NEW YORK STATE OF OPPORTUNITY. Department of Public Service

Proposal to Perform a Comprehensive and Focused Management and Operations Audit of National Grid USA's New York Electric and Gas Utilities

Case 18-M-0195

July 6, 2018

Vantage Energy Consulting, LLC
Management Consulting and Energy Services

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I. INTRODUCTION AND FIRM EXPERIENCE

Vantage Energy Consulting LLC (Vantage) is pleased to respond to the May 17, 2018 Request for Proposal (RFP) from the Department of Public Service (DPS) and New York Public Service Commission (PSC) to perform a Comprehensive Management and Operations Audit of National Grid USA's New York Electric and Gas Utilities. These utilities include Niagara Mohawk Power Corporation d/b/a National Grid, The Brooklyn Union Gas Company d/b/a National Grid NY, and KeySpan Gas East Corporation d/b/a National Grid (collectively, the Utilities). The audit will be performed in accordance with New York State Public Service Law §66(19). Our proposal takes into account the specific scope detailed by the PSC, as expressed in the RFP, and our extensive experience in conducting similar audits of both gas and electric utilities. Vantage will utilize NEI International as a subcontractor on this assignment to provide expertise in engineering, construction and electric planning, and renewables.

We have made a concerted effort to keep this proposal short and concise. Although we did an in-depth analysis of National Grid's financials using SNL, we did not include all of this information in the proposal; We have not included long write-ups on scope areas, instead focusing on the work steps required. Our resumes have been abbreviated to focus on direct audit experience.

A. VANTAGE ENERGY CONSULTING LLC

DESCRIPTION

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Vantage Energy Consulting LLC, (Vantage) is a management consulting firm headquartered in Cudjoe Key, Florida, with clients throughout North America. Vantage consultants possess a broad background in all business aspects of electric, gas, telecommunications and water utilities, but retain particular expertise in general utility operating functions. Vantage Energy Consulting LLC and its predecessor company, Vantage Consulting Inc., have been in existence for over 24 years. During that time, the firm has focused on conducting utility related management consulting assignments. As the details on specific assignments described below attest, Vantage has been one of the most successful companies in this area of management consulting.

The Vantage team consists of highly experienced, trained consultants, covering virtually all functional work areas within the utility industry. Vantage is staffed by a total of 20 full-time and contract consultants and administrative staff. Consultants have a diverse set of backgrounds, including engineering, accounting, economics, finance, and human resources.

Vantage provides a broad range of consulting services to investor-owned utilities, independent power producers, regulatory agencies, state planning and environmental agencies, and law

firms. While the majority of our assignments are tailored to the specific needs of the client, there are specific products and services which we offer. The functional service areas in which we work, and the consulting topics to which we provide expertise, are listed below.

Vantage was formed by Walter P. Drabinski in 1990, after he spent eight years working for two nationally recognized consulting firms. He now holds the position of President. Vantage is now owned by Ms. Jean Gormley, a seasoned business owner who has exceptional managerial and organizational skills. Jean assumed majority ownership almost six years ago, and holds the positions of both CEO and COO. She has responsibility for many of the key activities that need to be performed correctly on an assignment such as this.

Vantage is a Florida State Certified Woman Business Enterprise (WBE), is self-certified with the Federal Government as a Woman Owned Small Business (WOSB), and has an MWBE application submitted with New York State – Certification Application #8004194. The certification is now undergoing final review.

The focus of Vantage has been the utility industry including companies and regulators. Vantage has performed over one hundred and fifty separate assignments. A summary of the number of different assignments performed by key Vantage consultants is included in the list below. Details on specific assignments are included in both the consultant in our resumes in Section VII. A summary of our project experience includes:

- 29 comprehensive and focused management audits;
- 27 affiliate audits;
- 29 fuel audits;
- 9 environmental compliance plans;
- 21 Telco assignments
- 32 POLAR auction monitoring and testimony;
- testified before regulatory bodies approximately 150 times; and
- provided direct consulting advice to approximately 35 utilities or large utility-related companies.

RELEVANT PROJECTS

- **Virgin Islands Water & Power Authority Management Audit** – With the Company on the verge of financial collapse, the Board of Directors and Public Service Commission selected Vantage to assess the company's operations and propose long term solutions. The result was a replacement of senior management; a decision by the Board, PSC and Government to completely replace the generating fleet; downsize the staff by a significant amount; and to change a number of key regulatory policies.
- **Kentucky Environmental Cost Recovery Hearings** - Vantage has provided a broad range of audit and regulatory support related to electric utility generating resource Environmental Cost Recovery (ECR) mechanism for the Kentucky PSC. Vantage reviewed testimony and assisted in rate cases related Environmental Cost Recovery (ECR) mechanism for the Kentucky PSC. On this assignment,

Vantage consultants acted as an extension of staff in four separate cases. The ECR permits recovery of environmental costs through a separate surcharge after a formal proceeding. Vantage reviewed applications, submitted and reviewed interrogatories, prepared summaries for and briefed the Commissioners and Staff, assisted in hearings and helped draft the final orders. In total almost $5 billion in ECR projects were awarded. Upon completion of the proceedings, Vantage was retained for five years to monitor construction and cost expenditures at on all Kentucky Utilities and Louisville Gas & Electric Projects.

- **Audit of Long Island Power Authority Emergency Preparedness and Storm Restoration -** This comprehensive assessment was conducted at the request of the Governor of New York, even though LIPA is not regulated by the DPS. The project addressed all aspects of emergency response planning, preparedness and training, emergency response execution, communications with state and local governments, media and customers concerning storm damage, restoration priorities and restoration timetables, coordination of emergency response efforts with state and local governments, securing and managing outside work crews, and tree trimming and vegetation management policies and practices.
- **Consolidated Edison Company –** Performed an audit of emergency restoration and outage planning capabilities for the New York PSC. Audit followed a number of large and highly public outages. Major recommendations were made to develop new strategies and programs for addressing reliability and outage response.
- **Duquesne Light Company** – Vantage conducted a comprehensive management and operations review for the Pennsylvania Public Utility Commission. Mr. Drabinski was also the Lead Consultant in the review of executive management, strategic planning, affiliated relations, and financial management.
- **East Kentucky Power Cooperative** – Performed a comprehensive review of all fuel procurement and fuel utilization activities for the Board of Directors. Visited all power plants, coal tipples, and a sampling of mines. Recommendations addressed a broad range of strategic and operational issues.
- **West Texas Utilities** – Subcontractor on a comprehensive management and operations review for the Public Utility Commission of Texas. Acted as a Lead Consultant in the areas of power production, fuel procurement, and customer services.
- **Westar/KCP&L Merger - System Analysis and Expert Witness** - Vantage performed an assessment of the Westar and KCP&L generation plans, system reliability, customer service and merger savings related to the proposed merger of Westar and KCP&L. Walt Drabinski testified in February 2017 on the above topics.
- **Kansas City Power & Light Iatan 1&2 -** At the request of the Kansas Corporation Commission (KCC) Staff, Vantage provided oversight of the $500 million installation of an Air Quality Control System (AQCS) on the existing (KCP&L) Iatan Unit 1 and monitored construction of the $2 billion Iatan Unit 2 coal fired, supercritical power plant. Our team reviewed organization, cost, schedule, project controls, contractor performance, contract monitoring, site conditions, and other key attributes associated with a mega-project. Provided

regular assessments to the KCC on progress and risks, monitored startup and acceptance testing, and provided testimony in rate cases for both Iatan 1 and 2, with recommendations for almost $240 million in prudence disallowances.

- **Duquesne Light Company** – Vantage conducted a comprehensive management and operations review for the Pennsylvania Public Utility Commission. Mr. Drabinski was also the Lead Consultant in the review of executive management, strategic planning, affiliated relations, and financial management.
- **West Texas Utilities** – Subcontractor on a comprehensive management and operations review for the Texas Public Service Commission. Acted as a Lead Consultant in the areas of power production, fuel procurement, and customer services.
- **East Kentucky Power Cooperative** – Performed a comprehensive review of all fuel procurement and fuel utilization activities for the Board of Directors. Visited all power plants, coal tipples, and a sampling of mines. Recommendations addressed a broad range of strategic and operational issues.
- **Maryland Public Service Commission** – Vantage conducted a review of long-term gas purchasing practices of Columbia Gas of Maryland, Baltimore Gas & Electric, and Washington Gas Light. Responsibilities included review of the 1988 plans, recommendations on requirements for future plans, and the training of commission staff personnel relative to conducting similar reviews of future plans.
- **Kentucky-American Water Company** – Vantage conducted a management and operations review for the Kentucky Public Service Commission. A key element of this audit was the holding company relationship with the many subsidiaries of American Water Works. Investigated the areas of customer service and marketing and engineering/construction.
- **Curacao Island Utilities of Aqualectra and Curoil**. Performed review of utilities' electric, water and fuel services to the islands of Curacao and Bonaire. The Curoil operations face uncertainty over the future of their major supplier, the Isla refinery owned by Petróleos de Venezuela S.A. (PDVSA) as well a significant rise in world oil prices on top of already high island prices.
- **Commonwealth Edison Company** – Vantage was retained by the Illinois Commerce Commission to investigate outages suffered in downtown Chicago during the summer of 1999. The assessment provided a comprehensive analysis of eight separate outages, with details of causes and recommendations for improvement.
- **St. Vincent Energy Services Ltd**. - At the request of the Board of Directors and Prime Minister, Vantage conducted a review of system reliability and fuel procurement. Significant findings resulted in a new strategic plan, a reorganization of management and a legal investigation into procurement practices.
- **Seattle City Light –** Vantage conducted a controversial audit of Seattle City Light's financial, risk management and governance structure. Serious issues regarding debt, O&M and Capital expenditures were raised. Major recommendations on risk management were developed.

- **Kentucky Utilities Company** – Vantage conducted a comprehensive management and operations review for the Kentucky Public Service Commission. Acted as Lead Consultant in the areas of power production, fuel procurement, transmission operations, and engineering and construction. Provided numerous recommendations to improve competitiveness of this already low-cost utility. Met with the leadership of the State House of Representatives and Senate to discuss utility competition and industry restructuring.
- **PSE&G** – Performed an audit of the Company's Unbundling, Stranded Cost, and Restructuring plans and testimony. On this assignment, under the auspices of the New Jersey Board of Public Utilities, Vantage was the lead firm for a consortium of five consulting firms that addressed numerous critical and cutting edge issues. These included areas such as reconciliation of the regulatory and FERC books, development of cost of service studies, assessment of capital additions proposed for stranded cost recovery, calculation of market prices for energy and capacity, calculation of stranded costs associated with nuclear, fossil and non-utility generation, assessment of securitization as a mitigation option, and development of a comprehensive model that determined the possible rate reduction that could be achieved.
- **Entergy Corporation, Affiliate Compliance Audit – Securities Exchange Commission (SEC)** required an in-depth audit of the methods and fairness of Entergy's affiliate transaction methods, policies and cost sharing as a result of a federal investigation. Vantage was selected to perform this extensive, multi-state assignment. Focused review of all affiliated transactions. Conducted as part of SEC settlement for regulators from Louisiana, Texas, Arkansas, Mississippi, and the City of New Orleans. All aspects of affiliate rules, compliance reporting, separation, and transaction analysis and allocation methods were reviewed.
- **Southern California Edison's Reliability Investment Incentive Mechanism (RIIM) Program** - addressed almost $2 billion in expenditures dedicated to reliability and increases in utility maintenance staffing. This was a unique project because it approached reliability from an investment standpoint rather than performance measures only. Activities included in the audit consisted of reviews of capital projects for T&D, determination of projects that were reliability related, a review of SAIDI and SAIFI statistics and impacts due to improvement program and assessment of agreed to staffing requirements. Our analysis determined whether the project complied with regulatory orders and statewide standards.
- **Duke- North Carolina – Audit of affiliate controls and merger conditions after merger with Progress Energy -** The merger between Duke and Progress Energy was one of the largest utility mergers ever in the US. Vantage was selected to audit the fifty-plus merger conditions required, as well as the transition to a new regulatory and affiliate control system.
- **Duke Energy Indiana Affiliate Compliance Audit –** Vantage conducted this affiliate compliance audit of the Indiana subsidiary.
- **Duke Energy Kentucky Affiliate Compliance Audit –** Vantage conducted this affiliate compliance audit.

- **Duke Energy Ohio Affiliate Compliance Audit –** Vantage conducted this affiliate compliance audit.
- **Pacific Gas & Electric Co. Affiliate Compliance Audit** - Performed a series of five comprehensive, annual reviews of affiliate compliance and implementation of affiliate rules for 2001-2005 audit periods in accordance with California Public Utilities Commission (CPUC) requirements. Each review resulted in a final report that was presented to management for action and the CPUC for review. Copies are posted on the Vantage web site.
- **SEMPRA Energy, Affiliate Compliance Audit** - Performed a series of three comprehensive annual reviews of affiliate compliance and implementation of affiliate rules for 1998-2000 period in accordance with CPUC requirements. Each review resulted in a final report that was presented to management for action and the CPUC for review.
- **Public Service Enterprise Group and Public Service Electric & Gas Company Affiliate Compliance Audit** - Performed a comprehensive review of affiliate compliance plans as implemented in accordance with deregulation requirements in New Jersey on behalf of the New Jersey Board of Public Utilities.
- **DQE Corporation** - Assisted in developing affiliate rules, allocation formulas and general corporate governance policies for corporate parent and all affiliates.
- **Indiana Power & Light – Vantage acted as the evaluator, at the request of the Indiana Utility Regulatory Commission, for a three-year program in which customer service and distribution system reliability are being monitored with penalties for missing targets. A major element of this program was enhanced vegetation control.
- **Dayton Power & Light –** Performed a comprehensive review of all fuel procurement and fuel utilization activities for the PUCO. Visited power plants, coal lab, and other fuel and operations related departments. Recommendations addressed a broad range of strategic and operational issues.
- **Centerior Companies (Cleveland Electric Illuminating Company and Toledo Edison) –** Performed an audit of electric fuel procurement practices and procedures for the Public Utilities Commission of Ohio. Responsibilities included the review of fuel procurement planning, long-term contracts, and spot procurement. Made recommendations regarding coal contracts, interstate wheeling arrangements, and coal transportation costs. Testified twice regarding results of audit report.
- **SDG&E, PG&E, SCE, and SCG –** Performed an audit of DSM administrative costs. Conducted for the CPUC CACD, this assignment took place during the period where working groups were assessing issues such as access to utility information and the future of DSM. Vantage provided feedback to a number of working groups on the needs of energy service companies.
- **New Jersey Board of Public Utilities –** Performed review of hedging practices of the four gas distribution utilities in New Jersey. Working with Pace Energy as a sub-contractor, alternate hedging strategies were developed and proposed using more advanced techniques, including options.
- **El Paso Natural Gas Company –** Subcontractor on a productivity improvement project. Performed an in-depth review of all positions in operating divisions and

reorganized operating divisions into profit centers. Developed procedures for in-house vs. outside construction decisions, construction scheduling, and cost data collection. Developed a manpower planning model for restructuring responsibilities and staffing levels. Implemented a workforce management program at gas processing plants, compressor stations, and throughout the gathering system.

- **Western Kentucky Gas Company** – Vantage conducted a management and operations audit of the customer services function for the Kentucky Public Service Commission. Developed plan for consolidating offices, resulting in significant changes in providing customer service.
- **Philadelphia Suburban Water Company** – Lead Consultant/Project Manager on a comprehensive management audit for the Pennsylvania Public Utility Commission. Reviewed all aspects of executive compensation, field operations and water production.
- **General Waterworks Company - Pennsylvania Operations** – Subcontractor on a management and operations review. Reviewed compensation, benefits and staffing, executive management, organizational structure, and corporate policies and procedures.
- **General Waterworks Company - Pine Bluff Arkansas Operations** – Subcontractor on a management and operations review. Reviewed finance and accounting, staffing, system operations, organizational structure, and corporate policies and procedures.

B. NEI INTERNATIONAL DESCRIPTION

nei incorporated
electric power engineering

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NEI International has been included as part of our team in order to provide the resources needed for a number of technical tasks. We have worked with NEI in the past. They will be fully integrated in a seamless manner. Our organizational approach uses select NEI consultants working with Vantage core consultants, under our team leaders.

The engineers at NEI have extensive experience working for and with various utilities throughout the United States, including National Grid during the 2008 New Hampshire Blackout. NEI is a registered business with the state of New York and all four (4) of its owners are registered Professional Engineers in New York.

NEI is a 50-person consulting engineering firm that is able to respond quickly and effectively to the needs of its clients. NEI's projects for utilities have ranged from large 500kV switch yards to

small distributions substations. NEI has the capability to execute contracts ranging in size from small equipment replacement contracts to designing and commissioning brand new substations.

NEI's team is also very experienced at working alongside clients to help them respond to the needs of their customers and maintain the reliability of their power system. Several of NEI's engineers are experienced troubleshooters with extensive field knowledge who can be called upon to diagnose and remedy unforeseen incidents such as the mis-operation of a breaker or help develop switching and load sharing procedures for routine maintenance and upgrades.

NEI's strong focus on technical expertise, and utility engineering design makes their team the ideal fit for the National Grid audit. Their practical hands-on experience combined with business degrees and training means that every aspect of the audit will be scrutinized through the lens of real power system experts.

As technical experts and leaders in the electric utility industry, NEI's team of Senior and Principal Engineers have participated in a number of utility audits. Working alongside management consultants, their experienced team provides technical consulting for the following utility practices ranging from small Rural Electrics to large Investor Owned Utilities:

NEI AREAS OF EXPERTISE

- Electrical system reliability
- System planning and design
- Substation, Transmission & Distribution engineering designs
- Vegetation management
- Animal protection standards
- Infrastructure budgeting and spending practices
- Maintenance practices
- Construction and Installation standards
- Protective relaying schemes and standards
- SCADA system architecture and standards
- Outage management and restoration plans
- Public communications practices
- Organizational chart and staffing levels

RELATED PROJECTS

Utility Planning, Consulting and Audits

- **Capital Plan & Impact Fee Analysis – Provo City Power**
  - Utilizing Aspen and Milsoft, provided 20-year capital planning study for the City of Provo, including new substations, additional feeders, sub-transmission line voltage upgrades, and addition of capacitors/regulators.
  - Developed cost estimates for each project and performed financial analysis to develop an electrical impact fee rate table based on service voltage and type.

- **Fort Collins Capital Planning & Load Growth Study – Fort Collins, CO**

- Developed basis for distribution load growth projections and modeled software.
- Generated load scenarios for 20 years and assess current electrical infrastructure.
- Developed capital projects and cost estimates to alleviate load growth contingencies.
- Assessed O&M practices and developed recommendations based on industry best practices.

- **New Hampshire 2008 Blackout** – Utility Emergency Response Assessment
- NEI team interviewed all four major electric utilities in New Hampshire to assess their emergency preparedness and response to the 2008 blackout that left nearly half a million customers without power.
- Wrote and edited parts of a final report submitted to the New Hampshire Public Utilities Commission outlining our findings and enumerating specific recommendations pertaining to engineering, maintenance, emergency preparedness, emergency response, and vegetation management.

- **HV/MV Electrical Reliability Initiative** – {PRIVATE CLIENT}
- Performed a full audit of past datacenter design documents, engineering records, testing records, maintenance records, as well as current company standards and specifications.
- Traveled to all US datacenter facilities (and 1 international) to audit on-site teams and equipment against documentation.
- Provided comprehensive report summarizing opportunities to improve electrical reliability and maintainability ranging from design through operations and maintenance.

Utility Substations

- **Reid EHV Substation – Big Rivers Electric**
- Retrofitted existing 345kV radial yard into ring bus configuration for interconnection of new 345kV tie-line to adjacent Vectren Energy.
- Performed electrical engineering design, equipment specifications, system studies, and protective relay settings.
- Performed substation commissioning and energization.

- **BAL and Belcogen Substations** – Belize Electricity Limited
- Each substation was a 25MW generation step-up radial configuration, with high-side voltages of 69kV and 115kV, respectively
- Reviewed full design package including electrical, civil, cable schedule, bill of materials and vendor drawings
- Traveled to Belize to commission each substation with local engineers

- **Gill Ranch Substation** – Interstate Electrical Contractors
- 175MW 115kV/12.47kV substation
- Performed entirety of electrical design and system studies.

Renewable Generation

- **Owners Engineering Review Services – Lincoln Clean Energy**
  - Provide ongoing engineering review design services for substation, transmission line, and collection system design on multiple EPC wind farm projects.
  - Work closely with Owner, EPC Contractor, and engineering subcontractor to ensure designs are accurate, reliable, constructible, and on budget/schedule.

- **Buffalo Dunes Wind Farm Substation** – ALSTOM Grid
  - Performed engineering design and system studies to construct a 250MW 345/34.5kV wind farm interconnection substation in Kansas. Instead of outdoor bus, the project utilized 34.5kV Gas Insulated Switchgear (GIS).
  - Traveled to site to perform testing, commissioning, start-up, and SCADA check-out services.

Hydro Generation

- **PPL Montana Hydroelectric Upgrades** – PPL Montana
  - Upgraded protective relaying, switchgear, transformers, and balance-of-plant equipment at Morony, Ryan, Cochrane, Black Eagle, and Holter power plants over a 4-year period.
  - Provided turnkey engineering design, installation, and commissioning services.

- **Taylor Draw Hydro** – Rio Blanco Water Conservancy District
  - Designed new Allen Bradley PLC replacement at a 2MW, single turbine plant, including local HMI and remote control center.
  - Performed installation, startup and acceptance testing on-site.

