Southern California Edison.

vi) Training approach

The ultimate objective of a maintenance management consultant is the transfer of knowledge, technology and process. Nearly all of the maintenance consulting projects managed by Mr. Skog have included formalized training of the client's staff. In addition to this formalized training, Mr. Skog has given numerous presentations, participated in workshops and written technical papers on numerous aspects of utility maintenance and maintenance management.

Key Qualifications and Experiences-AMR/AMI:

Over the past ten years, 50% of Mr. Skog's professional consulting activities have been focused on T&D technology issues. As a consultant, Mr. Skog has work with Electric Utilities and Large Industries around the world helping them develop technology strategies and business cases. Automatic Meter Reading (AMR) or Advanced-Meter Infrastructure (AMI) is one of those evolving technologies.

Mr. Skog's experience in the AMR/AMI arena is quite broad. He has developed business cases, written RFPs, assisted in negotiating contracts, managed projects and developed applications that exploit both the infrastructure and available data.

ii) AMR/AMI List:Experience

Listed below are some of the AMR/AMI projects Mr. Skog has been involved in:

- Project Manager-Puget Power/Washington Natural Gas/Itron/ConnexT Mercer Island Project
 - Fixed Network Solution
 - 9,000 electric meters
 - 6,000 gas meters
- Project Manager-Puget Power/CellNet/ConneXt Olympia Project
 - Fixed Network
 - 15,000 Electric Meters
- Consultant PSE Saturation AMR Project
 - Fixed Network
 - 950,000 electric meters
 - 550,000 gas meters
 - Responsibilities:
 - Develop business case for full-scale deployment



MAINTENANCE & TEST ENGINEERING, LLC

Develop economic decision model for technology and installation options
Review and evaluate technology
Manage Information Systems integration and development of a Meter Data Warehouse

- Pacific Gas and Electric
Consultant for reviewing cost model.
- Public Service of San Antonio
Review business case and economic model, made recommendations for improvement.
- City of Las Cruces NM
Developed preliminary business case for gas and water AMR/AMI
- Portland General Electric
Perform independent review of AMI business case and technology requirements. Present findings to executive branch with a recommendation to proceed with implantation but a higher budget level.
Assist in the development of their AMI RFP.
Assess RFP Responses
Negotiate with vendors
- KahraMaa-Qatar
Develop technology requirements and business case for Water and Electric AMR (150 thousand customers)
- Sonelgaz-Algeria
Develop technology requirements and business case for Gas and Electric AMR. (6 million customers)

Clients

Mr. Skog has provided consulting to numerous utilities, private companies and government agencies. Recent clients include:

Black Hills Electric
Bangor Hydro
CellNet Data Systems
CEPS-Czech National Transmission Utility
Chugach Electric
CHM2 Hill
City of Las Cruces New Mexico
City of San Antonio Texas



MAINTENANCE & TEST ENGINEERING, LLC

ConneXt
DCSI-TWACS
Deloitte Consulting
Department of Defense-US Army
Doble Engineering Co
e-liance
e-Meter
EPRI
Hydro One
Idaho Power
Kahramaa-National Electric and Water Utility of Qatar
King County-State of Washington
Lincoln Electric System
Nevada Power
Niagara Mohawk/National Grid USA
Nova Scotia Electric
Pacific Gas And Electric
Pacific Power and Light
Portland General Electric
Platte River Power Authority
Puget Sound Energy
Puget Sound Hydro
Red Electrica-Spain
SAGE Systems
Schlumberger Corporation
Sonelgaz-Algeria
Southern California Edison
State of Washington
Statnett-Norway
Svensk Energi-Sweden
The Telemetry Company
Tucson Electric Company
VICO Engineering
Washington State University

Robert K. Craig, CPP Senior Security Specialist

Mr. Craig has been mastering the art of protection engineering for more than 20 years. He has provided security consulting and design services to a variety of clients serving municipal, state, and federal agencies. Mr. Craig is Board Certified as a Certified Protection Professional (CPP) – the only recognized security professional certification. His expertise extends into the design of fire protection systems, allowing for resolution of life safety and security conflicts in each design project. He brings extensive design experience in sophisticated electronic security systems. Mr. Craig's designs capabilities include integration of Anti-terrorism/Force Protection countermeasures with the hard and softscape designs of facilities. Mr. Craig's expertise extends to design of traditional electronic entry control, explosives and weapons screening, intrusion detection, duress, intercommunications, electronic article surveillance, and closed circuit television systems.