Conventional Generation

- **Birdsall Plant Relaying Upgrade** – Colorado Springs Utilities
  - Developed specifications and performed engineering design to replace existing electromechanical relays on all three natural gas generators.
  - Work included detailed demolition and construction documents, panel retrofit details, and bill of material.
  - Performed on-site installation and wiring of new panels, followed by commissioning and startup services.

- **Comanche Relaying Upgrade** – Xcel Energy
  - Performed engineering design to upgrade Unit 2's existing electromechanical relays, including GSU and auxiliary transformers, with microprocessor relays.
  - Developed comprehensive settings calculations and native files to comply with strict NERC reliability requirements.
  - Provided on-site commissioning oversight and startup services.

Oil and Gas

- **Kome Electrical Reliability & Maintenance** – {PRIVATE CLIENT}

- Currently provide on-call electrical support for an oil production facility in Chad, Africa.
- Over the past 5+ years, participated in multiple in-country efforts including generator MV frame reconstruction following arc-fault event, substation tripping troubleshooting, overhead line reliability during lightning storms, UPS maintenance program, generator fuel switchover planning, load shedding optimization, generator rotor replacement, and polymer injection load planning.

- **Monopod Generator and Switchgear Upgrades** – Hilcorp Alaska
- Provided specifications and turnkey engineering design for new MCC and switchgear onboard oil platform in the Cook Inlet.
- Performed on-site testing, commissioning, and start-up services.

Field Engineering Services

- **Lenoir Substation Field Engineering** – GE Grid Solutions
- Spent over 4 months on site overseeing substation contractor and providing QA/QC for the construction of a 100/25kV, 250MW substation, which was designed by others.
- Field engineered solutions to meet construction schedule and reliability concerns.
- Provided full testing, commissioning and start-up services.

- **Annual Relay Maintenance Testing** – Mountain View Electric Assn.
- Perform annual maintenance testing on all MVEA transmission, transformer, and distribution relays using Omicron test set.
- Relays include ABB, Beckwith, Schweitzer, and electromechanical.

Electrical System Studies & Relaying

- **System Coordination Study** – Belize Electricity Limited
- Built ETAP and Aspen Models for all transmission and distribution lines in Belize from 115kV to 6kV
- Recommended relay settings for selective coordination for both distance and overcurrent elements
- Generated settings files for protective relays including GE, Schweitzer and Beckwith

- **Transmission Loop Coordination** – City of Tallahassee
- Built upon existing Aspen Model to simulate the City's transmission system once their HV loop is closed.
- Recommend protective relaying upgrades and settings based on construction schedules and NERC requirements.

SCADA and Controls

- **Substation SCADA Design & Installation** – IREA
- Performed engineering design and SCADA programming to install new RTAC and remote I/O modules at nearly a dozen IREA substations.

- Following design, performed on-site installation, testing and SCADA check-out with control center operators.

II. SCOPE AND OBJECTIVES

In preparing this proposal, Vantage spent a great deal of time reviewing the RFP, data and documents related to National Grid, documents included in recent cases and past management audits, and data we were able to retrieve from our industry data sources. Much of the analysis for this proposal has been translated into work steps in a "Preliminary Work Plan". This work plan addresses the scope descriptions the DPS provided in the RFP, and a large number of details and exhibits that shed insight on our work plan detailed steps.

In describing our understanding of the project, we reiterate some basic, but important facts:

- We understand that this management includes, but is not limited to, a prospective investigation of the Utilities' construction program planning processes audit approach in New York, and an evaluation of the efficiency of the Utilities' operations with a focus on opportunities to improve performance.
- We have reviewed the Key Event/Timeline and have prepared a schedule that meets all of the required deliverable dates. We are confident that, with our experienced team, this schedule is reasonable.
- Vantage and the proposed project team far exceed the Minimum Qualifications described in the Bidder's Package. Please note, in addition to our internal team of consultants. We have fourteen engineers, six of whom have Professional Engineering licenses in New York. Eleven of our consultants have MBAs and three have CPAs.
- We have provided a not-to-exceed cost for this project in a separate confidential document. In preparing, our cost proposal, we develop a cost for each of the three National Grid subsidiaries, and then roll the costs into one fixed price.
- This proposal is organized in the manner prescribed in the Bidder's Package.
- Vantage will provide all of the deliverables required, including: a work plan; status updates and repots; briefings; a draft report; a detailed customer benefit analysis and a final report.
- We have considered and addressed every audit topic provided in Section 3.2, and have developed a preliminary work plan for each. Our final work plan will be significantly more detailed and will reflect dozens of preliminary interviews and as many as 200 initial data requests.
- We commit to address, in the draft report or at ad hoc meetings, any issues that warrant immediate attention by the DPS.
- Vantage, in the final report, will provide an overall assessment of the efficiency of National Grid and each of its three subsidiaries. The report will contain a separate Executive Summary of the overall report, which not only collects the findings in each audit area, but summarizes the consultant's overall conclusions. A separate section will address issues specific to an individual utility.

- Supporting recommendations will be developed with costs and benefits which provide all detail needed to assure that improved performance can be achieved. The report will focus on improvement opportunities, findings and conclusions will be tied to root causes, and will include recommendations that address the root causes and seek to improve the Utilities' performance going forward.
- A formal customer benefit analysis will be developed that provides a detailed evaluation of potential benefits, potential risks, one-time and on-going costs, and potential savings or efficiencies.

III. APPROACH, METHODS, PROJECT MANAGEMENT

A. FOUR PHASE AUDIT APPROACH

This audit approach will utilize four distinct, but overlapping phases. The description of each phase provides a detailed framework of our methodical audit approach. The budget we provide is delineated by these four phases.

Phase I. Orientation and Planning

Phase II. Technical Review

Phase III. Develop and Support Recommendations

Phase IV. Report Preparation

PHASE I - ORIENTATION AND PLANNING

The objectives in the first phase of the audit are to confirm our understanding of the audit objectives and scope as well as the DPS' expectations for the audit; finalize contractual, project management and other administrative matters; perform preliminary data collection; conduct initial interviews; and develop and obtain approval of our detailed work plan which will guide our activities during the remainder of the audit. We will also prepare follow-up data requests and request additional interviews as the appropriate interviewees are identified.

The old saying that "if you don't know where you are going, you won't know when you get there" is the driver of Phase I. In order to assure that we meet the expectations of the Staff, the consultants, Company and Staff all need to know exactly what we will do, when we will do it, how it will be reported and what the budget for each task is expected to be.

This is a complicated assignment. Not only are there twelve task areas, there are three companies and a parent that must be audited simultaneously. It is for that reason that we have organized the audit approach to include three Audit Managers, each of whom will have oversight responsibility for a different utility.

There are also a number of key work steps associated with Phase I, including:

- Develop communications protocols: contact list; schedule for regular calls; schedule for the orientation meeting; procedures for revising the work plan; and project management approach.
- Initiate a conference call with Staff to determine if there are any areas of our work plan and project management approach that need to be modified. For example, are there new areas of importance; did we overemphasize some areas; should any of our management techniques be modified?
- Submit a list of initial documents requested to Staff and Company.
- Work with the Company to clarify requests as necessary.
- Perform a review of all documents provided by Company prior to kick-off meeting.
- Parse existing documents among team members based on task areas, review and report on applicable documents between team members.

- Hold a Kick-off meeting with Company and Staff, to:
  - Assure that Vantage has an accurate understanding of organization and management process for the audit.
  - Review list of data requests and work with the Company to clarify requests as necessary.
  - Determine schedule for delivery of any outstanding data requests.
  - Interview a selection of Company employees to assure Vantage will be able to modify the work plan based on current and detailed information.
  - Prepare a set of follow-up data requests based on interview.
  - Develop a detailed list of future interviews.
- Revise the Work Plan.
- Prepare a revised schedule if necessary for the project based on updated data and confirm the update with Staff.
- Develop a detailed list of interviews for Phase II and identify time frames for the Company to use in scheduling.[1]

PHASE II - TECHNICAL REVIEW

This is where the rubber meets the road. The Vantage consultants will:

- Conduct a second round of interviews based on the list prepared in Phase I, that include more in-depth interviews and conduct follow-up interviews as needed to clarify facts and issues.
- Analyze data received from first set of data requests. Submit follow-up data requests based on analysis and more detailed interviews.
- Collect industry data from other sources.
- Perform statistical analysis where necessary using appropriate sampling methods and algorithms.
- Identify candidate sets of data for "deep dives" and clarify availability with the company.
- Develop peer reviews as needed.
- Develop initial findings and conclusions based on analysis conducted.
- Prepare preliminary recommendations.

[1] Vantage will provide the dates consultants will be available to interview Company personnel. We generally expect to conduct four interviews a day of 1-2 hours each. For scheduling purposes, we prepare a grid of 8:00AM to 10:00 AM; 10:00 AM to Noon; 1:00 PM to 3:00 PM and 3:00 PM to 5:00 PM. As the project proceeds, we anticipate interviews will become shorter in length and more focused. We will naturally adjust our schedule based on the work schedule of Company employees if necessary.

PHASE III – DEVELOP AND SUPPORT RECOMMENDATIONS

One of the ultimate goals of this audit will be the development of clear, concise, well-supported recommendations that move the Company in a positive direction. To accomplish this, recommendations must be developed in the following manner:

- The Lead Consultant for each Task must develop preliminary recommendations that are based on fact based findings and conclusions.
- Each recommendation must have one or more findings supporting it with a clear linkage.
- The recommendation write-up must include an actionable statement, a full description of what is required to implement the recommendation and why, and a determination of who is responsible for implementing.
- A schedule for implementation, estimated costs or required resource must be developed.
- The benefits that accrue must be listed in as much detail as possible. Benefits should be presented in dollar terms whenever possible. Should the benefit be safety-related or involve environmental improvement, they must be described.
- The Project Director and Project Manager will assemble all recommendations, look for opportunities to group granular recommendations into global ones, and prepare a summary that gives the total projected cost for implementation, potential savings, as well as other not-cash costs and savings.

PHASE IV – REPORT PREPARATION

The report preparation, editing by Vantage, review by Staff and Company are done in a serial manner, with feedback loops as needed. Much of the draft report will consist of findings, conclusions and draft recommendations that will be reviewed and developed in parallel with the writing of the report. Specific activities will include:

- Develop and communicate findings, conclusions and recommendations with Staff and Company.
- Prepare draft report, including:
  - Executive Summary, with description of audit objectives, audit process, overall conclusions,
  - Summary of recommendations,
  - Table of Contents and Table of Exhibits.
  - Separate chapters for each task area including a background on the area and discussion of issues, findings statements, write-up and support for each finding; recommendation statement and support that includes a reference to supporting findings, a full description of what is required and why, a determination of who is responsible for implementing, the schedule for implementation, estimated costs or required resources; and the benefits that will accrue.

- Once assembled, the draft will be reviewed by the Project Director, Project Manager and an Editor to assure it meets all of the project objectives, is well written, referenced, and provides a set of recommendations that are concise and meaningful.
- The Draft Report will be provided to the Staff for Review.
- Vantage will address any questions raised by the Staff.
- Once Staff concerns are addressed, the Draft Report will be provided to the Company for factual review.
- Comments from the Company will be reviewed by Vantage and discussed with the Staff for resolution.
- Once all comments and issues are addressed, a final report will be issued.

B. PROJECT MANAGEMENT TECHNIQUES

Vantage uses several proven project management techniques that will enable us to manage this project while enhancing communications among the project team members, the DPS Staff and Company management while ensuring confidentially of key data.

We will use several effective techniques that will enable us to manage this project while enhancing communications among the project team members and Staff. This is extremely important.

QUALITY REVIEW

A quality work product is a team effort. The process begins with the consultants - the individuals performing the day-to-day work. They must clearly understand the requirements of their assignments, have a well-considered plan of attack, and execute their assignments effectively. While it is the Project Director's responsibility to impart initial direction and focus, direct responsibility resides with the consultant for meeting detailed objectives and deadlines.

The Project Manager will be responsible for day-to-day monitoring of work, reviewing work products for compliance with project goals and objectives, coordinating information requests, and for anticipating and responding to problems or concerns. Each will be responsible for "fine-tuning" the process by: ensuring that the consultants are adequately supported; enforcing administrative controls; ensuring consistency among approaches and methods; and scheduling work to ensure that the consultants are efficient in their efforts. Each will periodically review the work in progress including such quality control activities as attending interview sessions, reviewing the processes used in analysis, testing conclusions, and checking the understandability and completeness of all written materials.

The Project Director, Project Manager, Project Administrator and team members will comply with all reporting standards to ensure that the written report communicates the results of the audit in a complete, accurate, objective, convincing, clear, concise, and timely manner. Reports will include:

- a statement of the audit objectives and description of the scope and methodology,

- a statement of professional standards adhered to in the analysis and the report,
- a listing of significant issues and questions, if any, needing further study and consideration,
- a listing of findings that are prioritized, relevant and practical, and
- a statement as to whether any pertinent information was omitted because it was deemed privileged or confidential and a description of the nature of such information and the basis under which it was withheld.

These fieldwork and reporting standards are the foundation of our Quality Assurance Program. The quality review process involves the application of these standards at several points along the critical path.

CONFIDENTIALITY

Vantage recognizes that all information collected from the work processed under this contract must be treated with care to preserve any issues of confidentiality. Vantage and all employees involved on this assignment will sign the Non-disclosure and Use of Information Agreement upon award of the project. Further, Vantage will utilize its internal controls to ensure all materials are handled in a manner that prevents inappropriate dissemination. Internal controls consist of:

- Vantage's PC-based network database system is secured through a series of passwords for each project. Only selected project consultants have the ability to access the information in the database system,
- all data stored at the Vantage office is kept in locked file drawers,
- all information used by consultants is collected at the end of the project and stored with other working papers, notes and drafts in a secure room,
- the consultant or client is permitted access to limited areas of the network infrastructure, depending on security provisions. Using a password, the individual can upload or download files from prescribed sub-directories. The advantage of this system is that an individual can access any files needed without having them sent, and
- Vantage also can use encryption software to ensure that the transmittal of files across the internet is secure. This method allows an individual to send or receive files that are encrypted. Only individuals with the same software and codes can then decode the files.

INFORMATION REQUEST MANAGEMENT SYSTEM

Throughout the course of the review, the team will submit a number of information requests. Efficiently managing outstanding information requests and those documents received, are crucial to the success of the project. We use a cloud-based system designed to increase the efficiency of handling of all information requests.

After the initial submittal, information requests will be batch submitted and e-mailed to the Staff and Company Project Manager. Questions regarding definition of the requests by the Company will be facilitated by telephone discussions. In order to facilitate the timely completion

of this fixed-price project, we anticipate receiving a response to most information requests within 10 working days.

AUDIT SAMPLING

Vantage utilizes Section 350 of the Generally Accepted Auditing Standards. We refer to Wiley, 2010 Practitioner's Guide, and pages 311-333, for details on both statistical and non-statistical sampling methods as applied to a performance audit of the type required for this assignment.

AUDITING STANDARDS

- Vantage utilizes all auditing standards that are appropriate on each assignment we address.
- We consider this assignment to be a Performance Audit in accordance with the Generally Accepted Government Auditing Standards (GAGAS) (also known as the Yellow Book).
- Vantage also utilizes the American Institute of Certified Public Accountants' (AICPA) Code of Professional Conduct when needed.
- The National Association of Regulatory Commissioners' Consultant Standards and Ethics for the Performance of Management Analysis.
- "The Guide - A Guide for Consultants Submitting Proposals Management and Operations Audits" issued by the State of New York Department of Public Service in June, 2008.

C. PROJECT DELIVERABLES

Deliverables for this project include both verbal and written updates as well as specific written report drafts, ultimately concluding with a final report. Specific expectations of deliverables will include:

- **Weekly Conference Call** – Vantage found that a weekly call provided the opportunity to discuss schedule, data request issues and overall progress. Typically this will be between the Vantage Project Director and Project Manager, DPS Staff and the utility Project Manager, however in some cases the attendees may be broadened to address specific issues.
- **Issue Meetings** – Vantage proposes that as the project reaches the point where issues become well defined an ad hoc meeting will be held to communicate these issues with the DPS and utility if appropriate.
- **Detailed Work Plan** – A detailed work plan will be developed after preliminary interviews are conducted, and the first set of data requests are provided and reviewed. An initial work plan will be due in early 2017. This work plan will provide specific details on all work steps, evaluative criteria, a revised budget (keeping within the not-to-exceed amount) and analysis.

- **Staff Briefings** - will provide regular briefings to Staff on the progress of the audit and will identify emerging issues as the audit progresses. Briefings to Senior Staff may also be provided as needed.
- **Draft Report –** An initial draft report will be provided as set forth in the schedule. It will be representative of the final report. Upon review and approval of the draft report by the Staff, it will be sent to each company for review of factual accuracy. A briefing of Staff may also be required.
- **Final Report** - The final report to Staff will document Vantage's evaluation of each aspect of the audit scope, as outlined in this RFP and the subsequent approved detailed work plan. All of our work papers will be made available for Staff's review. After submission of the final report, Senior Staff and others may require additional briefings.

D. WORK PLAN ORGANIZATION

The work tasks outlined in the RFP are extremely detailed and thorough. In our work plan, Vantage has continued with the organization and content of those tasks. We then provide more detail. These work steps define the work that will be required to accomplish the desired tasks.

In preparing the detailed work steps for each Task area, we first use the description of the objective to guide us. We then take each work step provided and add detail in order to provide the context of a management audit. Finally, we have done extensive research into National Grid and the subject subsidiaries, DPS records, and our own database to provide details and preliminary analysis where it is available.

In accordance, with the Audit Topics highlighted in Section 3.2 of the RFP, we have defined the following task areas.

Task 1 – Corporate Governance

Task 2 – Information Systems

Task 3 – Electric Planning and Grid Modernization

Task 4 – Electric Load Forecasting and Supply Procurement

Task 5 - Gas Planning

Task 6 – Gas Safety

Task 7 – Budgeting and Finance

Task 8 – Project Management

Task 9 – Program Management

Task 10 – Work Management

Task 11 – Performance Management

Task 12 – Customer Operations

E. PRELIMINARY WORK PLAN

TASK 1 – CORPORATE GOVERNANCE

Project Team

Dr, Howard Axelrod

Robert Dyer

Ron Rebenitsch

Mary Lovell

Walt Drabinski

Scope and Work Steps per RFP

1 Determine if the Utilities' corporate governance structure and executive management approach appropriately support New York operations and demonstrate commitment to REV, grid modernization, and other regulatory objectives.

- Interview senior management to better understand the corporate structure and approach at all levels of the three utilities and its parent.
- Interview personnel from planning, marketing, rates, engineering and finance of the parent and each subsidiary to determine the management approach appropriately support New York operations and demonstrate commitment to REV, grid modernization, and other regulatory objectives.
- Interview senior management at all levels to discuss the relationship to strategic planning and construction budgeting and planning.
- Review the capital budget planning schedule at both the utility and parent levels.
- Determine if any new models or capital planning methods were introduced by National Grid.
- Determine how long term growth strategies for both electric and gas affect the capital budgeting and construction planning process.

2 Assess changes to the organizational structures of NGUSA and the Utilities since the most recent management audit.

- Compare current organization of NGUSA and the Utilities today versus during most recent management audits.
- Review any supporting analysis for reorganizations.
- Assess the extent to which standardized processes such as information flow, internal communications, meeting strategies, etc. support a culture of communication and innovation.
- Assess the extent to which environmental scanning, strategy development, priority alignment, and integration into business planning is conducted at the senior levels.
- Assess the extent to which employees and leaders throughout the organization are held accountable for furthering the integration of business goals across communities of practice and the organization as a whole.

- Assess the process/extent to which the numerous satellite organizations are fluid contributors to the organization as a whole.
- Assess the balance between cross-functional team goals (dept, division, etc.) and individual goals and the impact on business and individual performance priorities.
- Evaluate the performance analytics captured in key departments.
- Examine the succession and transition planning program and determine the extent to which it identifies success factors, skills, and competencies for leadership roles across the organization.
- Assess the breadth and depth of the succession planning program and its components and evaluate the extent to which the program is managed in a comprehensive fashion.
- Assess the extent the leadership supports and drives talent sustainability as a value, and determine if the underlying talent spectrum activities and budget align with the message.

3 Assess change management processes as they relate to grid modernization efforts.

- Review the company's strategic plan and associated marketing strategies as they relate to grid modernization.
- Determine what processes are used to evaluate market entry of new products and services and their impact on market competition, technological development and commercialization and impact on core customers.
- Determine if the company's strategic plan identifies long-range corporate objectives that recognize and embrace grid modernization efforts.
- Determine if there is a direct link between the tactical measures developed in the strategic plan and the company's grid modernization efforts.

4 Determine the extent to which best practices, resources, and expertise of the affiliated utilities, NGUSA, and National Grid plc are shared with the Utilities.

- Assess the extent to which standardized processes such as information flow, internal communications, meeting strategies, etc. support a culture of communication, innovation and the development of best practices.
- Assess the extent to which environmental scanning, strategy development, priority alignment, and integration into business planning is conducted at the senior levels.
- Assess the extent to which employees and leaders throughout the organization are held accountable for furthering the integration of business goals across communities of practice and the organization as a whole.
- Assess the process/extent to which the numerous satellite organizations are fluid contributors to the organization as a whole.
- Assess the balance between cross-functional team goals (dept, division, etc.) and individual goals and the impact on business and individual performance priorities.
- Evaluate the performance analytics captured in key departments

- Examine the succession and transition planning program and determine the extent to which it identifies success factors, skills, and competencies for leadership roles across the organization.
- Assess the breadth and depth of the succession planning program and its components and evaluate the extent to which the program is managed in a comprehensive fashion.

5 Determine the extent to which Enterprise Risk Management (ERM) programs and internal controls regarding financial and non-financial risk areas provide adequate ratepayer protection at the Utility and state level.

- Review the company's ERM program including reviews of ERM reports, identified critical risks, mitigation strategies and ERM organization.
- Determine whether the ERM program adheres to the principles of the Committee of Sponsoring Organizations of the Treadway Commission (COSO) on ERM framework.
- Determine if the ERM is a formal process that is managed by dedicated internal ERM team under the direction of the Chief Risk Officer.
- Determine if the ERM is linked to the company's strategic plan and capital budgets.
- Determine if Internal Auditing plays a significant role in the ERM process.
- Identify what ERM related information is presented to the BOD.
- Determine how risks are identified, quantified and prioritized.
- Obtain a copy of the company's top risks and associated mitigation strategies.
- Interview the Chief Risk Officer.

6 Evaluate the effectiveness of the current processes and internal control procedures governing affiliate transactions, including Service Level Agreements, to ensure accountability and proper cost allocation.

- Review all formal polices in place to assure appropriate separation of regulated and unregulated companies.
- Review the affiliate compliance rules at both the utilities and National Grid for any differences.
- Review all affiliate compliance training programs, including details on who is required to take them.
- Review training logs to assure compliance.

7 Evaluate how the Utilities assess, review, and respond to tips, anonymous or otherwise, from employees and contractors.

- Review all programs for soliciting, collecting and responding to tips.
- Summarize all activities within the last three years.

8 Assess the strategic planning processes, including the linkage of programs to strategic goals, the roles of NGUSA and National Grid plc, and the extent to which the strategic planning function is incorporated with other planning activities and performance management processes.

- Review the company's strategic plan and associated marketing strategies.

- Interview marketing and program development managers in unregulated subsidiaries to determine how the utility provides funding for market entry and evaluate the financial impact on the company, its investors and its customers.
- Determine what processes are used to evaluate market entry of new products and services and their impact on market competition, technological development and commercialization and impact on core customers.
- Determine if the company's strategic plan identifies long-range corporate objectives that recognize and embrace emerging energy markets.
- Determine if there is a direct link between the tactical measures developed in the strategic plan and the company's annual budget.

TASK 2 – INFORMATION SYSTEMS

Project Team

Patrick J. Spilman, PE

Mike Boismenu

Jamie Habberfield

Scope and Work Steps per RFP

1 **Determine if the Utilities' information systems effectively support current utility operations.**
- Review the current information technology systems.
- Assess the current status of each information technology system.
- Assess how effectively each information technology system with each organization's operation technology.

2 **Determine the adequacy of the Utilities' short- and long-term information systems plans, and if these plans support REV-related requirements, and if they will provide synergies across NGUSA which will benefit New York ratepayers.**
- Evaluate the current status of the NGUSA REV initiative.
- Evaluate the effectiveness of the NGUSA REV initiative.

3 **Evaluate how the Utilities select, consider alternatives, prioritize, determine the scope of, and implement information systems projects.**
- Review the project management procedure that is current utilized to rank and select information technology initiatives.
- Determine if these project management procedures are effectively utilized.
- Review each information technology initiatives to assure that the anticipated results are verified and achieved.

4 **Assess the adequacy and transparency of information provided to the Department related to information systems project selection, prioritization, and schedule, budget, and rate plan adherence.**
- Review the NGUSA project management procedure that was utilized to support the associated information technology initiative.
- Compare the results of the above analysis with the information technology imitative that was reported to the Department.
- Provide a summary of any gaps in the planned versus actually report information technology indicatives.

5 **Assess the effectiveness of the benefit/cost framework and accuracy of the process(es) employed by the Utilities to estimate costs and savings for decision-making regarding information systems.**
- Review a cross section of the information technology projects to determine if the estimated costs of the associated project were achieved.
- Review a cross section of the information technology projects to determine if the desired benefits as associated with the project were attained.

6 **Review the Gas Business Enablement project, including an assessment of how the Utilities plan to implement the project, and a determination if the project will achieve the intended goals in a cost-effective manner.**

- Evaluate the project management procedure that was utilized to define the Gas Business Enablement project.
- Interview selected members of the Gas Business Enablement project.
- Determine the current status of the Gas Business Enablement project.
- Identify any gaps in the Gas Business Enablement project as related to:
  - Schedule
  - Costs
  - Benefits

7 **Determine the status of KEDNY's Customer Information System conversion and if customer billing errors are occurring as a result of this conversion.**

- Evaluate the current status of the KEDNY Customer Information System.
- Interview the stakeholders in the KEDNY Customer Information System to include:
  - KEDNY Customer Information System owners
  - NGUSA customers
  - NGUSA vendors

TASK 3 – ELECTRIC PLANNING AND GRID MODERNIZATION

Project Team

Patrick J. Spilman, PE

Mike Boismenu

Chuck Buechel

Ron Rebenitsch

Jamie Habberfield

Scope and Work Steps per RFP

1 Assess the ability of DER, including energy efficiency, to meet forecasted capacity requirements on the NMPC distribution system and the effectiveness of any efforts to enable these technologies to fill these needs.

- Review all components of the electric planning process at NMPC. Including;
- Department organization and responsibilities.
- Current short and long term plans.
- Utilization of DER as a contribution to both load and load management.
- Review the substation load forecasting as a result of the distribution load planning and how it is rolled up and used in the system load supply forecasting.

2 Evaluate the processes used to collect and analyze information regarding the performance of DERs with respect to expected performance, including energy efficiency program realization rates.

- Review all process (software for load flow, use of the results to determine system upgrade requirements, time horizon, etc.);
- Evaluate system design relative to its acceptance of DER and other renewables.

3 Evaluate NMPC's processes for managing billing and tracking billing credits associated with Value of Distributed Energy Resources (VDER).

- Review the Value Stack Credit Statement
- Evaluate Batch Billing and Calendar Month Billing statements.
- Review all contracts and agreements associated with Locational System Relief Value (LSRV)
- Assess how NMPC is preparing for the implementation of its planned DSP Distributed System Implementation Plan (DSIP)
- Review Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Adopting Distributed System Implementation Plan Guidance (issued April 20, 2016).

4 Assess how NMPC is preparing for the implementation of its planned DSP/DSIP platform.

- Determine what actions NMPC is taking to inform customers and stakeholders as to the existing capabilities of the Company and the compatibility of its transmission and distribution ("T&D") system with respect to the objectives of REV and the functionalities of a DSP;
- Review information provided to stakeholders that may facilitate the integration of increasing penetrations of Distributed Energy Resources ("DER"); and Present a roadmap and five-year plan of potential investments to enhance the Company's DSP capabilities. This initial DSIP addresses the development of the Company's DSP capabilities in four focus areas: DSP Development; Advanced Metering Functionality ("AMF"); Grid Modernization; and Cybersecurity and Privacy
- Review Case 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision ("REV Proceeding"), Order Adopting a Regulatory Policy Framework and Implementation Plan (issued February 26, 2015) ("Track One Order").

5 Assess the efforts by which NMPC is evaluating the potential effects of large scale penetration of DER and future potential load drivers on its capital programs and planning practices.

- Review REV Proceeding, Order Adopting Distributed System Implementation Plan Guidance (issued April 20, 2016) ("DSIP Guidance Order").
- Review REV Proceeding, Order Adopting a Ratemaking and Utility Revenue Model Policy Framework (issued May 19, 2016) ("Track Two Order").
- Review REV Proceeding, Order Establishing the Benefit Cost Analysis Framework (issued January 21, 2016) ("BCA Order").
- Review DSIP Guidance Order, pp. 63-64, at Ordering Clause 4, requiring the filing of "subsequent Distributed System Implementation Plans on a biennial basis beginning June 30, 2018." 6 REV Proceeding, Order Instituting Proceeding (issued April 25, 2014).

6 Determine how NMPC is planning for the development of DSP capabilities, including platform service offerings which will generate utility revenue.

- Interview key personnel and review all documents associated with development of DSP capabilities, including platform service offerings which will generate utility revenue.

7 Review NMPC's efforts to develop more granular marginal cost of service estimates for planning valuation and DER valuation purposes.

- Interview key personnel and review all documents associated with efforts to develop more granular marginal cost of service estimates for planning valuation and DER valuation purposes.

8 Assess NMPC efforts to disseminate available local hosting capacity data to potential DER providers.

- Interview key personnel and review efforts to disseminate available local hosting capacity data to potential DER providers.

9 Assess NMPC's REV Demonstration Project development process, including a review of the process for contracting with third parties, risk-sharing with third parties, and the use of REV Connect in selecting projects.

- Review all projects described in 2016 plan, including all subsequent reports.

10 Assess NMPC's Non-Wires Alternative project development and selection processes, including a review of evaluation criteria and ongoing oversight of such projects once they are operational.

- Interview key personnel and review NMPC's Non-Wires Alternative project development and selection processes, including a review of evaluation criteria and ongoing oversight of such projects once they are operational.

11 Review the benefit/cost framework used by NMPC in electric system planning and prioritization to determine its effectiveness and compliance with Commission requirements.

- Interview key personnel regarding benefit/cost framework used by NMPC in electric system planning and prioritization to determine its effectiveness and compliance with Commission requirements.

12 Evaluate NMPC's bidding process and determine if the process is appropriately transparent and competitive.

- Review all polices related to bidding process.
- Select a sample of competed and documents bids.

TASK 4 – ELECTRIC LOAD FORECASTING AND SUPPLY PROCUREMENT

Project Team

Howard Axelrod, BSEE, MSEE, PhD

Walt Drabinski, BSEE, MBA

Jamie Habberfield

Clifton Oertli

Scope and Work Steps per RFP

1. Evaluate changes to NMPC's electric load forecasting process since the previous management audit.

   - Interview planning personnel, senior managers, and strategic planning personnel to determine what the status of DER implementation is.
   - Verify the link in the planning process between approved program and functional element in the planning process.
   - Summarize total DER assets in place by date of audit and those projected for future periods.

2. Determine NMPC's status implementing the load forecasting methodology changes detailed in its DSIP filing, evaluate the timeliness of the planned changes, and assess the adequacy and accuracy of the resulting forecasts.

   - Evaluate changes to the electric load forecasting process since the previous management audit, taking into consideration policy initiatives that could have significant impact on load and energy requirements.
   - Review all aspects of the load forecasting process.
   - Determine how changes will affect new programs that are being initiated.
   - Review any recent integrated resource pans or load management plans.
   - Review any plans for transmission upgrades.

3. Evaluate how system-wide and substation-specific load forecasting are incorporated into the planning process, assess the accuracy of those forecasts at the system-wide and substation level, and review NMPC's hierarchical synchronization process.

   - Determine the extent to which Distributed Energy Resource (DER) assets are recognized as part of the planning process.
   - Assess how the utility is considering DER interconnection requirements in its system planning process.
   - Review changes in policy and procedures regarding interconnection requirements.
   - Discuss process with planners and senior managers.

- Assess how the utility is planning and integrating their maintenance and modernization efforts in recognition of DSP/Distributed Service Implementation Plan (DSIP) efforts.
- Interview personnel with responsibility for system standards and mid-level managers to discuss integrating their maintenance and modernization efforts in recognition of DSP/Distributed Service Implementation Plan (DSIP) efforts
- Review any policies or reports addressing DSP/Distributed Service Implementation Plan (DSIP) efforts.

4. Determine to what extent NMPC has incorporated probabilistic approaches into the forecasting process as described in NMPC's DSIP filing.

- Examine the role of demand management (demand response, distributed generation, etc.), energy efficiency, and migration of retail customers to competitive suppliers in the forecasting and procurement processes.
- Review probabilistic approach integration.
- Assess how well National Grid is meeting requirements to provide demand management (demand response, distributed generation, etc.), energy efficiency details to customers.

5. Evaluate NMPC's means and methods for collecting load data that is disaggregated by time and location, and progress against related plans described in NMPC's DSIP filing.

- Determine the extent to which the utility is disaggregated by time and location, and progress against related plans described in NMPC's DSIP filing.
- Evaluate how total system-wide and substation-specific load forecasting is incorporated into the system planning process, including an assessment of the accuracy of those forecasting processes and an assessment of system infrastructure adequacy (including planned improvements) to meet future load requirements.
- Review process for system-wide and substation-specific load forecasting.

6. Evaluate NMPC's financial and physical hedging practices as they relate to electric supply.

- Evaluate electric supply portfolio principles, objectives, policies, processes, oversight, and risk management strategies.
- Review policies associated with electric supply portfolio principles, objectives, processes, and oversight.
- Review, in concert with work in Task 1, any risk management activities associated with electric supply portfolio.

TASK 5 -GAS PLANNING

Project Team

Mary Lovell, BA, MBA

Howard Axelrod, BSEE, MSEE, PhD

Mark Fowler

Scope and Work Steps per RFP

1 Assess the models and inputs used to develop short- and long-term gas forecasts, and determine the extent to which back casts are utilized to determine the accuracy of the forecasting function.

- Identify all models used in both long and short term forecasting (and intermediate if applicable)
- Identify gas forecasting models, both static and dynamic.
- Interview the individuals and groups responsible for developing model inputs and utilizing the models.
- Determine if National Grid has tested the forecasting models, the techniques and results.
- Evaluate quality control methods for assuring data inputs are complete, appropriate and reliable
- Evaluate the accuracy of recent forecasts, identify variances, evaluate the significance of the variance and determine the drivers of the variances.
- Determine if variances from forecasts have been used to modify models and how so.
- Identify the mechanism of incorporating lessons learned from variances into model modifications.
- Review the availability and inclusion of weather variables in short term models and the inclusion of climate change assumptions in long term forecasts.
- Identify statistical techniques used in the gas forecasting models.
- Examine forecasts recently used in regulatory proceedings for consistency with those used internally.
- Identify any weather and climate trends that are being incorporated into forecasts.
- Evaluate the time frame of the forecasts for relevance with recent weather and climate trends.
- Identify and review any due diligence performed that that compares previous load forecasts to actual loads.

2 Evaluate the convergence between the gas planning and electric planning functions as it relates to gas-fired electric generation.

- Review program and project methodologies in place for National Grid has and electric planning organizations.

- Review the conversion of capital and O&M plans and budgets into specific programs and projects and how the demands of gas and electric are reconciled and budgets allocated.
- Determine what if any overlap exists in the electric and gas planning functions.
- Determine how gas and electric planning coordinate projects with overlapping geography and timing.
- Determine how prioritization is determined for conflicting gas and electric projects in terms of timing.
- Identify any combined contracting or other procurements opportunities between gas and electric and how these play into decision making.

3 Assess the readiness, capability and possible impediments to meeting increasing natural gas load, and possible alternatives to new long-term projects like pipeline capacity, including the ability of conservation, temporary compressed natural gas facilities, demand response or other programs to meet peak load requirements in the future.

- Identify service expansion plans within National Grid.
- Identify current and planned outreach and economic development programs, their success and how these are implemented into plant and gas commodity planning.
- Identify all organizations involved in the various program components.
- Identify system plans and contingencies with specific benefits, costs and impediments identified by area. (System constraints, impact on commodity procurement, upstream system impacts, geographic and topographic constraints.)
- Evaluate the adequacy of the gas system planning and contingencies based upon various possible service expansion scenarios.
- Identify any lessons learned gained from current or past programs and specific plans (if any) for modification.

4 Evaluate the effectiveness of gas hedging methods (physical and financial), strategies, and processes.

- Review risk management and hedging plan documentation.
- Determine how risk management is incorporated into the edging program
- Review all hedging reports and other documentation.
- On a sample basis, review hedging transaction detail.
- Identify controls and oversight of hedging activities.
- Examine any modeling used to optimize hedging opportunities as well as identify risk.
- Determine methods used to determine the hedging impact on volatility.
- Examine the process for reporting exceptions and violations associated with the hedging programs.

- Identify any such reported violations since the last audit.

5 Determine the extent to which the Utilities incorporate the consideration of Non-Pipe Solutions as well as both traditional and non-traditional demand response techniques into their gas planning processes.

- Identify consideration of Non-Pipe Solutions as well as both traditional and non-traditional demand response techniques into their gas planning processes within National Grid.
- Identify current and planned technologies being considered for outreach and economic development programs.
- Identify Non-Pipe Solutions that are in system plans.

TASK 6 – GAS SAFETY

Project Team

Mark Fowler

Mary Lovell

Cynthia Pepper

Scope and Work Steps per RFP

1 Assess the leak prone pipe replacement programs, including flood zone management, risk models, and other factors used to determine mains to be replaced, verification that high risk pipes are replaced, and the program's impact on total system leaks.

- Review all pipe replacement programs, including Optimain models. risk programs, flood plain requirements, and other programs that address system leaks.

2 Evaluate the process used to track and report unit costs that are tied to positive incentives related to leak prone pipe.

- Review all reports, including process for development.

3 Assess the Utilities' Incident Investigation processes used to comply with Pipeline Safety Regulations and Best Practices.

- Collect all Utilities' Incident Investigation
- Review Utilities' Incident Investigation process.
- Verify compliance with Pipeline Safety Regulations and Best Practices

4 Evaluate the Utilities' record of gas safety violations and determine what, if any, systemic improvements are warranted.

- Review records for last three years
- Identify any trends

5 Evaluate the onboarding, training, and qualifying of contractors performing construction of the Utilities' pipeline facilities and operation and maintenance on the Utilities' pipeline facilities.

- Review all training programs for adequacy
- Verify attendance by requisite personnel.

6 Evaluate the training and qualifying of the Utilities' workforce performing construction of the Utilities' pipeline facilities and operation and maintenance on the Utilities' pipeline facilities.

- Review and evaluate the training and qualifying of the Utilities' workforce.

7 Assess the inspection, quality control, quality assurance, and oversight of contractors performing construction of the Utilities' pipeline facilities and operation and maintenance on the Utilities' pipeline facilities.

- Review all inspection, quality control, quality assurance programs.
- Review policies for oversight of contractors
- Review all maintenance policies.

8 Assess the inspection, quality control, quality assurance, and oversight of the Utilities' workforce performing construction of the Utilities' pipeline facilities and operation and maintenance on the Utilities' pipeline facilities.

- Review all policies associated with inspection, quality control, quality assurance, and oversight of the Utilities' workforce

TASK 7 – BUDGETING AND FINANCE

Project Team

Marie Davidson, CPA, MBA

James Purser, CPA

Walt Drabinski, BSEE, MBA

Scope and Work Steps per RFP

1 Evaluate the Utilities' capital budgeting processes, including the roles of the NGUSA and National Grid plc Boards of Directors, project selection, project prioritization, and status and variance reporting.

- Interview personnel at various levels associated with capital budgeting process include: senior management, budget department personnel, engineering personnel and strategic planning personnel.
- Evaluate the process and any models used for evaluating capital projects.
- Review historical examples of the process.
- Review variance reporting process.
- Assess who can approve various projects and accept variance requests.

2 Evaluate whether the Utilities are utilizing the most cost-effective means to procure goods and services.

- Review procurement policies.
- Sample a select number of commodities and adhoc purchases to determine if they were procured according to policy.
- Review corporate procurement processes and assess whether it is utilizing the most cost effective means to procure goods and services.
- Determine whether National Grid has implemented a system wide procurement program.

3 Assess each Utility's Pension & Other Post-Employment Benefits plan asset investment strategy, considering risk, ability to meet obligations, and diversification of assets.

- Review all Pension & Other Post-Employment Benefits details from regulatory filings.
- Review all studies, reports and correspondence, both internal and external regarding process (and outcomes) to modify debt covenant requirements, to increase its efficiencies, reduce its risks and reduce its cost of debt.
- Determine if there were any attempts to modify debt covenant requirements, to increase its efficiencies, reduce its risks and reduce its cost of debt with lenders.
- Review and evaluate the Authority's policy for managing its compliance with its debt covenants.

- Review and evaluate the Authority's processes for managing debt covenant defaults.
- Review and evaluate the effectiveness of the Board monitoring of and reporting process for the Authority's debt covenant compliance.
- Review any risk assessments.
- Review and diversification efforts.
- Interview personnel in Finance Department, BOT finance Committee and outside consultants to determine how policies are set and complied with.
- Review all formal policies regarding Debt Management.

4 Determine whether the Utilities are using the most cost-effective means to issue securities (e.g., optimal corporate level at which to issue debt, SEC registered vs 144A or private placement).

- Review polices at corporate a utility level for issuing securities.
- Collect and review all debt classified by type.

5 Evaluate how the Utilities interact with credit rating agencies (e.g., are the credit rating agencies aware of the additional revenue opportunities associated with EAMs).

- Review credit rating agency presentation
- Identify who from utility or parent does interaction.
- Assess level of interaction.

TASK 8 – PROJECT MANAGEMENT

Project Team

James Purser, CPA

John Nelson, MSEE, PE

Walt Drabinski, BSEE, MBA

Mike Boismenu

Scope and Work Steps per RFP

1 Evaluate how the Utilities identify and select capital projects, consider alternatives, and memorialize which projects move forward and which do not.

- Evaluate approach to project management
- Identify and interview key program and project management personnel
- On a sample basis perform an in-depth analysis of selected programs and projects.
- Evaluate the relationship between program and project managers and other key organizations such as engineering, construction, permitting, and procurement.
- Evaluate the scheduling systems used for projects.
- Determine if annual work packages are presented to field work forces in sufficient time to maximize efficiency.
- Determine if work falls outside the program or project category and if so how is it managed and budgeted.
- Determine the accuracy of program and project budgeting on a year to year basis including a review of carryover from year to year.
- Examine the extent of projects which are rushed to completion in the last quarter or months of the budget year.