Education

Electrical Engineering Curriculum, University of Maryland

Professional Certifications

ASIS - Certified Protection Professional (CPP)

Professional Affiliations

Federal Bureau of Investigation INFRAGARD Program

American Society for Industrial Security (ASIS), 1996

Society of Fire Protection Engineers (SFPE)

National Fire Protection Association (NFPA)

American Institute of Architects (AIA)

NFPA Premises Security Committee

AIA Security By Design Committee

Representative Projects

ENERGY SECTOR

Limerick Nuclear Power Station, Philadelphia, Pennsylvania: Security Specialist for the design of perimeter protection systems for Pennsylvania power station. Systems design included electronic entry control, intrusion detection, video surveillance, intercommunications, and primary and secondary control room designs.

Hope Creek Nuclear Power Station, Wilmington, Delaware: Security Specialist for the design of perimeter protection systems for the Delaware power station. Systems design included electronic entry control, intrusion detection, video surveillance, intercommunications, and primary and secondary control room designs.

Peach Bottom Nuclear Power Station, Lancaster, Pennsylvania: Security Specialist for the design of perimeter protection systems for the Pennsylvania power station. Systems design included electronic entry control, intrusion detection, video surveillance, intercommunications, and primary and secondary control room designs.

Salem Nuclear Power Station, Wilmington, Delaware: Security Specialist for the design of perimeter protection systems for the Delaware power station. Systems design included electronic entry control, intrusion detection, video surveillance, intercommunications, and primary and secondary control room designs.

Turkey Point Nuclear Power Station, Miami, Florida: Security Specialist for the design of perimeter protection systems for the Florida power station. Systems design included electronic entry control, intrusion detection, video surveillance, intercommunications, and primary and secondary control room designs.

Davis Besse Nuclear Power Station, Toledo, Ohio: Security Specialist for the design of perimeter protection systems for the Ohio power station. Systems design included electronic entry control, intrusion detection, video surveillance, intercommunications, and primary and secondary control room designs.

Robinson Nuclear Power Station, Florence, South Carolina: Security Specialist for the design of perimeter protection systems for the South Carolina power station. Systems design included electronic entry control, intrusion detection, video surveillance, intercommunications, and primary and secondary control room designs.

River Bend Nuclear Power Station, Baton Rouge, Louisiana: Security Specialist for the design of perimeter protection systems for the Louisiana power station. Systems design included electronic entry control, intrusion detection, video surveillance, intercommunications, and primary and secondary control room designs.

Grand Gulf Nuclear Power Station, Vicksburg, Mississippi: Security Specialist for the design of perimeter protection systems for the Mississippi power station. Systems design included electronic entry control, intrusion detection, video surveillance, intercommunications, and primary and secondary control room designs.

Rio Embalse Nuclear Power Station, Embalse, Argentina: Security Specialist for the design of perimeter protection systems for the South American power plant. Systems design included electronic entry control, intrusion detection, video surveillance, intercommunications, and primary and secondary control room designs.

Holmes & Narver, Nevada Test Site, Mercury, Nevada: Security Specialist for security systems design and coordination between design disciplines. Project included implementation of security measures into the architectural design and the detailed design of site and building security systems to include vehicular and pedestrian access control, intrusion detection, CCTV systems, duress, intercommunications and primary and secondary control room console designs.

Public Service Electric and Gas Company, Newark, New Jersey: Security Specialist for evaluating the Crisis Management Plans (CMP) for the Exerlon-PSEG merger. Review the CMP in place for each company and identify gaps and deviations from industry best practices. Review the communication program processes for responding and controlling all activities during an emergency including interfaces with public officials, the press, emergency services such as fire and police depts., as well as with the general public. Review any usages of the CMP in the last seven years to identify key measures of compliance and implementation. Review effectiveness of implementation and knowledge of the Plan by key employees and functional areas of the company. Analyze and critique company plans and policies for stockpiling critical spare parts and equipment needed for crisis response.

HOMELAND SECURITY SECTOR

United States Department of Treasury Headquarters, Washington, DC: Project Manager responsible for security system and life safety code issues. Developed threat assessment and security analysis for security program to be used as the basis of design for the facility. Systems design included pedestrian/ vehicular electronic entry control, intrusion detection, video surveillance, blast mitigation and anti-vehicular assault systems.

Architect for the Capitol, Washington, DC: Responsible for security engineering support on multiple task orders involving emergency security upgrades for all of the historical and legislative buildings that make up the U.S. Capitol Complex.

Dwight D Eisenhower Executive Office Building, Washington, DC: Project Manager for security design; fire protection design and life safety code consulting services for this historic 550,740 square foot building. Senior security specialist for the development of enhanced security and life safety features for future implementation.