2 Evaluate how capital projects are prioritized and scheduled, including a review of the variables considered in this process.

- Perform an in-depth review of the prioritization review process on a sampling of projects.
- Determine the organizations and individuals responsible for quality control in the various programs and areas.
- Identify any implications of quality review for contractors and for future contracting.
- Identify the process for stopping and/or revising projects is quality issues are found during construction.

3 Evaluate the methods used to control capital project costs, scope expansion, and schedule adherence.

- Identify the systems used to capture costs.

- Determine the process for revising program and project costs after initial approval.
- Identify the variance levels which trigger additional management or board approval.
- Identify the variance levels that require after action review.
- Determine if any significant changes have been made to the forecasting methods based upon due diligence. Such as changes to compatible units.
- Analyze all programs and projects in the aggregate for cost forecast accuracy.
- On a selected job basis, perform a deep dive that follows jobs from initial forecast and approval to completion and close out.

- Determine if managers have a reliable view into costs per unit.

4 Assess the adequacy and transparency of information provided to the Department related to capital project selection, prioritization, and schedule, budget, and rate plan adherence.

- Evaluate the schedule management systems in use for projects and daily work and their effectiveness.
- Analyze the accuracy of scheduling by performing detailed review of a sampling of project and other jobs over a one month period.
- Identify the frequency of updates of costs, progress and forecasts.
- Identify the different methodologies for managing work performed with contractors versus in house resources.

5 Determine the extent to which project estimating processes and systems support the development of accurate estimates for project selection, budget development, and customer estimates, including an assessment of the impact of project estimating enhancements implemented subsequent to the previous management audits and rate cases.

- Determine the organizations and individuals responsible for quality control in the various programs and areas.
- Perform an in-depth review of the quality review process on a sampling of projects.
- Identify any implications of quality review for contractors and for future contracting.
- Identify the process for stopping and/or revising projects is quality issues are found during construction.

TASK 9 – PROGRAM MANAGEMENT

Project Team

Mike Boismenu

John Nelson, MSEE, PE

Scope and Work Steps per RFP

1 Assess the management of the Utilities' Energy Efficiency programs, including a review of procedures for collecting, reporting, remediation of data errors, the impact of data errors on the planning process, and QA/QC procedures for ensuring data quality.

- Interview key personnel associated with Energy Efficiency programs.
- Review planning process, and QA/QC procedures.
- Review of procedures for collecting, reporting, remediation of data errors, the impact of data errors.

2 Assess the Utilities' contracting procedures with, and process evaluations of, third-party Energy Efficiency vendors.

- Review all policies associated with contracting procedures.
- Review policies for process evaluations of, third-party Energy Efficiency vendors

3 Evaluate how energy efficiency and demand response programs are coordinated with, and incorporated into, forecasting and planning processes.

- Interview personnel associated with energy efficiency and demand response programs.
- Review policies.
- Evaluate forecasting and planning processes.

4 Assess NMPC's processes and procedures for managing, tracking, and maintaining its street lighting assets.

- Review all data bases and programs used for tracking.

TASK 10 – WORK MANAGEMENT

Project Team

Mark Fowler

Cynthia Pepper

Scope and Work Steps per RFP

1 Assess changes to work management processes implemented subsequent to the previous management audits.

- Review all changes in policies and practices since last management audit.
- Discuss impact of changes.

TASK 11 – PERFORMANCE MANAGEMENT

Project Team

Cynthia Pepper

James Purser

Robert Dyer

Scope and Work Steps per RFP

1 Determine how internal reporting mechanisms, employee performance standards, and incentive compensation programs are used to promote corporate goals, grid modernization, safety and reliability standards, and Commission objectives.

- Review written policies, procedures or practices in the area of performance management at National Grid and evaluate if the performance measures used by National Grid can be linked to the stakeholders listed in its mission statement.
- Assess whether there are appropriate measures in the performance reports.
- Assess the comprehensive performance management system, including process of determining performance measures to use and links to business objectives
- Evaluate the process by which the Boards of Director of National Grid and operating companies have input into the performance program, including the roles and responsibilities of each entity individually and collectively, and the impact on the business initiatives.
- Determine how the results of performance reports are used by National Grid management.
- Conduct a retrospective evaluation of performance goals, achievement, and payouts by organization.

2 Determine the adequacy of the Utilities' use of benchmarking to compare its performance with affiliated utilities, similarly-situated utilities, and other relevant organizations.

- Examine the use of benchmarks throughout the organization that align with the overall business goals, as well as the communication methodology to assure integration throughout all departments and entities.
- Review a selection of division, department, managers, and individual contributors' performance goals and evaluations against those goals to assess vertical alignment
- Compare a selection of goals and performance evaluations across divisions, departments, managers and comparable individual contributors to assess horizontal alignment
- Compare goals across divisions and departments to assess the extent to which collaboration is codified in performance goals
- Review performance goals with an eye to assess the extent to which the focus on individual goals distracts and distorts the importance of teamwork, collaboration, and achievement.

TASK 12 – CUSTOMER OPERATIONS

Project Team

Chuck Buechel

Mary Lovell

James Purser

Scope and Work Steps per RFP

1 Examine the adequacy and effectiveness of each utility's internal controls related to the Home Energy Fair Practices Act and Energy Consumer Protection Act – Rules (16 NYCRR Part 11).

- Review all internal policies and procedures related to (HEFPA) with particular concern for compliance with
    - § 11.3 Applications for residential service
    - § 11.4 Termination or disconnection of residential service, and suspension of distribution service pursuant to PSL §32(5)
    - § 11.5 Residential service—special procedures
    - § 11.6 Voluntary third-party notice
    - § 11.7 Service to entire multiple dwellings
    - § 11.10 Deferred payment agreements
    - § 11.11 Budget or levelized payment plans

2 Examine the adequacy and effectiveness of each utility's internal controls related to the Rules Governing the Provision of Service by Gas, Electric and Steam Corporations to Nonresidential Customers (16 NYCRR Part 13).

- Review all internal policies and procedures related to PART 13. RULES GOVERNING THE PROVISION OF SERVICE BY GAS, ELECTRIC AND STEAM CORPORATIONS TO NONRESIDENTIAL CUSTOMERS with particular concern for compliance with
    - § 13.2 Applications for service
    - § 13.3 Termination of service
    - § 13.4 Reconnection of service
    - § 13.6 Levelized payment plans

- Compare the specific provisions of the customer service policies and procedures to the requirements of established in Parts 11 and 13 of 16NYCRR.
    - Make an assessment of the Company's compliance with the 16 NYCRR Part 11.
    - Carefully review and familiarize our consultants with the details of 16 NYCRR Part 13 relating to the Home Energy Fair Practices Act and Energy Consumer Protection Act.
    - Request policies and procedures pertaining to implementation of 16 NYCRR Part 13.
    - Determine if the policies and procedures meet the requirements of 16 NYCRR Part 13.
    - Interview select customer service personnel to assess their understanding of the established policies and procedures related to 16 NYCRR Part 13.

- Interview managers of customer service to clarify our understanding of the policies and procedures and how they are actually applied.

- Determine if customer service representatives have ready access to the policies and procedures in an electronic format.
- Review the information on a customer service representative's screen when dealing with calls and inquiries pertaining to service and billing concerns.
- Review and evaluate the training material utilized by National Grid to train its customer representatives.
- Review any internal audits conducted related to Part 13
- Query State agencies responsible for implementation and monitoring of Part 13 as to issues that have arisen.

3 Examine the effectiveness and efficiency of the Utilities' Budget Billing processes (both manual and automated) relating to customer overpayment/underpayment of bills under the program.

- Examine the service complaints customers have filed with either National Grid and/or the Commission.
- Assess procedures for billing customers including preparing billing estimates and budget bills.

4 Examine the effectiveness and efficiency of scheduling routine field work to ensure goals of service quality and customer satisfaction are achieved, and to prevent service interruptions at the incorrect service address.

- Request a listing of each of the Company's goals of service quality and customer satisfaction.
- Request a 10 year history of the utility's performance relative to each of the established service quality and customer satisfaction metrics.
- Interview selected employees to discuss the performance measures, how they are tracked and reported to the appropriate personnel.
- Assess whether the historical performance is satisfactory or could be improved.

- Review and evaluate the automated systems used by National Grid to manage all phases of the customer services operations including:
    - Initiating requests for service;
    - Reading meters;
    - Bill preparation;
    - Distribution of bills;
    - Payment of bills;
    - Customer complaints;
    - Meter re-reads;
    - Termination and discontinuance of service;
    - Payment agreements; and

- Other customer service functions relative to compliance with Parts 11 and 13.

- Determine if the policies and procedures are equitably administered.
- Evaluate the effectiveness and efficiency of the scheduling of routine field work.
- Request, review and evaluate customer service reports and compare results to established goals.

5 Review and assess the applications and procedures regarding NMPC's electric life support equipment program.

- Familiarize our consultants with the details of the NMPC's electric life support equipment program.
- Request and review all policies and procedures pertaining to the NMPC's electric life support equipment program.
- Interview employees that deal with the NMPC's electric life support equipment program to identify all issues related to the utility's compliance with this program requirements.

6 Examine the efficiency of the Utilities' processes related to enrolling customers in the Low Income Affordability Program and their accuracy related to providing the appropriate discount.

- Request and carefully review the policies and procedures utilized to enroll customers in the Low Income Affordability Program.
- Interview selected employees to further understand how customers eligible for the Low Income Affordability Program are identified and enrolled.

7 Determine how missed appointment credits are detailed, accounted for, and applied to residential and non-residential customer accounts.

- Determine if the Company's tariff adequately explains the credit and how it is calculated for both residential and non-residential customers.
- Collect a sample of some of the credits and determine if they are calculated in accordance with the tariff.
- Interview relevant personnel to determine if the credits are consistently calculated by each of the National Grid Companies.

8 Assess the accuracy and thoroughness of information provided to customers by call center and contact center representatives, and assess related trainings and tools.

- Request and examine the policies and procedures utilized at the Call Center.
- Review all required training material used by the Call Center.
- Assess the effectiveness and efficiency of the operation of the Call Center by analysis of relevant performance measures.
- Determine if the Call Centers use surveys to assess their performance.
- Review the customer survey results over the last 10 years.

- Interview Call Center managers and personnel to determine how consistent treatment of customers is maintained.

9 Examine the new service request process, including the application itself and the Contribution in aid of Construction process.

- Request all forms, policies, procedures pertaining to requests for new service.
- Examine how Contributions in Aid of Construction are determined.
- Determine whether the Contributions in Aid of Construction are calculated consistently for all customer groups of the Company as well as across the other National Grid Utilities.
- Interview relevant personnel to discuss the new service request process.
- Review the approval process for requests for new service.

F. HOURS BY CONSULTANT AND TASK

In preparing our budget, Vantage has considered several factors based upon experience in the New York area and in similar audit situations:

- Considerable on-site time especially by lead consultants
- The high cost nature of the area
- Anticipated cooperation, or lack thereof, from the Company

Exhibit - 1
Hours by Consultant

National Grid Management Audit
Hour and Fee Calculation

		Project Director Drabinski	Team Manager Fowler	Team Manager Buechel	Team Manager Lovell	Senior Consultant Pepper	Senior Engineer Boismenu	Senior Consultant Axelrod	Financial Consultant Purser	Senior Engineer Nelson	Senior Engineer Spilman	Senior Consultant Rebenitsch	Senior Engineer Oretli	Senior Consultant Dyer	Financial Consultant Davidson	Technical Analyst Habberfield	Report Editor Clements	Project Admin Gormley	Total Hours
Phase I -Orientation		96	72	72	72	40	40	40	40	40	40	40	40	40	40	40	32	48	832
Phase II - Field Work																			
Task 1 – Corporate Governance		40			80			160				80		80				24	464
Task 2 – Information Systems							80				160					72		24	336
Task 3 – Electric Planning and Grid Modernization				80			120				120	120				72		24	536
Task 4 – Electric Load Forecast and Supply Procure		80						120					80			72		24	376
Task 5 - Gas Planning			120		160			80										24	384
Task 6 – Gas Safety			200		80	80												24	384
Task 7 – Budgeting and Finance		80							120						160			24	384
Task 8 – Project Management		80					104		120	120								24	448
Task 9 – Program Management							104			120								24	248
Task 10 – Work Management			120						80									24	224
Task 11 – Performance Management						120			80					120				24	344
Task 12 – Customer Operations				280	120				96									24	520
Total Fieldwork Hours		280	440	360	440	200	408	360	496	240	280	200	80	200	160	216	0	288	4648
Phase III - Develop/Support Recommendations		48	48	32	24	24	24	24	24	24	24	24	24	24	24	24	24	32	472
Phase IV - Report Development		80	80	48	40	40	40	40	40	40	40	40	40	40	40	40	80	64	832
Project Management		200	64	64	64														
Project Total Hours		**704**	**704**	**576**	**640**	**304**	**512**	**464**	**600**	**344**	**384**	**304**	**184**	**304**	**264**	**320**	**136**	**432**	**7,176**

IV. CUSTOMER BENEFIT ANALYSES

A. COST BENEFIT ANALYSIS REQUIREMENT

Vantage makes a concerted effort to assure that our recommendations evolve into a comprehensive plan that includes discrete steps for implementation and an associated Customer Benefit Analysis that provides clear description and quantification of benefits achieved from the recommendation.

The DPS has developed the customer benefit analyses (CBAs) concept and approach to quantify the estimated financial consequences of implementing individual recommendations. Vantage commits to adhering to the DPS direction. Vantage, within the context of the current operating environment of the utilities, will incorporate CBAs in its final report recommendations.

- For a recommendation that is expected to have quantifiable benefits, define known cost and benefit components and quantify as many as feasible.
- For a recommendation that does not have quantifiable benefits, but nevertheless is desirable (improved performance, good management practices, etc.), define all cost components and qualitative benefits.
- CBAs shall define as many benefit and cost components as feasible so that if/when more information becomes available, those components can be more readily quantified.
- Potential cost components shall include, but not be limited to:
    - Labor, materials, equipment, systems, training and development, etc.;
    - One-time and/or recurring costs;
    - Operation & Maintenance (O&M) expenses and capital costs; and
    - Estimated implementation durations (months or years) and quantified dollar benefit and cost streams, as appropriate.
- Potential benefit components include, but will not be limited to:
    - Increased efficiencies and/or productivity;
    - Improved reliability;
    - Reduced expenses;
    - Reduced capital requirements;
    - Reduced full-time equivalents (FTEs);
    - Improved practices and processes;
    - Improved schedule adherence;
    - Improved work quality; and
    - Optimized organizational structures

B. DEVELOPMENT OF RECOMMENDATIONS

The development of concise, useful and cost effective recommendations is the ultimate objective of a management audit. Vantage approaches the development of recommendations from two directions. First, many recommendations become obvious as field work is progressing. Our consultants become aware of problems and can develop recommendations as the project progresses. These are then part of initial task reports and the first draft of a final report. More global, comprehensive recommendations are developed after the draft report is assembled and the Project Director, Project Manager, and Lead Consultants assimilate the entirety of the analysis. These can group earlier proposed recommendations or be prepared as more global in nature.

DEVELOPMENT OF COST/BENEFIT ANALYSES

Cost and benefit analysis is an important part of any audit and is especially important to New York audits. To this end, Vantage will work with NG and the NY staff in the development of costs and savings projections. This will occur after development of preliminary findings, conclusions and recommendations. These preliminary recommendations will be provided to the DPS staff and the Company for discussion. This timing also allows for a simultaneous verification process and an opportunity to identify any clarifying documents or other information that can be provided. Vantage allows for this process step by retaining both budget and elapsed time in our schedule to accomplish the tasks. We will commit to preparing a detailed customer benefit analyses in the following instances:

- When a recommendation is identified that is expected to have quantifiable benefits, we will define known cost and benefit components and quantify as many as feasible.
- When a recommendation that does not have quantifiable benefits, but nevertheless is desirable (improved performance, good management practices, etc.), we will define all cost components and qualitative benefits.
- CBAs shall define as many benefit and cost components as feasible so that if/when more information becomes available, those components can be more readily quantified.

All Vantage proposed recommendations will all have identified costs and benefits however these will not take the form of dollars. A better term might be actions required and benefits to be received. For example, some recommendations may require changes in processes and procedures but require no incremental costs in terms of personnel, equipment or other resources. These "costs" will still be identified. Recommendations that require actual expenditures of funds will be given particular scrutiny as these may have direct rate implications. On the benefits side, many recommendations have may have positive projected outcomes but not reduce costs or increase income. Examples include improved customer service, customer outreach or communications. These may have no direct dollar benefits but can provide valuable benefits. Vantage will also identify and distinguish between onetime costs and benefits and those that occur on a recurring basis. A final category of recommendations are those which may have minimal impact on either costs or benefits but are simply "the right thing to do". Vantage will provide all details, implementation steps and analysis related to:

- Any recommendation that is expected to have quantifiable benefits, define known cost and benefit components and quantify as many as feasible.

- Any recommendation that does not have quantifiable benefits, but nevertheless is desirable (improved performance, good management practices, etc.), define all cost components and qualitative benefits.
- Vantage prepared CBAs shall define as many benefit and cost components as feasible so that if/when more information becomes available, those components can be more readily quantified.
- Potential cost components shall include, but not be limited to:
    - Labor, materials, equipment, systems, training and development, etc.;
    - One-time and/or recurring costs;
    - Operation & Maintenance (O&M) expenses and capital costs; and
    - Estimated implementation durations (months or years) and quantified dollar benefit and cost streams, as appropriate.
    - Potential benefit components include, but will not be limited to:
    - Increased efficiencies and/or productivity;
    - Improved reliability;
    - Reduced expenses;
    - Reduced capital requirements;
    - Reduced full-time equivalents (FTEs);
    - Improved practices and processes;
    - Improved schedule adherence;
    - Improved work quality; and
    - Optimized organizational structures

Vantage will also be diligent in identifying those recommendations with unintended consequences and will clearly articulate the actions and benefits associated with them. For example, an increase in the productivity of in-house work groups can actually result in costs particularly in O&M.

C. CUSTOMER BENEFIT ANALYSES TEMPLATE

The following is a base template for developing customer benefit analysis. It can be expanded a needed to include more than on recommendation, detailed analysis on costs and benefits, as well a detailed implementation schedule.

Recommendation(s) Number (There can be more than one recommendation for an analysis.

Recommendation(s) Statement

Priority (High, Medium, Low)

Potential Benefit (Can be economic, safety related, or customer service quality)

Potential Risk

One-time Cost

On-going Costs

Quantification support for Costs and Benefits where possible.

Other Non-Quantifiable Benefits

Implementation Schedule

V. PROJECT TEAM AND RESPONSIBILITIES

A. PROJECT MANAGEMENT

Due to the size and complexity of this management, Vantage will utilize three of our most experienced consultants to act as Team Mangers for each utility. We list the responsibilities of all key project management personnel below, followed by the organization chart.

Project Director – Walter P. Drabinski will serve as the Project Director on this project. In addition to having extensive responsibility for audit activities and authorship of the report, he will be responsible for overall quality control, schedule compliance and budget adherence. He will be the primary contact for contractual communications with the DPS and the Company. He will also be responsible for facilitating resolution of any issues as they arise. Mr. Drabinski was Project Manager of both the Con Ed Reliability Study and LIPA Storm Review.

Team Manager Niagara Mohawk - Mark Fowler will be the day-to-day Manager for Niagara Mohawk, with responsibility for on-site activities, scheduling of interviews, field trips, submittal, review and distribution of data responses and any day to day problems that arise. In this role he will provide direct coordination of report drafts and assure that all work steps are fully addressed. He will also be responsible for preparing invoice input for the Project Administrator.

Team Manager Brooklyn Union - Chuck Buechel will be the day-to-day Manager for Niagara Mohawk, with responsibility for on-site activities, scheduling of interviews, field trips, submittal, review and distribution of data responses and any day to day problems that arise. In this role he will provide direct coordination of report drafts and assure that all work steps are fully addressed. He will also be responsible for preparing invoice input for the Project Administrator. .

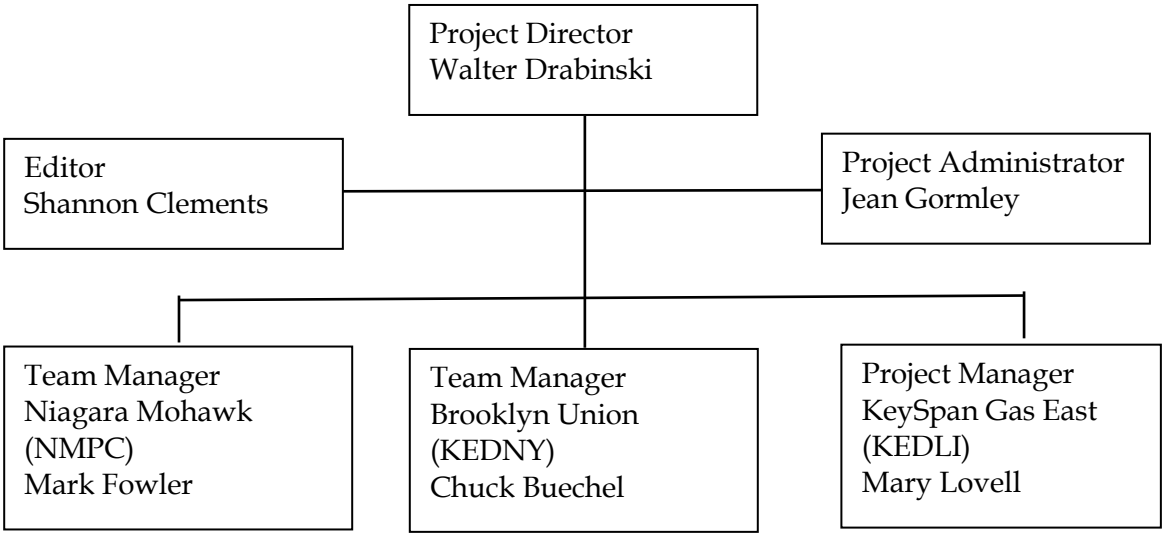
Team Manager KeySpan Gas East - Mary Lovell will be the day-to-day Manager for KeySpan Gas East, with responsibility for on-site activities, scheduling of interviews, field trips, submittal, review and distribution of data responses and any day to day problems that arise. In this role she will provide direct coordination of report drafts and assure that all work steps are fully addressed. She will also be responsible for preparing invoice input for the Project Administrator.

Project Administrator Jean Gormley will handle paperwork administration, billing, and transmission of data, assembly and editing of the draft report. She will also assure consistent formatting of exhibits and organization charts. Ms. Gormley is the Chief Operating Officer of Vantage, with general responsibility for corporate operations. She has extensive experience in project management, invoicing, and project budget control.

Editor – Shannon Clements will serve as editor, with responsibility for preparing all draft and final reports.

B. PROJECT ORGANIZATION AND TEAM

Exhibit - 2
Vantage Project Organization



C. TEAM MEMBER BIO

The key to a successful project of this type is to assemble a team that has the requisite skills, has worked together in the past, and is familiar with the needs of the client. The team proposed below uses our core consultants. For this assignment we have brought together a combination of functional skills (risk management, executive compensation), bargaining unit relations, management of workforces and technical telecommunications knowledge. Our consulting teams members have worked together for years, or decades. Most have experience in the New York environment and working with DPS staff.

Exhibit - 3
Vantage Project Team

Consultant Name	Project Strength
Walter P. Drabinski, BSEE, MBA	**Project Director** – Ten years with a utility, 30 years as a management consultant in the utility industry, and experience on over 150 utility related assignments. Walt will have overall responsibility for this assignment, will attend most meetings and will be the official representative of Vantage. Walt utilizes his BS in electrical Engineering and MBA in Finance and Management from the Wharton School on utility financial analysis, technology assessments, and generation construction, budgeting and oversight.
Mark Fowler, BS, MBA	**Team Manager – Niagara Mohawk** – Utility experience, as well as 30 years as a management consultant on over 100 utility related assignments. Mark will.
Chuck Buechel, BS, MA	**Team Manager Brooklyn Union** – Twenty-four years as a consultant with Vantage, plus experience with Kentucky PSC as an Economist and Deputy Executive Director.
Mary Lovell, BA, MBA	**Project Manager KeySpan Gas East** – Twenty years as a Senior Officer with a large gas utility and twelve years as a senior level management consultant with Vantage.
Ron Rebenitsch, PE, BSEE	**Senior Consultant** – Broad experience in the energy industry, particularly renewables, including wind, solar and biomass, as well as a comprehensive grasp of industry issues, such as distributed generation, combined heat & power (CHP), alternative energy, carbon constraints, power supply costs, transmission, deregulation, energy tariffs and legislative policy. Extensive experience in proforma development, project management and litigation avoidance. Career experience includes implementation roughly $3 Billion in utility and renewable energy projects.
Howard Axelrod, BSEE, MSEE, PhD	**Senior Economist** – Over 35 years of experience as an engineer, employee of NYDPS, and management consultant. Howard will assist with modeling analysis and evaluation of bids and will have overall responsibility for evaluating proposed plans.
Robert T. Dyer, BSEE, MBA	**Senior Consultant** - Bob is the former President and CEO of The Energy Authority (TEA). He now focuses on markets and organizational issues arising when adapting to competitive environments and resulting organizational changes. He has worked on utility projects with high cost

	wind energy contracts working to reduce cost while increasing green energy available to the utility.
Michael Boismenu, PE (NYS)	**Senior Engineer** – Thirty years with large utilities in T&D Engineering, generation engineering and corporate, standards and engineering management. Thirteen years with Vantage.
Marie Davidson, CPA, MBA	**Senior Consultant** - Accounting and management consulting experience with two major firms and fifteen years with Vantage on numerous projects.
Ann Diggs, CPA	**Senior Accountant** - Twenty years of utility regulatory experience, including nine years as a Staff member of the Kansas Corporation Commission and 11 years as a regulatory utility consultant.
James Habberfield	**Senior Consultant** – He has experience with forecasting, supply procurement and risk management as an employee of Duquesne Light Company. He served on industry committees such as PJM, NERC, and state collaboratives that addressed wholesale and retail markets, including pricing, trading, and program design. He had responsibility for bilateral contracts, options and forward contracts, and addressed daily spot market trading on regional electricity markets including PJM, NYISO, MISO, ERCOT, ISO-NE, exchange trading such as NYMEX and CME.
Cynthia Pepper, BA, MA	**Senior Consultant** – Expert in Human Resources and organizational behavior, with experience on 31 utility related assignments. Twenty-one years with Vantage.
James Purser, CPA	**Financial Consultant** - A financial consultant who assists companies improve financial performance. He develops systems for and performance metrics related to: tracking of cash flow; financial planning; assessing financial strengths and weaknesses before proposing corrective actions. He delivers value-added analysis and then implements financial strategies and directs resources to ensure plans and targets are met. He identifies evaluates, selects, and achieves profit-building goals. He has proven expertise in analyzing and developing business procedures, performance metrics and dashboard communications. James was also CFO of a multi-jurisdictional gas utility and executed its successful growth-by-acquisition strategy.

John Nelson, MSEE, PE	**Engineering Consultant** - Extensive experience with planning, design engineering, startup engineering, testing, maintenance, inspection and operation of Electrical Power Systems including the generation, transmission, distribution and utilization of electrical power. Worked on development of fuel sources, fuel contracts and alternative energy sources, and provided technical assistance and professional analysis on legal cases involving electrical related failures and accidents.
Andrew Ackerman, PE	**Engineering Consultant** - Andrew is responsible for managing NEI's day to day operations including Accounting, Information Technologies, and General Administration. In addition to his managerial responsibilities, Andrew actively consults with clients and engineers for power system projects in a diverse array of industries. Andrew has over 18 years of experience at NEI managing multidisciplinary teams, performing detailed design, providing planning studies, performing financial analysis, and providing field engineering services.
Patrick J. Spilman, PE	**Information Technology Consultant** - Mr. Spilman is a utility engineer with over 25 years of experience. Much of that work was in the field of utility Information Systems, Operational Control, and Cyber Security both as a management consultant and as an employee and officer of Basin Electric Cooperative. While at Basin, he maintained a staff that included 104 full time employees with an overall expense budget of $28.8 million and capital budget of $7 million. Key accomplishments included: Development, installation and start-up of the Energy Trading and Risk Management system; Responsibility for the overall "cyber security" and data integrity; Accountability for the oversight and responsibility for supervising, recruitment, development, retention and organization of all IS&T staff in accordance with corporate budgetary objectives and personnel policies; Met the needs of IT and facility operations , including SCADA and EMS for generation, transmission, and CO2 pipeline.

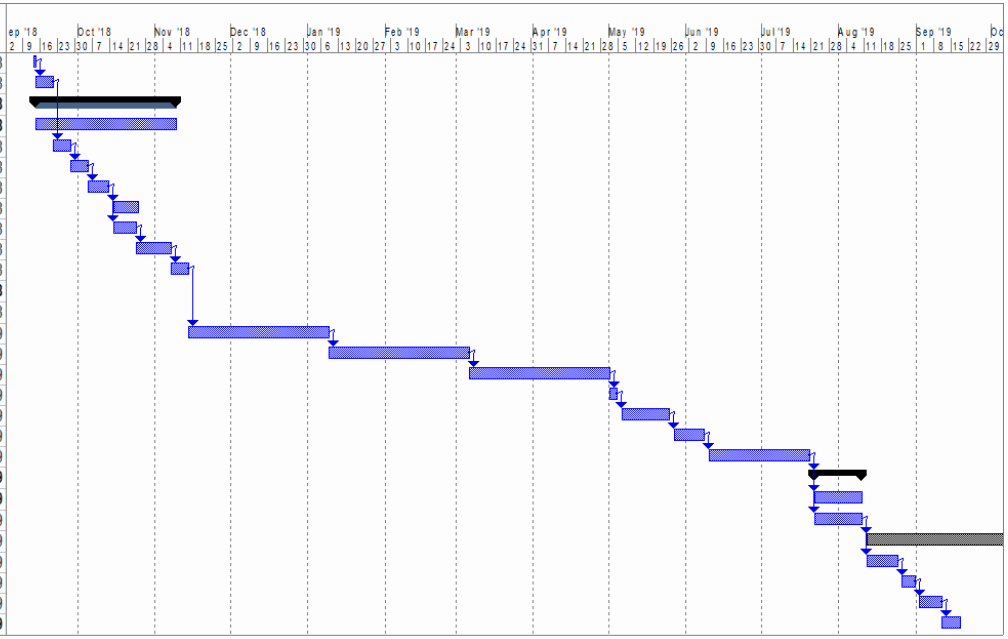
Clifton Oertli	**Engineering Consultant** - Clifton is responsible for managing NEI's growing team of 45+ electrical and civil engineers. In addition to his managerial responsibilities, Clifton still actively consults with clients and engineers for power system projects in a diverse array of industries. Clifton has over 10 years' experience at NEI managing multidisciplinary teams, performing detailed design, providing planning studies, performing financial analysis, and providing field engineering services.
Shannon A. Clements, BA English, MA English.	**Editor -** An accomplished writer and editor who has broad experience with complicated, technical reports. She has a Bachelor and Master degrees in English and communications, and has worked with many non-profits agencies as a grant writer.
Jean Gormley, BS, MS	**Project Administration** - Ms. Gormley is the Vantage COO and has responsibility for all corporate and project administration. On this assignment she will perform the role of analyst and project administrator.

VI. WORK TIMELINE

Work Timeline - Include a timeline reflecting the duration of each phase of the audit. Gantt charts are acceptable, but must be legible.

Exhibit - 4
Project Schedule

ID	Task Name	Duration	Start	Finish
1	Project Award	1 day	Thu 9/13/18	Thu 9/13/18
2	Develop Project Communications and Procedures	5 days	Fri 9/14/18	Thu 9/20/18
3	**Phase I - Orientation**	**40 days**	**Fri 9/14/18**	**Thu 11/8/18**
4	**Phase I - Orientation**	**40 days**	**Fri 9/14/18**	**Thu 11/8/18**
5	Submit Initial Document Request	5 days	Fri 9/21/18	Thu 9/27/18
6	Review Preliminary Data	5 days	Fri 9/28/18	Thu 10/4/18
7	Orientation Meetings	6 days	Fri 10/5/18	Fri 10/12/18
8	Modify Work Plan Based on Department Feedback	8 days	Mon 10/15/18	Wed 10/24/18
9	Prepare Interview List and Schedule	7 days	Mon 10/15/18	Tue 10/23/18
10	Submit Revised Work Plan	10 days	Wed 10/24/18	Tue 11/6/18
11	Develop Revised Phase II Scope and Budget	5 days	Wed 11/7/18	Tue 11/13/18
12	**Phase II - Field Work**	**102 days**	**Mon 2/4/08**	**Tue 6/24/08**
13	**Phase II - Field Work**	102 days	Mon 2/4/08	Tue 6/24/08
14	Conduct Initial Interviews	40 days	Wed 11/14/18	Tue 1/8/19
15	Perform Detailed Document Analysis	40 days	Wed 1/9/19	Tue 3/5/19
16	Develop Initial Findings	40 days	Wed 3/6/19	Tue 4/30/19
17	Mid-Project Meeting with Department	3 days	Wed 5/1/19	Fri 5/3/19
18	Develop Focus on Key Issues	15 days	Mon 5/6/19	Fri 5/24/19
19	Follow-up Interviews and Data Requests	10 days	Mon 5/27/19	Fri 6/7/19
20	Develop Findings and Preliminary Recommendations	30 days	Mon 6/10/19	Fri 7/19/19
21	**Phase III - Develop/support Recommendations**	**15 days**	**Mon 7/22/19**	**Fri 8/9/19**
22	**Phase III - Develop/support Recommendations**	**15 days**	**Mon 7/22/19**	**Fri 8/9/19**
23	Complete Recommendation Write-ups	15 days	Mon 7/22/19	Fri 8/9/19
24	**Phase IV - Report Writing**	60 days	Mon 8/12/19	Fri 11/1/19
25	Provide Draft to Department for Review	10 days	Mon 8/12/19	Fri 8/23/19
26	Modify Draft	5 days	Mon 8/26/19	Fri 8/30/19
27	Prepare Final Report	7 days	Mon 9/2/19	Tue 9/10/19
28	**Issue Final Report**	**5 days**	**Wed 9/11/19**	**Tue 9/17/19**



VII. INDIVIDUAL EXPERIENCE AND QUALIFICATIONS

A. ABBREVIATED RESUMES

Resumes for the following consultants are provided below. They have been modified to reflect the requirements of The Guide.

- Walter P. Drabinski, BSEE, MBA
- Mark Fowler, BS, MBA
- Chuck Buechel, BS, MA
- Mary Lovell, BA, MBA
- Michael Boismenu, PE (NYS)
- Cynthia Pepper, BA, MA
- Michael Boismenu, PE (NYS)
- Howard Axelrod, BSEE, MSEE, MPA, PhD Economics
- James Purser, CPA
- John Nelson, MSEE, PE
- Andrew Ackerman, PE
- Patrick J. Spilman, PE
- Ron Rebenitsch, PE, BSEE
- Clifton Oertli
- Robert T. Dyer, BSEE, MBA
- Marie Davidson, CPA, MBA
- James Habberfield
- Shannon A. Clements

RESUME OF MR. WALTER P. DRABINSKI

AREAS OF SPECIALIZATION

Mr. Drabinski is President of Vantage Energy Consulting LLC. He has almost 40 years of experience in the utility industry as both a utility company manager and a management consultant. His functional expertise includes all aspects of utility strategy, organization, executive and financial management, operations practices, productivity improvement, operations and maintenance, and engineering, environmental and construction management. As a utility manager, Mr. Drabinski held the positions of System Training Director, Fossil Generation; Supervisor, Electrical Maintenance; and Operations Project Engineer for Niagara Mohawk Power Corporation. As a management consulting principal, he has worked for national firms and has been President of Vantage for over 22 years. During that time he has managed more than 125 consulting engagements, including over 75 state regulatory commissioned audits. A summary of his assignments includes:

- performed 23 comprehensive and focused management audits;
- performed 19 affiliate audits;
- performed 22 fuel audits;
- reviewed 9 environmental compliance plans;
- monitored POLAR auctions 32 times;
- performed 11 prudence reviews;
- testified before regulatory bodies approximately 90 times; and
- provided direct consulting advice to approximately 22 utilities or large utility related companies.

SELECTED CONSULTING EXPERIENCE

PSE&G – Project Manager and Lead Witness for an audit of the Company's Unbundling, Stranded Cost, and Restructuring plans and testimony. On this assignment, under the auspices of the New Jersey Board of Public Utilities, Vantage was the lead firm for a consortium of five consulting firms that addressed numerous critical and cutting edge issues. These included areas such as reconciliation of the regulatory and FERC books, development of cost of service studies, assessment of capital additions proposed for stranded cost recovery, calculation of market prices for energy and capacity, calculation of stranded costs associated with nuclear, fossil and non-utility generation, assessment of securitization as a mitigation option, and development of a comprehensive model that determined the possible rate reduction that could be achieved.

Duke Energy North Carolina – Project Director for a review of affiliated transactions associated with the Duke Energy, North merger with Progress Energy Carolina of Florida. The project addressed implementation of merger conditions, an audit of affiliate compliance rules. Affiliated transactions were audited, the Cost Allocation Manual was reviewed and services provided by the Duke Service Company were addressed Duke Energy NC – North Carolina Utilities Commission (2014-2015)

Duke Energy Ohio – Project Director for a review of affiliated transactions between DEO and its affiliates, parent and other regulated subsidiaries. All aspects of compliance with the merger between Cinergy and Duke Energy were reviewed. Affiliated transactions were

Resume of Mr. Walter P. Drabinski

audited, the Cost Allocation Manual was reviewed and services provided by the Duke Service Company were addressed.

Philadelphia Electric Company – Lead Consultant on a retrospective investigation of the Limerick Nuclear Power Plant. Analyzed the Company's financial condition during the construction program and reviewed construction management practices on the project. Prepared testimony for prudence hearings on construction management and financial performance.

Public Service Electric & Gas Co. – Project Manager for a retrospective investigation of the Hope Creek Nuclear Plant. Prepared cost reconciliation that identified reasons for cost overruns. Reviewed construction control tools, productivity results, and analyzed productivity programs for effectiveness. Wrote testimony, answered interrogatories, and assisted in cross-examination of witnesses. Made recommendations on cost tracking systems for future construction projects.

Duke Energy Kentucky – Project Director for a review of affiliated transactions between DEO and its affiliates, parent and other regulated subsidiaries. All aspects of compliance with the merger between Cinergy and Duke Energy were reviewed. Affiliated transactions were audited, the Cost Allocation Manual was reviewed and services provided by the Duke Service Company were addressed.

Duke Energy Indiana – Project Director for a review of affiliated transactions between DEI and its affiliates, parent and other regulated subsidiaries. All aspects of compliance with the merger between Cinergy and Duke Energy were reviewed. Affiliated transactions were audited, the Cost Allocation Manual was reviewed and services provided by the Duke Service Company were addressed.

Louisville Gas & Electric – Project Manager for a comprehensive management and operations review for the Kentucky Public Service Commission. A key element of this audit was the analysis of the Energy Services Company of LG&E Energy, a holding company which was the organizational entity responsible for all regulated generation and non-regulated generation, power marketing, and natural gas transmission activities. This included a special review of affiliated transactions. Acted as Lead Consultant in the areas of power production, fuel procurement, Affiliated Review, Clean Air Act compliance, Energy Policy Act response, and T&D engineering and construction. Assisted in review of strategic planning and power marketing activities. In conjunction with this audit, Mr. Drabinski met with the Commissioners a number of times to discuss issues of industry restructuring and the role the Commission should play.

Indiana Power & Light – Vantage acted as the evaluator, at the request of the Indiana Utility Regulatory Commission, for a three-year program in which customer service and distribution system reliability are being monitored with penalties for missing targets. A major element of this program was enhanced vegetation control.

Dayton Power & Light – Performed a comprehensive review of all fuel procurement and fuel utilization activities for the PUCO. Visited power plants, coal lab, and other fuel and operations related departments. Recommendations addressed a broad range of strategic and operational issues.

Resume of Mr. Walter P. Drabinski

Centerior Companies (Cleveland Electric Illuminating Company and Toledo Edison) – Project Manager on audit of electric fuel procurement practices and procedures for the Public Utilities Commission of Ohio in 1991. Responsibilities included the review of fuel procurement planning, long-term contracts, and spot procurement. Made recommendations regarding coal contracts, interstate wheeling arrangements, and coal transportation costs. Testified twice regarding results of audit report.

National Gas and Oil Company of Ohio – Lead Consultant on audit of fuel procurement practices for the Ohio PUC in 1986. Reviewed purchasing practices, storage activities, sales practices and policies and procedures. Made recommendations on strategic planning, purchasing policies, and marketing programs.

Monongahela Power (Allegheny Power Systems) – Performed a comprehensive review of all fuel procurement and fuel utilization activities for the PUCO. Visited power plants, coal lab, and other fuel and operations related departments. Recommendations addressed a broad range of strategic and operational issues.

American Electric Power Company – Project Manager on audit of electric fuel procurement practices and procedures of two AEP subsidiary companies, Ohio Power Company and Columbus Southern Power Company in 1989 and 1990 for the Public Utilities Commission of Ohio. Responsibilities included the review of affiliated mines (surface and deep mines) and fuel procurement planning, long-term contracts, and spot procurement. Made recommendations on strategic planning, purchasing policies, contract analysis, and marketing programs. Testified on four occasions regarding results of audits.

Union Light, Heat and Power – Lead Consultant on a management and operations review for the Kentucky Public Service Commission. Responsibilities included all aspects of customer service and electric operations including: CIS; customer accounting; transmission & distribution; system planning; engineering; and construction. Also assisted in the review of the financial reporting relationship of the company to its parent, Cincinnati Gas & Electric, with an emphasis on allocation of costs.

Ohio Electric Co./Ohio PUC – Lead Consultant on a prudence review of the Beaver Valley Power Station. Areas reviewed included CAPCO organization and financing, construction management, project accounting, compatibility of prudence standards, and compliance with Yellow Book standards.

Virgin Islands Power & Water Authority (2014-17) - Diagnostic audit of this electric and water utility that was facing serious financial, operational and infrastructure problems. Vantage, conducted a diagnostic audit which then focused on staffing, infrastructure, strategic planning, and other key issues. A broad range of recommendations were developed to reverse the decline of the utility.