ROBERT F. WELCHLIN, CPA
Senior Manager

General

Regulatory consultant to the telecommunications, cable, electric and gas industries. Manage operational, financial and regulatory audits, reviews of rate filings and cost studies in the energy utility, telecommunications and cable industries. 21 years of industry experience.

Education

- Master of Business Administration, St. Edwards University, 1986.
- Bachelor of Science, Accounting and Business Administration, Eastern Illinois University, 1979.

Representative Experience

Electric and Gas

- Exelon / PSEG Merger – Assisted the New Jersey Board of Public Utilities in review of the proposed merger of Exelon (Commonwealth Edison, Pennsylvania Energy) with PSEG (Public Service Electric & Gas). Responsible for the review of the impact of combining the two holding companies' service companies (the companies that provide managerial, technical and administrative services to associated companies) on the New Jersey genco and utility. (2005-2006)
- Elizabethtown Gas, New Jersey Natural Gas, and South Jersey Gas Regulatory Audits – Project Manager for audits of the affiliate relationships and cost allocations of Elizabethtown Gas, New Jersey Natural Gas, and South Jersey Gas conducted on behalf of the New Jersey Board of Public Utilities (BPU). The audits examined whether each Company maintained a strict separation of risks, functions, and assets between their regulated utilities and unregulated affiliates to comply with BPU Standards. The audits also documented each Company's cost allocation methodologies and results for a two-year period. (2002-2003)
- Sempra Energy – Project Manager for a review of the costs of Sempra Energy's holding company. The review, conducted on behalf of the Utility Consumer Action Network (UCAN) was a part of the review of Sempra Energy's rate application with the California Public Utilities Commission (A.02-12-027 and A.02-12-028). (2003)
- Kansas Pipeline Company - Directed the cost of service component of the initial FERC "Section 7" cost of service and base rate filing of Kansas Pipeline, which had been exempt from FERC rate regulation prior to 1997. Submitted and defended testimony on behalf of Kansas Pipeline before the FERC covering the overall cost of service filing, the historical basis for the calculation of acquisition premium and company's test year operations and maintenance expenses (1998 – 2000).

-
- Pacific Gas and Electric 1999 General Rate Case - Reviewed projected test year administrative and general expense levels and allocation of costs between the utility and affiliates. Submitted and defended testimony on behalf of the California Public Utilities Commission (1998).
 - Pacific Gas and Electric Audit of Inter-Company Relationships and Transactions - Managed an audit of PG&E's compliance with regulatory requirements and internal control over relationships and transactions between the utility and its unregulated affiliates on behalf of the California Public Utilities Commission. (1998).
 - Southern California Gas Performance Based Ratemaking (PBR) Filing - Conducted a review of 1994 and 1995 base margin costs. Submitted testimony on behalf of the California Public Utilities Commission. Issue areas included operations and maintenance expenses, corporate allocations, employee and executive compensation, post-retirement benefits, and savings from restructuring and force reduction programs (1996).
 - Missouri Gas Energy Rate Case - Submitted cost of service testimony on behalf of Mid-Kansas Partnership and Riverside Pipeline, L.P. in connection with Missouri Gas Energy's base rate filing. Issues included deferred gas safety costs, merger-related savings and weather normalization (1996).
 - Western Resources / Kansas Power and Light Rate Case - Conducted a rate case audit and submitted and defended cost of service testimony on jurisdictional cost allocations, operations and maintenance expenses and pension expenses on behalf of the Kansas Corporation Commission (1992).
 - Montana Dakota Utilities and Mountain Fuels - Conducted focused management audits of the gas supply operations of two western local distribution utilities for the Wyoming PSC. Assessed the management and organization of each company as it related to gas supply, the degree to which supply options were optimized, the potential impact of FERC Order 636, and the relationships between the LDCs and their pipeline and production affiliates (1992).
 - Big Rivers Electric Cooperative - Reviewed fuel receiving and inventory policies and coal contract terms in connection with a focused management audit of fuel procurement for the Kentucky PSC. (1993).
 - Illinois Power Company (Illinova) - Performed internal operational audits of nuclear and fossil fuel procurement, natural gas procurement and delivery, various corporate, power plant and service area operations, and nuclear plant construction contracts. (1980 to 1983).

Telecommunications

- Frontier (Citizens) Telecommunications Regulatory Audit - Directed a California statutory regulatory audit of Citizens' California PUC financial reporting and shareable earnings. , including transactions between Citizens, its Connecticut-based parent company and its affiliates. (2004-2005).
- Pacific Bell Regulatory Audit – Directed a California statutory regulatory audit of Pacific Bell's California PUC financial reporting, including transactions between Pacific Bell, its parent company (SBC) and its affiliates and subsidiaries. (2001-2002).