Southern California Edison (2013 - 2015) - Audit of Southern California Edison's Reliability Investment Incentive Mechanism (RIIM) program that addressed almost $2 billion in expenditures dedicated to reliability and increases in utility maintenance staffing. This was a unique project because it approaches reliability from an investment standpoint rather than performance measures only. Activities included in the audit consisted of reviews of capital projects for T&D, determination of projects that were reliability related, a review of SAIDI and SAIFI statistics and impacts due to improvement program and assessment of agreed to

Resume of Mr. Walter P. Drabinski

staffing requirements. Our analysis determined whether the project complied with regulatory orders and statewide standards.

California Independent System Operator – Project Director on an Independent Operational Audit of the CAISO for the period of 10/01 to 10/02. This assignment was performed at the request of the FERC and led to a series of five global recommendations. Shortly after the completion of the audit, Mr. Drabinski testified before the House of Representatives, Subcommittee on Subcommittee on Energy Policy, Natural Resources & Regulatory Affairs.

Pennsylvania Power & Light – Lead Consultant for a comprehensive management and operations review for the Pennsylvania Public Utility Commission. Reviewed all aspects of customer service activities, including CIS and office operations. Also, reviewed system power & engineering, including fuel supply, T&D engineering, environmental, power plant staffing, and plant operations. Reviewed EMF issues and Clean Air Act Amendments compliance planning.

Kentucky Public Service Commission (2010-2017) – Project Director and witness associated with regulatory support related to electric utility generating resource Environmental Cost Recovery (ECR) mechanism for the Kentucky PSC. On this assignment, Vantage consultants reviewed filings from four utilities and then acted as an extension of staff in four separate cases. In total over $5 billion was requested through a separate surcharge after a formal proceeding. Vantage reviewed applications, submitted and reviewed interrogatories, prepared summaries for and briefed the Commissioners and Staff, assisted in hearings and helped draft the final orders.

Consolidated Edison Company – Performed an audit of emergency restoration and outage planning capabilities for the New York PSC. Audit followed a number of large and highly public outages. Major recommendations were made to develop new strategies and programs for addressing reliability and outage response.

Kansas City Power & Light Iatan 1&2 (2008-11) - At the request of the Kansas Corporation Commission (KCC) Staff, provided oversight of the $500 million installation of the Air Quality Control System (AQCS) on the existing (KCP&L) Iatan Unit 1 and monitored construction of the $2 billion Iatan Unit 2 coal fired, supercritical power plant. Reviewed organization, cost, schedule, project controls, contractor performance, contract monitoring, site conditions, and other key attributes associated with a mega-project. Provided regular assessments to the KCC on progress and risks, monitored startup and acceptance testing, and provided testimony in rate cases for both Iatan 1 and 2, with recommendations for almost $240 million in prudence disallowances.

Entergy Corporation – Project Manager for a review of affiliated transactions between Entergy Corporation, Entergy Services, Inc., and a myriad of regulated and non-regulated subsidiaries. This engagement, performed for five regulatory agencies, is in response to the 1991 Settlement Agreement with the SEC, at which time the holding company was formed. The results of this audit included reallocation of almost $5 million and a reconfiguration of reporting requirements.

Sempra Energy (SDG&E and SoCalGas) – Project Director for affiliated audit for 1998 and 1999 calendar years to verify compliance with California PUC restructuring requirements. Assignment included assessment of company plan and audit of affiliate transactions. Acted

Resume of Mr. Walter P. Drabinski

as the lead consultant on areas that addressed Nondiscrimination Standards, Disclosure and Information Standards, and Competitive Services. Recommendations from these reports addressed means of improving compliance.

SDG&E, PG&E, SCE, and SCG – Project Manager on an audit of DSM administrative costs. Conducted for the CPUC CACD, this assignment took place during the period where working groups were assessing issues such as access to utility information and the future of DSM. Vantage provided feedback to a number of working groups on the needs of energy service companies.

Maryland Public Service Commission – Provided technical support in hearings and development of a final order relative to developing a formal procedure for addressing Standard Offer Service (SOS) supplies for its four electric utilities.

North West Energy – Mill Creek Station (2010-2012) - Provided input to the Company and PSC on the use and implementation of this three-unit 150 MW combustion turbine power plant. Monitored construction, startup and initial operation. Visited construction site on a regular basis and provided input to the construction team as well as the Montana PSC. Reviewed quarterly reports and testified before the Commission after each report. Provided insight on in-service criteria testing and other key design and operational elements.

Pacific Gas & Electric Co.– Project Director for affiliated audit for 2001, 2002, 2003, 2004 and 2005 calendar years to verify compliance with California PUC restructuring requirements. Assignment included assessment of company plan and audit of affiliate transactions. Acted as the lead consultant on areas that addressed Nondiscrimination Standards, Disclosure and Information Standards, and Competitive Services. Recommendations from these reports addressed means of improving compliance.

Louisville Gas and Electric/Kentucky Utilities Merger – Assisted with broad range of issues including regulatory strategy, synergy quantification, testimony development, witness preparation, interrogatory development and responses. System reliability and monitoring was a key element of this complex project.

Public Service Electric & Gas Company – Retained by the New Jersey Board of Public Utilities to assess compliance with all Affiliate Compliance and Code of Conduct Rules enacted as a result of restructuring.

San Diego Gas & Electric – Project Manager on an assignment for the California PUC and SDG&E to review the implementation of Performance Based Ratemaking. This assignment included an assessment of financial, operational, performance and culture changes that were impacted by the two-year experimental program. While involved in this project, Mr. Drabinski developed an understanding of the SDG&E holding company formation and its interaction with the proposed industry restructuring.

New Jersey Board of Public Utilities – Director on major project to review hedging practices of the four gas distribution utilities in New Jersey. Working with Pace Energy as a sub-contractor, alternate hedging strategies were developed and proposed using more advanced techniques, including options.

Resume of Mr. Walter P. Drabinski

FERC – Interfaced with Commission and its staff on issues such as Transco structures, restructuring, and ISOs. Prepared a white-paper that addressed a Transmission PBR as a mechanism for incenting utilities.

Maryland Public Service Commission – Monitored all RFP solicitations for 2007 and 2008 bid years. This amounted to nine solicitations for all four utilities in Maryland. Provided oversight on bid day, reviewed applications, provided confidential analysis and briefings to the Commissioners and testified on results.

New Jersey Board of Public Utilities – Director on major project to review hedging practices of the four gas distribution utilities in New Jersey. Working with Pace Energy as a sub-contractor, alternate hedging strategies were developed and proposed using more advanced techniques, including options.

Cumberland Valley Electric Cooperative – Performed a focused management audit of this small, rural cooperative. Worked with management to develop transition to new management team.

Alleghany Power Virginia – Monitored RFP solicitations for 2007 and 2008 bid years. Provided oversight on bid day, reviewed applications, provided a final report on results for the Virginia regulatory agencies.

Delaware Public Service Commission – Monitored all RFP solicitations for 2006 bid year. Provided oversight on bid day, reviewed applications, provided confidential analysis and briefings to the Commissioners and testified on results.

California Public Utilities Commission Telco Division (Attestation Exams) – Mr. Drabinski was the Project Director on seven separate assignments for the CPUC during the period of 2000 to 2002. These included:

- examinations of surcharge collections of "high cost fund" and "teleconnect fund" amounts for AT&T, Verizon, Sprint, and PacBell. In each project significant accounting, interpretational and transmittal errors were discovered, leading to the recovery of amounts well in excess of project costs;
- examinations of claims requests of "high cost fund" and "teleconnect fund" for Verizon, PacBell, and Roseville.

Commonwealth Edison Company – Retained by the Illinois Commerce Commission to investigate outages suffered in downtown Chicago during the summer of 1999. The assessment provided a comprehensive analysis of eight separate outages, with details of causes and recommendations for improvement.

PJM Power Plant Arbitration – Provided testimony and technical assistance on arbitration for an independent power plant built in the PJM region. Issues involved interpretation of PJM rules and contractual issues such as commercial operation date and performance guarantees.

St. Vincent Energy Services Ltd. - At the request of the Board of Directors and Prime Minister, Vantage conducted a review of system reliability and fuel procurement.

Resume of Mr. Walter P. Drabinski

Significant findings resulted in a new strategic plan, a reorganization of management and a legal investigation into procurement practices.

Maryland Public Service Commission – Provided analysis and related testimony on restructuring-related cases in 2007 and 2008. Testimony involved wholesale market issues, portfolio options and rebuttal relative to utility witnesses.

Massachusetts Municipal Wholesale Electric Utility – Performed analysis on options for equipment upgrades at major facility and performed limited life extension analysis.

Seattle City Light – Conducted a controversial audit of Seattle City Light's financial, risk management and governance structure. Serious issues regarding debt, O&M and Capital expenditures were raised. Major recommendations on risk management were developed.

New Hampshire Public Service Commission – Provided technical and strategic assistance under a long-term contract on transmissions and distribution issues. These included ISO strategies, local distribution reliability, asset decisions and general regional concerns.

Arizona Corporation Commission – Provided assistance to the Commission Staff and Commissioners on all restructuring issues under consideration. This includes development of an ISO. The reorganization of cooperatives and G&Ts for deregulation. Development of solutions regarding high costs resulting from California related issues. Reassessment of deregulation orders based on appellate decisions.

Public Service Electric & Gas – Engagement Manager during a long-term engagement with PSE&G. Specific assignments he directed are listed below.

- Developed a 30-year environmental plan, addressing power generation and environmental strategy.
- Assisted in development of innovative rate strategy for Bergen combined cycle unit.
- Worked on a team of utility employees, lobbyists, legislative staff members and the DOE to develop a program for voluntary reduction of CO_2 and global warming initiatives.
- Reviewed gas procurement strategy for 1300 MW of combine cycle generation.
- Conducted a tactical and strategic alternatives study of the Company's fleet of 158 combustion turbine generation plants.
- Developed a plan for complying with the 1990 Clean Air Act Amendments.
- Assisted in a study of the 1992 Energy Policy Act and prepared a report that illustrated how it would impact company operations.
- Wrote and supported testimony in the area of fossil generation on behalf of the Company in a major rate case.
- Developed protocols for NO_x emission trading within NESCAUM.

Kentucky Utilities Company – Project Manager for a comprehensive management and operations review for the Kentucky Public Service Commission. Acted as Lead Consultant in the areas of power production, fuel procurement, transmission operations, and engineering and construction. Provided numerous recommendations to improve

Resume of Mr. Walter P. Drabinski

competitiveness of this already low-cost utility. Met with the leadership of the State House of Representatives and Senate to discuss utility competition and industry restructuring.

BellSouth Telecommunications, Inc. – Project Manager on a review of BellSouth performance under an alternative regulation plan for the state of Kentucky. This is the first of nine states in which the Price Regulation Plan was up for renewal and, as such, was of great interest to the Company and regulators.

GTE of California and Contel of California (now Verizon) – Audited collection procedures and practices for various surcharge activities. Provided a CPA Opinion Letter, (through a subcontractor.)

US West – Provided assistance with quality control and final reviews of work product while an officer with the lead firm. This project reviewed affiliate transactions between parent and its subsidiaries. Assisted in development of model for cost allocation analysis.

Pennsylvania Governor Task Force – Provided input to Governor's office, legislature and PUC on restructuring issues in the State. Issues included handling of stranded costs, securitization, the development of competition, and the education of consumers.

Clean Air Action Corporation – Assisted in development of strategy regarding purchase and sale of emission credits throughout the Ozone Transport Region.

Honeywell/Allied Signal – Provided strategic assistance and research in development of commercial fuel cell. Conducted market research and facilitated meetings with utilities interested in commercial development.

Colonial Chemical Company – Assisted Company in identifying candidates for Selective Non-Catalytic Reduction systems to reduce nitrous oxide emissions from power plants.

Public Service Electric & Gas Company – Retained by the New Jersey Board of Public Utilities to assess compliance with all Affiliate Compliance and Code of Conduct Rules enacted as a result of restructuring.

Duquesne Light Company – Project Manager for a comprehensive management and operations review for the Pennsylvania Public Utility Commission. Mr. Drabinski was also the Lead Consultant in the review of executive management, strategic planning, affiliated relations, and financial management.

Choptank Electric Cooperative – Lead Consultant on a management and operations review for this REA in the State of Maryland. Reviewed all aspects of operations including executive management, organization, construction management, electric operations, system planning, materials handling, purchasing, and customer service.

East Kentucky Power Cooperative – Performed a comprehensive review of all fuel procurement and fuel utilization activities for the Board of Directors. Visited all power plants, coal tipples, and a sampling of mines. Recommendations addressed a broad range of strategic and operational issues.

West Texas Utilities – Project Manager for a comprehensive management and operations review for the Texas Public Service Commission. Acted as a Lead Consultant in the areas of power production, fuel procurement, and customer services.

Resume of Mr. Walter P. Drabinski

Philadelphia Gas Works – Project Manager for a management and operations audit for the Philadelphia Gas Commission. Lead consultant for the review of corporate organization and staffing, customer services, operations, and support functions. Addressed major gas supply planning issues. Managed a series of three follow-up reviews including development of Management Audit Actions Plans, an Audit Compliance Review, and a Review of the 1993 O&M Budget. Testified at numerous Commission hearings on capital budget planning, automatic meter reading, office aggregation, and theft of service.

Maryland Public Service Commission – Consultant for an assignment to review long-term gas purchasing practices of Columbia Gas of Maryland, Baltimore Gas & Electric, and Washington Gas Light. Responsibilities included review of the 1988 plans, recommendations on requirements for future plans, and the training of commission staff personnel relative to conducting similar reviews of future plans.

Kentucky-American Water Company – Project Manager and Lead Consultant for a management and operations review for the Kentucky Public Service Commission. A key element of this audit was the holding company relationship with the many subsidiaries of American Water Works. Investigated the areas of customer service and marketing and engineering/construction.

El Paso Natural Gas Company – Lead Consultant on a productivity improvement project. Performed an in-depth review of all positions in operating divisions and reorganized operating divisions into profit centers. Developed procedures for in-house vs. outside construction decisions, construction scheduling, and cost data collection. Developed a manpower planning model for restructuring responsibilities and staffing levels. Implemented a workforce management program at gas processing plants, compressor stations, and throughout the gathering system.

Western Kentucky Gas Company – Lead Consultant for a management and operations audit of the customer services function for the Kentucky Public Service Commission. Developed plan for consolidating offices, resulting in significant changes in providing customer service.

Philadelphia Suburban Water Company – Lead Consultant/Project Manager on a comprehensive management audit for the Pennsylvania Public Utility Commission. Reviewed all aspects of field operations and water production.

East Kentucky Power Cooperative, Inc. – Performed as a subcontractor on a review of the bidding process for a series of combustion turbines. Analysis included reviews of individual proposals and the bidding process.

General Waterworks Company - Pennsylvania Operations – Lead Consultant in a management and operations review. Reviewed compensation, benefits and staffing, executive management, organizational structure, and corporate policies and procedures.

General Waterworks Company - Pine Bluff Arkansas Operations – Project Manager on a management and operations review. Reviewed finance and accounting, staffing, system operations, organizational structure, and corporate policies and procedures.

General Electric Field Engineering group – Lead Consultant for the implementation of a Job Management Program that included seminars, teaching concepts on work breakdown

structures, budgeting, performance measurement, and critical path scheduling techniques. Overall program was aimed at improving construction management skills of field personnel.

Houston Light & Power – Consultant on South Texas Nuclear Project retrospective analysis. Reviewed construction management procedures and developed testimony for rate case.

Public Service Electric & Gas Co. – Project Manager for a review of the Engineering & Construction Department budgeting and approval process for capital projects at PSE&G. Developed flowcharts and improved methods for processing capital budgeting requests.

OTHER BUSINESS AND PROFESSIONAL EXPERIENCE

System Training Director for Niagara Mohawk Power Corporation. Managed a staff of eleven supervisors and instructors, as well as numerous contractors and part-time training personnel. Developed and implemented a productivity program to improve operating and employee productivity at all fossil power plants. Developed a performance-based progression program for craft personnel and assisted in negotiating contract changes with the International Brotherhood of Electrical Workers. Member of Electric Power Research Institute committee on power plant staffing and training. Chaired Electric Utility Technical Education Council. Developed and taught a seminar on power plant efficiency improvement to operating, management, and regulatory personnel.

Electrical Maintenance Supervisor for Niagara Mohawk Power Corporation. Managed two supervisors and thirty electricians performing electrical construction, maintenance, and repair. Developed and implemented a preventive maintenance program for a six-unit/2000 megawatt power plant. Managed roving maintenance crew, providing personnel, equipment, and expertise to nuclear power plants during outages. Responsibilities included all plant, fuel handling, and pollution control electrical equipment, switchyards, 345 kV overhead and 115 kV underground transmission lines, relay systems, telemetering, and telecommunication systems.

Operation Project Engineer for Niagara Mohawk Power Corporation. Participated in conceptual system design, construction management, and plant start-up of power plants, transmission lines, switchyards and plant electrical equipment. Represented utility during acceptance testing, start-up, and turnover of all electrical power systems, auxiliary equipment, and turbine and boiler instrumentation and control systems.

TESTIMONY

Testimony was provided in the following cases.

- Cases 09-246 and 10-1025 for the Kansas Corporation Commission. Provided direct testimony on prudence of construction for Iatan 1 and Iatan 2 coal fired power plants.
- Montana PSC – Testify quarterly in results of monitoring Mill Creek power plant construction project.
- Case 99-434 Bell South of Kentucky. Audit and modification of Price Regulation Plan.

Resume of Mr. Walter P. Drabinski

- Maryland PSC – Testified approximately 20 times on Provider of Last Resort (POLR) rules, regulation and energy solicitation results.
- Duquesne Light Company – Testified six times regarding POLR solicitations.
- CPUC Telco cases – Testified on eight occasions regarding results of attestation exams of Verizon, PacBell, Sprint, AT&T, and Roseville.
- Testified after acting as independent monitor during energy solicitations in Delaware (2 occasions)
- Commonwealth Edison – Testified before Illinois PSC on outages of 1999.
- PSE&G Restructuring hearing - Lead witness on all aspects of unbundling, restructuring, stranded costs, and deregulation issues.
- Case No. 97-105-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Dayton Light Company for the PUC of Ohio.
- Case No. 95-106-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Monongahela Power Company for the PUC of Ohio.
- Case No. 96-106-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Monongahela Power Company for the PUC of Ohio.
- Case 93-02-041 Financial Audit of the Demand-Side Management Pilot Bidding Program Administrative Services of Pacific Gas & Electric Company, San Diego Gas & Electric Company, Southern California Edison Company, and Southern California Gas Company for the California PUC.
- Case D94-08-023 Mid-Point Evaluation of SDG&E's Base Rates Performance Based Ratemaking Mechanism for the California PUC.
- Case No. 94-219-GA-GCR Management Performance Audit of West Ohio Gas Company for the PUC of Ohio.
- Case No. 91-103-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Toledo Edison for the PUC of Ohio.
- Case No. 91-104-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Cleveland Electric Illuminating Company for the PUC of Ohio.
- Case No. 89-100-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Ohio Power Company for the PUC of Ohio.
- Case No. 89-101-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Columbus Southern Company for the PUC of Ohio.
- Case No. 90-100-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Ohio Power Company for the PUC of Ohio.
- Case No. 90-101-EL-EFC Management Performance Audit of Fuel Related Policies and Practices of Columbus Southern Company for the PUC of Ohio.

EDUCATION

- BSEE from SUNY Buffalo with a concentration in power engineering, including transmission line and large equipment analysis;

Resume of Mr. Walter P. Drabinski

- MBA in Finance and Entrepreneurial Management from the Wharton School;
- Approximately 40 seminars on power plants, transmission and distribution system design and maintenance.

PUBLICATIONS

Primary contributing author of five textbooks developed for the Electric Power Research Institute (EPRI) and the Center for Occupational Research and Development (CORD).

- Introduction to Instrumentation and Control.
- Electronic and Pneumatic Control Devices.

RESUME OF MR. MARK D. FOWLER

SUMMARY OF QUALIFICATIONS

Mr. Mark D. Fowler has over thirty years of management and consulting experience. He has participated in over 100 consulting assignments fulfilling roles from technical advisor to project management. He has consulted on five assignments in Connecticut including four gas utility audits. His education includes a BS and MBA from the University of Tulsa with an emphasis in operations research. He began his career with Buckeye Gas Products with whom he worked in various areas. These areas included supply, storage and distribution of gas liquids via pipeline, rail and truck transport, strategic and tactical acquisitions and divestitures and field operations. He trained in pipeline operations with Williams Pipeline which at the time was an affiliate of Buckeye. He also worked as a financial analyst for Plains Electric Generation and Transmission during the construction of the Plains Escalante Generating Station and associated coal handling and rail facilities. His responsibilities included financial modeling, interfacing with lenders and investment bankers and conducting financial and economic analysis.

Mr. Fowler has worked with large, international consulting firms and smaller niche firms. He has worked on scores of projects with Vantage since 1998. His work has been for utilities and telecommunications providers as well as for regulators. The diverse areas of his assignments include management audits, fuel audits, environmental planning, market analysis, customer service evaluations, affiliate compliance audits, emergency management and process improvements. His client base geographic coverage includes the US, Canada, Australia, Central America, the Caribbean and the Pacific Rim. He has testified before numerous State agencies. He is a student of the evolving utility environment and has both studied and worked on projects related to distributed generation, reliability, micro-grids, service restoration, and state of the art environmental technologies. He maintains offices in Montana and Ann Arbor, MI.

SELECTED CONSULTING EXPERIENCE

Utility Audits

- Lead Consultant on two audits of Central Hudson Gas and Electric. Mr. Fowler's audit responsibility included gas pipeline construction, maintenance and State and Federal regulatory safety compliance, Customer Service operations, work management and emergency restoration.
- Lead consultant on a diagnostic audit of the utility operations of the United States Virgin Islands Water and Power Authority (WAPA). The audit looked at all phases of electric and water utility operations on all three islands on which WAPA operates. The utility was then, and continues to face significant challenges from numerous angles including government accounts receivable, commercial customer defection to self-generation, solar generation by the wealthiest residential customers, rate structure and the inherent challenges of a multi island utility with no interconnection.
- Lead consultant on reviews of the Curacao island utilities of Aqualectra and Curoil. The utilities provide electric, water and fuel services to the islands of Curacao and Bonaire. The Curoil operations face uncertainty over the future of their major

Resume of Mr. Mark Fowler

supplier, the Isla refinery owned by Petróleos de Venezuela S.A. (PDVSA) as well a significant rise in world oil prices on top of already high island prices.

- Lead Consultant for gas system operations in two management audits of Southern Connecticut Gas for the Connecticut Department of Public Utility Control. The audits scope included gas system planning, performance work management, and pipeline safety regulations compliance programs.
- Lead Consultant for gas system operations in a management audit of Connecticut Natural Gas for the Connecticut Department of Public Utility Control. The audit scope included gas system safety performance and pipeline safety regulations compliance programs.
- Lead Consultant for gas system operations in a management audit of Yankee Gas for the Connecticut Department of Public Utility Control. The audit scope included gas system replacement programs, safety performance and pipeline safety regulations compliance programs in light of severe financial duress on the company.
- Team Leader in the areas of distribution operations and management in the California Public Utility Commission's ordered management audit of Southern California Gas. The audit scope included gas system safety performance and pipeline safety regulations compliance programs.
- Lead Consultant and engagement director in several reviews and analysis of Pacific Gas & Electric's gas supply portfolio and trading in conjunction with the California Public Utility Commission's mandated study of affiliate transactions. Examined the gas supply portfolio, trades, pipeline activities and related storage in order to confirm compliance with California PUC affiliate transactions rules. The studies also examined PG&E's gas hedging activities. These reviews covered six calendar years.
- Lead consultant on an audit of Public Service Electric and Gas compliance with New Jersey affiliate transaction requirements. These requirements which mirror those implemented earlier in California were new to the New Jersey utilities. The audit placed considerable emphasis on the new processes designed to stay in compliance with the new regulations.
- Lead Consultant in the review and analysis of SEMPRA Energy's gas supply portfolio and trading in conjunction with the California Public Utility Commission's mandated study of affiliate transactions. Examined the gas supply portfolio, trades, pipeline activities and related storage in order to confirm compliance with California PUC affiliate transactions rules. Included a review of San Diego Gas and Electric and Southern California Gas activities as well as affiliates. Vantage performed these audits for two calendar years.
- Lead Consultant on a series of operations improvement projects for The Gas Company of New Mexico. Areas of examination included the gas construction, maintenance, service, meter reading and customer service.
- Directed a process improvement project for a northeastern US gas distribution company which was reexamining their organization, staffing and locations in an effort to become more competitive. The review included all field distribution operations as well as customer service and logistics.
- Lead consultant for a review of the emergency service restoration efforts of four New Hampshire electric utilities to a major ice storm. These included; National Grid, Hew Hampshire Electric Cooperative, Unitil and Public Service of New Hampshire.

Resume of Mr. Mark Fowler

The review included emergency planning, tree trimming and other storm hardening efforts, emergency response plans and organizations, chronologies of the response efforts, customer service, communications, and intrastate and broader comparisons. The study produced recommendations for each company and for the state as a whole.

- Lead consultant for a review of the emergency service restoration efforts of the Long Island Power Authority and their system operator National Grid to Hurricane Irene. Mr. Fowler led the review of the emergency planning, implementation and results. Mr. Fowler also investigated the customer service organizations response. The study produced recommendations for both LIPA and National Grid (or future operator PSE&G). The resulting report was issued by the NY Department of Public Service using the study results.
- Lead consultant on a long-term process improvement project for Belize Electric Limited (BEL). BEL because of location and the extent of the country lying at low elevation is especially vulnerable to hurricanes and tropical storms. BEL at the time also relied heavily on one primary transmission feed from Comisión Federal de Electricidad (CFE), in the Mexican Yucatan. The improvement process focused on all areas of T&D with emphasis on staffing changes, work management and risk remediation.
- Project Manager on a project to totally revise the emergency response organization and processes of a large Midwestern utility. The project included implementation of the Incident Command System across the organization, standardization of practices in all divisions, improving communications, development of a new Emergency Response Plan and staffing of the organization.
- Lead Consultant on an audit of the Consolidated Edison response to a wind and rain storm which caused significant outages in the Manhattan network as well as the Westchester overhead system. Mr. Fowler's focus was on the T&D response and organization in the Westchester area as well as the customer service organization for the entire company.
- Lead consultant on an investigation into a series of outages that occurred throughout the system in a relatively short period of time. Mr. Fowler focused on two of the suburban outages, one of which was substation focused and the other involved underground facilities. The investigation produced a number of recommendations dealing with infrastructure replacement, maintenance intervals and emergency response.
- Lead consultant in extension-of-staff assignments on two dockets for the Connecticut Public Utility Regulatory Authority. The dockets involved emergency preparation and response as well as refinement of regulations pertaining to obligations and penalties.
- Consultant on a rate study for the City of Marshall Michigan municipal utility, which was undergoing restructuring of its energy supply portfolio. Provided technical assistance in the area of electric generation, transmission and distribution as it pertained to development of electric rates.
- Conducted a review of the actions of the California ISO following the energy crisis of 2000.

Resume of Mr. Mark Fowler

- Developed a complex finance model for a water and wastewater utility which has undergone significant customer reductions due to the economic downturn of the late 2000s after a period of major new construction. The model helped investigate multiple alternatives to survive the downturn with minimal disruption to existing rates and remaining within debt covenants. The utility has since recovered.
- Conducted a series of process improvement projects for Colorado Springs Utilities in electric generation, distribution, gas distribution and customer service. The projects included customer service as well as opportunities for consolidations of redundant services being provided by the different utility groups.
- Lead consultant in a comprehensive management review of the infrastructure construction and maintenance Utility Directorate for Sandia National Laboratory.
- Lead consultant on a long-term assignment to oversee a steam generation and distribution system which was developing a cogeneration facility. During the assignment the utility also expanded operations into very large scale hot and chilled water services.
- Conducted a utility and municipal services review for the City of Corpus Christi, Texas. The review included opportunities for consolidations of redundant services being provided by the different groups as well as improving processes in all areas of utilities, police, fire and street.
- Lead Consultant on numerous assignments involving process improvement, generation mix and work management at power plants throughout North and Central America. Companies involved include Alberta Power, Edmonton Power, Bonneville Power, Plains Electric Generation and Transmission, Belize Electric Limited, Marshall Michigan Electric Utility, PEPCO, Kentucky Power, Aqualectra and Alstrom Development.
- Lead consultant on dozens of assignments involving telecommunications dating back to and even preceding the Telecommunications Act of 1996. Projects have involved MCI, SBC, BellSouth, GTE, Alltel, Contel, United Telephone, Ameritch, Roseville Telecommunication, PACBELL and others.
- Lead consultant on a process improvement project for the Farm Credit Lead consultant for a review of the emergency service restoration efforts of four New Hampshire electric utilities to a major ice storm. These included; National Grid, Hew Hampshire Electric Cooperative, Unitil and Public Service of New Hampshire. The review included emergency planning, tree trimming and other storm hardening efforts, emergency response plans and organizations, chronologies of the response efforts, customer service, communications, and intrastate and broader comparisons. The study produced recommendations for each company and for the state as a whole.
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Affiliate Transactions

- Lead consultant on an affiliate transaction audit of Duke Energy for the North Carolina Utilities Commission. The audit included a review of compliance with merger conditions approved as part of the merger of Progress Energy and Duke. The audit included not only compliance but an assessment of the processes and procedures in place to ensure compliance.
- Lead Consultant and engagement director in several reviews and analysis of Pacific Gas & Electric's gas supply portfolio and trading in conjunction with the California Public Utility Commission's mandated study of affiliate transactions. Examined the gas supply portfolio, trades, pipeline activities and related storage in order to confirm compliance with California PUC affiliate transactions rules. The studies also examined PG&E's gas hedging activities. These reviews covered six calendar years.
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Resume of Mr. Mark Fowler

- Lead consultant on affiliate transaction audits or the affiliate transaction focus of management audits involving American Electric Power, Qwest, Ameritech, New York Telephone, NYNEX, National Grid, Pacific Bell, Public Service Electric and Gas, Duke Energy and others.

Other Utility Experience

- Lead consultant on a diagnostic audit of the utility operations of the United States Virgin Islands Water and Power Authority (WAPA). The audit looked at all phases of electric and water utility operations on all three islands on which WAPA operates. The utility was then, and continues to face significant challenges from numerous angles including government accounts receivable, commercial customer defection to self-generation, and solar generation by the wealthiest residential customers, rate structure and the inherent challenges of a multi island utility with no interconnection.
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Resume of Mr. Mark Fowler

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- Lead consultant on dozens of assignments involving telecommunications dating back to and even preceding the Telecommunications Act of 1996. Projects have involved MCI, SBC, BellSouth, GTE, Alltel, Contel, United Telephone, Ameritech, Roseville Telecommunication, PACBELL and others.
- Lead consultant on a process improvement for the Farm Credit Administration.

EMPLOYMENT EXPERIENCE

- Director Business Development-North America-Hansen Industries, Melbourne, Australia (2000-2001)
- Senior Financial Manager- Plains Electric Generation and Transmission (1985-1986)
- Director Gas Supply and Distribution- Western US- Buckeye Gas Products (1979-1985)

EDUCATION

- Bachelor of Science, Business Administration, University of Tulsa
  Master of Business Administration, University of Tulsa

RESUME OF MR. CHUCK BUECHEL

AREAS OF SPECIALIZATION

Mr. Buechel has worked on numerous consulting assignments for electric, gas, water, and telephone utilities. The primary focus of many of these assignments has been regulatory matters, however, he has consulted on other matters, including corporate and strategic planning, incentive regulation, least-cost planning, workforce management, and competitive bidding.

Prior to consulting, Mr. Buechel spent over nine years on the Staff of the Kentucky Public Service Commission. During his tenure at the Commission, he was public utility economist, Director of Research Division, and Deputy Executive Director. His assignments at the Commission included: the preparation of an integrated resource planning regulation; coordinating a statewide load management committee to investigate time-of-day rates and other load management issues; directing staff in rate cases and special investigations; writing orders as directed by the Commission; establishing a management audit program; and testifying in selected cases.

SELECTED CONSULTING EXPERIENCE

Duke Energy Ohio – Lead consultant for a review of affiliated transactions between DEO and its affiliates, parent and other regulated subsidiaries. All aspects of compliance with the merger between Cinergy and Duke Energy were reviewed. Affiliated transactions were audited, the Cost Allocation Manual was reviewed and services provided by the Duke Service Company were addressed.

Pacific Gas & Electric Co. – Senior Consultant for affiliated audit for 2001 and 2002 calendar years to verify compliance with California PUC restructuring requirements. Assignment included assessment of company plan and audit of affiliate transactions. Acted as the Lead Consultant on areas that addresses Nondiscrimination Standards, Disclosure and Information Standards, and Competitive Services. Recommendations from these reports addressed means of improving compliance.

Public Service Electric & Gas Company – Retained by the New Jersey Board of Public Utilities to assess compliance with all Affiliate Compliance and Code of Conduct Rules enacted as a result of restructuring.

Delta Natural Gas – Assisted with the preparation of an application to increase rates and modify rate design. Testified on rate design changes for larger commercial and industrial customers as well as other specific charges.

Columbia Gas of Ohio, Inc. - Consultant for a management and operations audit. The audit was for the Public Utility Commission of Ohio. Areas of responsibility included requirements forecasting and flexible transportation program.

Kentucky Public Service Commission - Witness testifying on behalf of GTE Products Corporation in Kentucky Public Service Commission Case No. 10498, a request by Columbia Gas of Kentucky, Inc. to raise its rates. The testimony supported the continuation of a flexible rate for the transportation of natural gas to industrial customers with alternative fuel capability.

Resume of Mr. Chuck Buechel

TESTIMONY

Testimony was provided in the following cases.

- Federal Energy Regulatory Commission on behalf of the Kentucky Public Service Commission regarding AEP's membership in PJM and the KPSC's role in approving the membership.
- Case No. 2003-00434, Kentucky Utilities' rate case, before the Kentucky Public Service Commission on behalf of North American Stainless regarding a proposed non-conforming load tariff.
- New Jersey Board of Public Utilities on behalf of the Staff of the NJBPU regarding Public Service Electric & Gas' cost of service studies and unbundling proposals in support of its Restructuring Plan.
- Case Nos. 2009-00548 and 00549, Kentucky Utilities and Louisville Gas & Electric rate cases, before the Kentucky Public Service Commission on behalf of the Kentucky School Board Association.
- Case No. 2010-00204, transfer of Kentucky Utilities and Louisville Gas & Electric to PP&L, before the Kentucky Public Service Commission on behalf of the Kentucky School Board Association.

OTHER BUSINESS AND PROFESSIONAL EXPERIENCE

President, Utility and Economic Consulting, Inc., February 1989-Present. The company provided utility, regulatory, management, and economic consulting services. The consulting engagements described above were performed since the formation of UEC.

Deputy Executive Director for the Public Service Commission of Kentucky, 1986-January 1989. Primary responsibilities included:

- Managing staff, through their directors, to ensure that cases were processed according to operating procedures and in a timely fashion.
- Working directly with the staff to develop regulatory policy positions for presentation to the Commissioners. One of the key policies developed involved a revised regulatory scheme to promote a more competitive environment for the delivery of natural gas.
- Preparation of a proposed comprehensive planning regulation for the Commission. The regulation, which is applicable to the state's electric utilities, specified filing requirements for the reporting of load forecasts and resource information including demand-side management and supply-side options.

Director, Division of Research, for the Public Service Commission of Kentucky, 1983-1986. Primary responsibilities included:

- Managing and providing direction for the economic research staff. The staff provided economic advice to the Commission concerning regulatory issues arising in the electric, telephone, gas, and water industries. This included making case assignments, reviewing the economists' work, preparing budgets, as well as other administrative duties.

Resume of Mr. Chuck Buechel

Public Utility Economist for the Public Service Commission of Kentucky, 1979-1983. Primary responsibilities included:

- Assisting the Commission in implementing procedures and policies to meet the federal mandates of the Public Utility Regulatory Policies Act (PURPA). This involved performing cost-of-service studies, developing alternative rate design proposals, and testifying on the ratemaking standards in Section 111 of PURPA.
- Developing the Commission's regulations pertaining to cogeneration.

Assistant Professor, Department of Economics, for Morehead State University, 1976-1979. Primary teaching responsibilities were investments, introduction to economics, and intermediate macroeconomics. Other teaching responsibilities included managerial economics and computer programming in BASIC. Committee work included membership on the Southern Association Self-Study and the Committee on Student Life.

EDUCATION

B.S. in Economics with Honors, University of Kentucky
M.A. in Economics, University of Kentucky
Ph.D. Candidate, University of Kentucky

RESUME OF MS. MARY S. LOVELL

AREAS OF SPECIALIZATION

Ms. Lovell provides 25 years of experience as a senior manager of a major gas utility and as a management consultant positioning companies to succeed in the increasingly competitive natural gas industry. She creates motivated, collaborative teams who tackle complex problems, identify opportunities and achieve results.

She has obtained approvals for equity issuance and merger from ten state regulatory commissions within one year of shareholder approval. Acquisition increased customer base by over 50% and increased the number of states the Company served by 100%.

She has also provided testimony in regulatory proceedings and depositions. Topics include open access transportation, business organization, allocation of shared services costs, rate design and gas supply contracts. Managed high profile consulting engagement that covered three years and analyzed over $1 billion worth of client's purchased gas adjustments and regulatory compliance.

She served as a Chairperson of select company-wide task force to formulate Company's position on competition and open access. Was a member of Management, Retirement, Technology committees.

SELECTED CONSULTING EXPERIENCE

Gas Hedging Review - New Jersey Board of Public Utilities – Director on major project to review hedging practices of the four gas distribution utilities in New Jersey. Working with Pace Energy as a sub-contractor, alternate hedging strategies were developed and proposed using more advanced techniques, including options.

Project Manager engagement which analyzed over $1 billion worth of client's purchased gas adjustments and compliance over a 36-month period marked by changing processes, systems, and people. Created work plan, directed staff, managed client expectations, created deliverables. Issued report to client within six months of project start date. Co-manager of business process transformation engagement.

Southern Gas Association – Developed and delivered continuing professional education for SGA and its distance learning subsidiary (CTN). Courses included introductory and intermediate rates, advanced gas accounting for managers and supervisors. Developed series of programs on Sarbanes Oxley for corporate boards of energy firms.

MSL Group, LLC. - Provided litigation support, management consulting services for natural gas industry and not-for-profit organizations.

PREVIOUS BUSINESS EXPERIENCE

Arthur Andersen LLP – Dallas, Texas, 2001-2002
Major public accounting and consulting firm.
Senior Manager –Risk Consulting

Resume of Ms. Mary Lovell

Managed consulting engagements valued in excess of $1 million with key pipeline and utility accounts. Services related to litigation support, best practices, strategic direction, process management, operations transformation, business integration. Client initiated follow-up engagements as a result. Areas of expertise: strategy, organization design, gas accounting, supply, rates/regulatory, contract management, billing, litigation strategy.

Atmos Energy Corporation – Dallas, Texas, 1988 – 1998
Sixth largest gas natural gas distribution company serving over one million customers in thirteen states. Company was top quartile performer and executed four acquisitions during this period.

Senior Vice President- Utility Services – 1995-1998
One of six officers reporting directly to Chairman, President & CEO. Led Marketing, Gas Supply, and Rates & Regulatory Affairs functions in shared services environment. Co-chair of merger integration teams which planned business reorganization following merger and major technology investment. Reorganization reduced labor *costs over 20%. Company now is among the lowest cost providers in the industry. Technolo*gy increased efficiency and facilitated subsequent acquisitions.

Vice President, Rates & Regulatory Affairs- 1990-1995
Directed all aspects of Company's regulatory activities before federal and six State Regulatory Commissions. Increased revenue over $28 million. Secured merger approvals from four State Regulatory Commissions within seven months of shareholder vote. Contributor to due diligence team. Negotiated reductions in gas cost and increased service flexibility with pipeline suppliers during pipeline restructuring. Co-coordinated management audit conducted by regulatory authority. Responsible for operating budget of approximately $2 million.

System Vice President, Rates- 1988-1990
Created department that provided leadership to Company following a major acquisition. Initiated necessary changes to services, contracts and rates in the wake of pipeline supplier filings and FERC actions. Teamed with Gas Supply Vice President to reduce gas costs while maintaining adequate and flexible supplies. Evaluated gas supply contracts in view of changing markets and regulatory environment.

Gulf South Pipe Line Company (formerly known as United Gas Pipe Line Company)
Houston, Texas, 1982 - 1988
Major interstate natural gas pipeline company.

Director Rates
Leader in rate department during time of historic industry restructuring by FERC and reorganizations due to acquisitions. Company filed numerous rate and certificate applications which addressed the dynamic business and regulatory environment. Issues such as Orders 380, 436, 636 were addressed. Gas contract obligations and the recovery of related costs were also litigated. Analyzed Company's cost of service, cost classification, allocation and rate design, depreciation and negative salvage, cost of capital and capital structure for regulatory filings. Received ***substantial revenue***

Resume of Ms. Mary Lovell

increases during this period. Drafted tariff terms and conditions, responses to data requests and testimony. Represented Company on Partnership Committees.

Centerpoint Energy (formerly known as Entex, Inc.) - Houston, Texas, 1979 – 1982
Natural gas distribution company serving over 1 million customers in three states.

Rate Associate
Researched and reported competitive analysis of markets and market structures following NGPA of 1978. Evaluated implications for supply portfolio which consisted of inter and intra-state suppliers. Forecast gas costs. Administered and analyzed gas cost recovery mechanisms. Selected and implemented new modeling language for department. Adjunct faculty in business administration, University of Houston.

TESTIMONY

Testimony was provided in the following cases:

- Rate Case 95-010 Western Kentucky Gas Company
- Rate Case Greeley Gas Company
- Rate Case 93I-701G Greeley Gas Company
- Rate CaseU-17779 Translouisiana Gas Company
- Admin. Case 346 Western Kentucky Gas Company
- Rate Case92-558 Western Kentucky Gas Company
- U-19631 Translouisiana Gas Company
- Rate Case8122 & 8205 Energas Company
- Rehearing90-013 Western Kentucky Gas Company
- Rate Case90-013 Western Kentucky Gas Company
- Admin Case 327 Western Kentucky Gas Company
- FERC RP85-209 United Gas Pipe Line Company
- FERC RP85-167 Sea Robin Pipeline Company

EDUCATION

MBA Harvard Business School - Boston, Massachusetts
BA University of Wisconsin-Milwaukee

RESUME OF MS. CYNTHIA HOLSTE PEPPER

Areas of Specialization

Cynthia Holste Pepper brings to her work the understanding of human behavior and organizational behavior learned from more than 30 years of experience as human resources professional and as a management consultant. Within a broad spectrum of private and public companies, she has directed projects on human factors reengineering, advised senior management on culture change strategic and tactical HR issues, developed all levels of total compensation programs designed to support company goals and foster increased productivity, integrated staffing analyses with job evaluation, pay, performance measurement, and employee development programs, written corporate affirmative action plans, and written policies and procedures manuals that facilitated an effective communication program. In an era of cost pressures and productivity requirements, she has worked with organizations to emphasize the values of the organization along with the achievement of performance initiatives. The focus of her work is to achieve the organization's goals and mission through the design and implementation of effective employee programs and strategies.