- Roseville Telephone Regulatory Audit - Directed and conducted a regulatory audit of the company's compliance with affiliate and non-regulated activity transaction rules and reviewed the company's calculation of earnings shareable with customers under the California PUC's New Regulatory Framework rules. Submitted and defended testimony on the audit on behalf of the CPUC (1999- 2000) Performed a followup audit of 2001-2003 regulated earnings (2004).
- New York Telephone Loop Study - Directed a study of NYT's subscriber loop network. Coordinated the effort of a multi-disciplined team that included regulatory, network operations, engineering and data processing specialists. The major work products included an inventory of subscriber facilities, determination of facility utilization in different geographic regions, determination of the relative accuracy of the major databases containing network facility information, and verification of billing records with installed facilities (1991).
- AT&T Review of Affiliate Transactions - Conducted a review of the affiliate management and accounting relationships among the subsidiaries of AT&T. Documented significant transactions and allocations through the AT&T organization that affected AT&T Communications. Examined policies and procedures that affected the Communication subsidiary's decision to use internal sources of supply and the corporate entity's allocation of costs to subsidiaries (1990).
- Bay Area Teleport - Conducted a review of the impact of local exchange carrier price flexibility on competitive access in California (1988).
- GTE - Analyzed Indiana local exchange rates and developed a computer model to distribute the carrier's revenue requirement over a matrix of local services and rate groups (1989).

Cable

- Late Payment Costs - Analyzed costs imposed on cable systems by late-paying customers and prepared studies to quantify the additional costs of handling past due accounts. (1995 through 2001).
- Cost of Service - Analyzed cable system costs and prepared cost-of-service rate studies for several cable companies, including several of the nation's largest cable systems. Developed cost-of-service methodologies to properly account for affiliate relationships and corporate and divisional cost allocations to the cable systems. Analyzed incremental cost of service under FCC Form 1235 rules for a group of systems calculating the revenue requirement impact of upgrading system capacity upgrades (1994-1999).
- Franchise Issues - Developed financial models to determine the financial and potential rate impact of franchise requirements for system upgrades and rebuilds. In 1997, coordinated the financial aspects of a franchise proposal submitted by the Company by a California local franchise authority (1995 and 1997).
- Programming Costs - Developed a database application to calculate programming cost increases on a cable-system basis to comply with FCC requirements (1994).

Work History

- 1996 - Present:** **Overland Consulting**
Director. Plan, supervise and perform telecommunications and energy industry consulting projects, including audits, on behalf of public utility commissions and other government agencies.
- 1993 - 1996:** **KPMG Peat Marwick LLP**
Senior Manager. Information, Communications and Entertainment Line of Business. Developed and managed cable TV, and telecommunications and industry consulting engagements.
- 1987 - 1993:** **LMSL, Inc., Overland Consulting**
Manager. Conducted audits of energy and telecommunications companies; sponsored testimony in regulatory proceedings. (LMSL is a predecessor firm of Overland Consulting).
- 1984 - 1986:** **Public Utility Commission of Texas**
Senior Staff Accountant. Reviewed electric, telephone and water utility rate and regulatory filings and sponsored cost of service testimony in rate hearings.
- 1980 - 1983:** **Illinois Power Company**
Senior Internal Auditor. Planned, directed and performed operational and financial audits of the company's headquarters departments, power stations and service offices. Prepared the annual department operating plan and drafted the report to the Audit Committee of the Board of Directors for approval by the Director of Internal Auditing. Coordinated work with external auditors.

Certifications

Illinois CPA Certificate No. 31763, University of Illinois, February 18, 1982.
Kansas CPA Certificate No. 9821
Kansas Practice Permit No. 3349
Member, American Institute of CPAs

Exhibit II.

Work Sample

Exhibit III.

Conflict of Interest

Jacobs Consultancy has conducted an internal search to confirm that neither it, nor any affiliate companies or subcontractors, is presently performing any work for Consolidated Edison of New York and/or its affiliates.

In addition we have conducted a search of our databases to identify previous contracts or other agreements that Jacobs Consultancy, its affiliate companies or subcontractors may have entered into with Consolidated Edison of New York and/or its affiliates within the past two years. Our search revealed that we have not performed work for Consolidated Edison and /or its affiliates during the requested time frame.

Exhibit IV.

Terms & Conditions

This is to acknowledge that Jacobs Consultancy is in receipt of the Terms and Conditions proposed by the State of New York Public Service Commission, and said Terms and Conditions are currently under review by our attorneys. Once agreement has been reached, the final version of the Terms and Conditions shall govern any and all work undertaken by our project team in the event Jacobs Consultancy is the successful offeror in this bid process.