Cynthia Holste Pepper's work in the utility arena emphasizes the changing nature of the regulated environment. She has worked with utilities to bring about changes that will support a more effective operation. In addition, Ms. Holste Pepper has participated as a Lead or Technical Consultant on 31 management and operations reviews of water, gas, electric and telecommunications companies.

Ms. Holste Pepper is a recognized expert in pay practices and total compensation, and serves as a Commissioner on the Local Officials Compensation Commission for the City of Dearborn. She has given numerous talks on pay practices, including the presentation "Process for Determining Executive Compensation," for the NARUC Staff Subcommittee on Management Analysis. Her work with employee/ management development programs and their support of organizations' strategic goals has been used as a model for a fortune 50 global corporation. She has conducted many training programs on Affirmative Action/ Equal Employment Opportunity and diversity, and the impact of state and federal regulations on the operations of an organization.

SELECTED CONSULTING EXPERIENCE

VI WAPA – Lead Consultant for a management and operations audit of the Human Resources function of the Virgin Islands Water and Power Authority. Assessed the policies, practices and programs related to the efficient functioning and development of the company's personnel, including the policies and procedures, staffing levels, compensation and benefits practices, labor relations, and communications. Developed recommendations that will move the company into a more competitive position through effective cost savings, talent development and succession, changes to the benefits plans and recruitment strategies. (20113

Curoil Power – Lead Consultant for a management and operations review of the human resources functions of this island power company. Recommendations included addressing the challenges of talent acquisition and development in a limited environment.

Aqualectra Power Company – Lead Consultant for a management and operations review of the human resources functions and labor relations for an organization with the challenges of

multiple island sites, limited professional development opportunities, cultural norms and succession planning challenges.

Kentucky-American Water Company - Lead Consultant for a management and operations review for the Kentucky Public Service Commission. Investigated the human resources area, including manpower planning, wage and salary practices, EEO/AA programs, employee benefits, labor relations, management development and training, and safety management. A total of 11 recommendations were made that address potential improvements.

Trenton Water Works - Lead consultant in a management study of the human resources core processes, with an emphasis on process improvement through team involvement. Ms. Holste Pepper is the facilitator for a team comprised of senior utility, City, and State personnel, with a charter to identify and improve core process delivery. A detailed management assessment of the current and recommended processes, along with detailed staffing and organization plans resulting from improvements in core business processes and technological advances are deliverables.

United Water Pennsylvania - Lead Consultant for the review of the human resources policies, practices, and programs as the company was integrated in the United Water organization from General Waterworks. The assessment included recommendations pertinent to blending the two cultures, integrating programs between two previously separate companies, developing personnel, managing compensation, benefits, promotional opportunities, etc. between two culturally-distinct entities.

Philadelphia Suburban Water Company- Lead Consultant for a management and operations audit of the Human Resources function for the Pennsylvania Public Utility Commission. The review included human resource planning and selection, EEO/AA programs, training and development, compensation, supervision, compliance, and productivity and staffing levels (work force management).

Duquesne Light Company – Lead Consultant for a management and operations review of all human resources programs, including the extent to which the design, development, and administration of human resources programs support the corporate mission and goals. Short-term and long-term tactical and strategic issues were identified.

United Illuminating - Lead Consultant for a management and operations review of all human resources programs. Addressed major changes in corporate policies, including wage and benefits programs as Company dealt with economic downturn and rate structure issues.

Pennsylvania Gas and Water Company - Lead Consultant for a management and operations review for the Pennsylvania Public Utility Commission. Ms. Holste Pepper investigated all areas related to human resources, including executive compensation and staffing.

Entergy Corporation - Lead consultant on this review of affiliated transactions. Ms. Holste Pepper assessed various executive and employee compensation programs to determine how they impacted decisions made relative to affiliated relations. Additionally, she investigated the issue of "brain drain" between the regulated and non-regulated segments of the corporation.

Louisville Gas & Electric Company - Lead consultant on this comprehensive management audit for the Kentucky Public Service Commission. Incremental improvements were identified in the areas of executive incentive programs, management of benefit programs, and gains

sharing for employees. These changes were made during a time of considerable downsizing, labor issues, and internal changes from a hierarchical to a team-based organization.

PECO Energy Company - Lead Consultant on a reengineering project of the major utilities Materials Management Department. The assignment included the integration of a new business design into an existing organization. It involved the assessment of the existing HR programs and policies, and a team approach to achieving the desired outcomes and goals. Development of new job specifications, work rules, organization and staffing design, pay levels, recruitment sources, etc. were critical to the success of the project.

Alltel Pennsylvania, Inc. – Lead Consultant for a management review of all human resources programs, including compensation, benefits, staffing programs and costs, labor relations, training and employee development, and regulatory compliance. The cost burden to Pennsylvania ratepayers relative to the total corporate service area was investigated.

Commonwealth Telephone Company - Lead Consultant on the assessment of the Human Resources program within Commonwealth Telephone Company and its parent CTEC Corporation. Reviewed the delineation of Human Resources activities between the two organizations, measured the effectiveness of the design, reviewed staffing levels, compensation, diversity, employee movement, cost allocations, benefits programs and costs, and labor programs.

Union Light, Heat & Power Company - Consultant for a management and operations audit of the Human Resources function for the Kentucky Public Service Commission. The review included human resource planning and selection, EEO/AA programs, training and development, compensation, supervision, compliance, and productivity and staffing levels (work force management).

Pennsylvania Power & Light Company - Lead Consultant for a management and operations audit for the Pennsylvania Public Utility Commission. Ms. Holste Pepper investigated the human resources area, as well as several special objectives including affirmative action and EEO, salaries, wages, and benefits, with emphasis on executive compensation.

Central Maine Power Company - Lead Consultant for a focused review for the Maine Public Utilities Commission. Ms. Holste Pepper investigated the executive compensation and salaries area.

U.S. West, Inc., Advanced Technologies, Inc. and U.S. West Communications - Lead Consultant for regulatory impact reviews for a Three-State Steering Committee (TSSC) of Arizona, Iowa, and Oregon on behalf of the U.S. West Regional Oversight Committee, which is composed of the 14 states served by U.S. West Communications.

West Texas Utilities Company - Lead Consultant for a management and operations audit of the Company's Human Resources function for the Public Utility Commission of Texas. The review included human resource planning and selection, EEO/AA programs, training and development, compensation, supervision, and affirmative action.

Western Kentucky Gas Company - Lead Consultant for a management and operations audit of the Human Resources function for the Kentucky Public Service Commission. The review included human resource planning and selection, EEO/AA programs, training and

development, compensation, supervision, compliance, and productivity and staffing levels (work force management).

Peoples Natural Gas Company - Lead Consultant for a management and operations audit of the Human Resource function for the Pennsylvania Public Utility Commission. The review included all industrial relations training and development, personnel, accident prevention, and employee services functions. Investigated the quality and integration of company programs, the equitable treatment of employees, EEO/AA activities, grievance procedures and results, and safety programs.

New England Telephone Company - Consultant for a focused management and operations review for the Department of Public Utilities of Massachusetts. Investigated the human resources function of New England Telephone (NET) regarding its affiliated transactions with the major NYNEX affiliates.

Philadelphia Gas Works - Consultant for a management and operations audit of the Human Resources function for the Philadelphia Gas Commission. The review included human resource planning and selection, EEO/AA programs, training and development, compensation, supervision, compliance, and affirmative action.

DTE Energy – Consultant for a long-term compensation project including updated market pricing, job reclassification, and complaint resolution.

Semco Energy Gas Company – Long-term consultant in human resources and management problem resolution. Designed and installed a customize market-sensitive compensation program that included detailed reviews of all jobs across the company, appropriate pay positioning, legal and regulatory compliance, customer-centered policies, data capture and annual updates.

Enstar Gas Company – Consultant for resolution of internal personnel issues related to pay, management, customer service roles, and workforce development.

New Mexico Gas Company – Provided determination and restructuring of pay systems as part of due diligence prior to an acquisition by Continental Energy. Provided post-acquisition compensation consulting services to NMG relative to integration efforts.

Education

- MA, Eastern Michigan University (Counseling/Personnel)
- BA, University of Michigan (Psychology)
- Harvard University (Executive Education Negotiation program)

RESUME OF MR. MICHAEL C. BOISMENU PE

RELEVANT CREDENTIALS

Through the past four decades he has been actively involved with all phases of the electric power industry. He has successfully completed major design engineering projects, managed multi-disciplined construction projects, managed a large coal fired power plant, managed regional generation assets, and most recently provided consulting services to a variety of power industry clients. His specific power industry related experience includes the following and is further detailed below.

SELECTED CONSULTING EXPERIENCE

Virgin Islands Power & Water Authority (2014-15) - Diagnostic audit of this electric and water utility that was facing serious financial, operational and infrastructure problems. Vantage, conducted a diagnostic audit which then focused on staffing, infrastructure, strategic planning, and other key issues. A broad range of recommendations were developed including changes to the electric power supply, staffing, and transmission and distribution enhancements.

EPRI Plant Maintenance Planning (2014) – Performed research throughout fossil industry and prepared a report on the status of non-outage power plant planning practices. Included analysis of software systems currently utilized.

Louisville Gas & Electric (2010 – Present) - Provided the independent monitoring of $1 Billion air emission projects at impacted power plants to enable the Company to meet current EPA regulations.

Kentucky Utilities (2010 – Present) - Provided the independent monitoring of $1 Billion air emission projects at impacted power plants to enable the Company to meet current EPA regulations.

Northwest Energy – Mill Creek Station (2010-12) – Monitored the construction of this three-unit 150 MW combustion turbine power plants for the Montana Public Service Commission. Visited construction site on a regular basis and provided input to the construction tem as well as the Montana PSC. Reviewed quarterly reports and testified before the Commission after each report. Provided insight on the In-service criteria and testing and other key design and operational elements.

Lower Colorado River Authority Audit of Affiliate Relations (2010) – Project Manager for review of power plant cost allocations, development of cost allocation manual, and assessment of compliance with agreements with Austin Energy.

Kansas City Power & Light Iatan 1&2 – (2008-11) At the request of the Kansas Corporation Commission (KCC) Staff, provided oversight of the $500 million installation of a Air Quality Control System (AQCS) on the existing (KCP&L) Iatan Unit 1 and monitored construction of the $2 billion Iatan Unit 2 coal fired, supercritical power plant. Reviewed organization, cost, schedule, project controls, contractor performance, contract monitoring, site conditions, and other key attributes associated with a mega-project. Supported the regular assessments to the KCC on progress and risks, monitored startup and acceptance testing, and provided testimony in rate cases for both Iatan 1 and 2, with recommendations for almost $240 million in prudence disallowances.

Resume of Mike Boismenu

OTHER BUSINESS AND PROFESSIONAL EXPERIENCE

T & D System Optimization:

- As the Engineering Standards Director developed materials and methods to optimize the safety, reliability and efficiency of the Niagara Mohawk T&D System. Included the automation of the T&D Engineering Standards development process and integrated the standards with the Work Management System.

Plant Management and Operations:

- Provided total asset management and leadership for the Station in the evolving electric supply business;
- Instrumental in the successful negotiation and settlement of the long-standing real estate tax litigation case with the City of Dunkirk. Resulted in savings of $80 million through the term of the agreement;
- Improved the overall image of the Company through participation in Chautauqua County Reengineering Initiative and the associated Implementation Steering Committee. The initiative resulted in a significant reduction in the size of the County government's Executive Staff;
- Provided the leadership to successfully transition the workforce of the power plant from the regulated electric generation business to a non-regulated electric generation environment;
- Through targeted attrition and position abolishment's reduced the staffing level of the power plant from 208 to 125 employees. This coupled with innovative partnering agreements with vendors resulted in a reduction of the Station's Operation and Maintenance budget by 45% from the previous year's level;
- Provided the organizational design to complete the safe and effective complete of the NRG Dunkirk Power Plant from eastern coal to PRB coal.

Asset Management:

- Provided an assessment of the NRG Big Cajun II operation and maintenance process. Resulted in a significant improvement in availability and a more functional and responsive organization design;
- As the Regional Director of Operations in the NRG Mid-Atlantic Region. Completed an assessment of the operation and maintenance practices and made recommendation and implemented a combination of Station physical, organizational and employee development and improvement programs all of which contributed to the significant reduction it the NRG Indian River Station's forced outage rate;
- As the Regional Director of Operations for the NRG New York Region, developed the Regional plan for emergence from bankruptcy, redirected the Region to assure appropriate input from each generating facility.

Resume of Mike Boismenu

EDUCATION

- Associates Degree in Applied Science – Erie County Technical Institute;
- Lemoyne College – MBA in progress;
- New York State Professional Engineer – 1987;
- Significant in-service professional training

RESUME OF DR. HOWARD J. AXELROD

AREAS OF SPECIALIZATION

Dr. Howard Axelrod has over 40 years of experience in utility planning, forecasting, and strategic regulatory and market analysis. With proficiencies in power systems planning, regulatory economics, and marketing, he offers a multi-disciplinary approach to assessing and solving complex energy issues. Having served on the New York Public Service Commission as special assistant to Chairman Alfred Kahn, then appointed by Governor Cuomo as Director of the Consumer Protection Board's Utility Intervention program, he has gained considerable insights into the needs of energy consumers and the protections they require, especially as the industry becomes less regulated.

Dr. Axelrod also has extensive knowledge of the regulatory initiatives which foster the restructuring of the electric utility industry in the New England, New York, and PJM regions. He is an active participant in New York's Competitive Opportunities proceeding having served on several committees including the stranded cost computation and recovery, Independent System Operator, and Market Power committees. In New Hampshire, he participated in the State's Retail Pilot Project and helped a major New York utility prepare its market entry in New Hampshire and Massachusetts. As a consultant to the FERC, he supported the development of the Draft Environmental Impact Statement for the Mega-NOPR (FERC Order 888 and 889) for which he analyzed emerging transmission technologies that would enhance competition and also developed the industry structure scenarios used to assess a the environmental impact of a competitive energy market.

ORGANIZATIONAL CONSULTING

Dr. Axelrod has performed a number of organizational studies for electric and gas utilities. His primary specialty is the analysis of planning, forecasting and marketing processes. He has supported a number of utilities in re-engineering these functions in the Company's effort to transition to a competitive market. The planning areas have included both integrated resource planning and strategic planning. For the marketing function, he has supported the development of both retail and wholesale marketing strategies and organizations. Dr. Axelrod has also performed several "best practices" studies for wholesale and retail marketing and has used these findings to recommend organizational and process changes to significantly improve performance. On several occasions he helped management prepare its organization for an integrated planning environment and collaborative proceedings.

Dr. Axelrod has completed organizational consulting assignments on behalf of Georgia Power, Oglethorpe Power, Long Island Lighting Company, KPL-Gas Services, Wallingford Electric Department, and the City of Dover Electric Department. For state regulatory agencies, Dr. Axelrod reviewed the planning and marketing organizations of the following utilities: Pennsylvania Electric; Metropolitan Edison; Pennsylvania Power and Light; Public Service Electric & Gas; Delmarva; Kentucky Utilities and Louisville Gas & Electric.

STRATEGIC PLANNING

Dr. Axelrod has performed a range of strategic planning engagements to over twenty major municipal and investor owned electric utilities. He has led and facilitated five strategic plans for such clients as The Energy Authority, the New York Power Authority, Omaha Public Power

Resume of Dr. Howard Axelrod

District, American Transmission Company and Detroit Edison (DTE). Other strategic advisory clients have included Southern Company, Georgia Power, Oglethorpe Power, PSE&G, the Edison Electric Institute, Western Resources, and the NYISO. As a best practice, he has also introduced risk management techniques and tools to evaluate business uncertainty, as well as future opportunities and threats. Ten utilities have subscribed to Energy Strategy, Inc.'s Risk Management Training seminars for which over 150 utility planners have participated.

WHOLESALE MARKET ISSUES

Dr. Axelrod has been actively involved in the development of competitive wholesale markets since its inception in the late 1990's. He has supported the formation of efficient and effective markets in New York, New England, and PJM. Dr. Axelrod's clientele have included a broad range of market participants including regulators, trade organizations, large energy users, independent power producers and wholesale traders and risk managers.

As leading energy economists, Dr. Axelrod was invited in 2006 to join a small group of noted economists including the late Dr. Alfred Kahn and Nobel Laureate Vernon Smith to jointly prepare an open letter to regulators and other policy makers to refrain from abandoning the development of competitive wholesale markets because of the well-publicized rate increase sought by Baltimore Gas and Electric in Maryland.

Dr. Axelrod has also been a leading advocate of enterprise risk management (ERM) as a best practice for controlling transactional risks and has been retained by a number of institutions to support the implementation of such programs. His clients have included the NYISO, NYPA and Southern Company.

UTILITY RATE-MAKING AND REGULATORY POLICY ANALYSIS

Dr. Axelrod has extensive rate-making experience having served as a staff member of the New York Public Service Commission and as Director of Utility Intervention for the New York Consumer Protection Board. He has testified in over 75 proceedings and managed over 200 rate cases. As a management consultant for the last ten years, Dr. Axelrod has supported the development of a range of regulatory strategies for major electric and gas utilities.

Dr. Axelrod has provided expert testimony in areas addressing cost of capital, wages and salaries, labor and total factor productivity, energy and sales forecasts, excess capacity, rate phase-ins, economic impact, nuclear "need for power" prudence, affiliate transactions and promotional rate practices. He has also been lead consultant in rate settlement proceedings before state and federal regulators.

His clients have included Georgia Power, Northeast Utilities, Western Resources (KPL), Brooklyn Union Gas, Boston Edison, Eastern Utilities Associates, Midwest Resources (Iowa Power), Oglethorpe Power, Northern Indiana Public service, Old Dominion and New York State Electric and Gas.

MARKET ANALYSIS, MARKETING AND COMPETITIVE ASSESSMENT

Dr. Axelrod has performed a wide range of studies in the areas of market analysis, sales forecasting and marketing. He is an experienced strategic planner and marketing facilitator and process analyst. He has supported a number of major utilities develop comprehensive business and marketing strategies focused for both customer retention and expansion. He has also been

retained to review and assess planning, forecasting and marketing processes and recommend changes in response to the transition to a competitive energy market. He has helped utilities develop customized marketing programs for key customer accounts, area and economic development, electric and gas technology assessment, gas main extension strategies and natural gas vehicle programs.

His clients have included Public Service Electric and Gas, Long Island Lighting Company, Brooklyn Union Gas, Orange & Rockland Utilities, Georgia Power, Oglethorpe Power, New York State Electric & Gas, and Western Resources. In addition, as part of comprehensive management audit studies, Dr. Axelrod has evaluated wholesale and retail marketing at Pennsylvania Electric, Metropolitan Edison, Pennsylvania Power & Light, Kentucky Utilities and Louisville Gas & Electric.

STRATEGIC PLANNING, MERGER AND ACQUISITION ANALYSIS

Dr. Axelrod has extensive experience in the areas of strategic planning and merger and acquisition analysis. He has supported a number of electric and gas utilities develop strategic and business plans. On several instances he has facilitated senior management strategic retreats. Dr. Axelrod has also performed independent studies assessing the acquisition of electric and gas utilities. For Commonwealth Edison he was instrumental in the company's successful defense of a City of Chicago takeover bid. He also performed acquisition studies of Long Island Lighting Company's gas division, Finger Lakes Gas Company and Savannah Electric. For a major southeast utility, he performed risk analysis of a number of gas acquisition opportunities.

Dr. Axelrod has completed strategic planning, merger and acquisition analysis assignments on behalf of Commonwealth Edison, Brooklyn Union Gas, The Village of Urbana, NY and other confidential utilities.

EDUCATION

Ph.D. - Managerial Economics, Rensselaer Polytechnic Institute, Troy, New York.

M.B.A - Organizational Theory and Marketing, State University of New York, Albany.

M.S.E.E. - Power Systems, Northeastern University, Boston, Massachusetts.

B.S.E.E. - Power Systems, Northeastern University, Boston, Massachusetts.

RESUME OF JOHN NELSON

AREAS OF SPECIALIZATION

Extensive experience with planning, design engineering, startup engineering, testing, maintenance, inspection and operation of Electrical Power Systems including the generation, transmission, distribution and utilization of electrical power. Worked on development of fuel sources, fuel contracts and alternative energy sources, and provided technical assistance and professional analysis on legal cases involving electrical related failures and accidents.

He has held a series of positions at NEI Electric Power Engineering since 1984. Prior to that he was an Adjunct Professor at the University of Colorado at Denver and worked for Power Line Models, Inc.

EDUCATION

Bachelors of Science, Electrical Engineering, **University of Illinois at Urbana-Champaign**

- Masters' of Science, Electrical Engineering, University of Colorado,
- University of Colorado, Boulder, Colorado

LICENSES

- Registered Professional Engineer in Alaska, Arizona, California, Colorado, Louisiana, Massachusetts, New Mexico, Utah, Wisconsin & Wyoming

PROFESSIONAL CAPABILITIES & EXPERIENCE

- Planning, design engineering, startup engineering, testing, maintenance, inspection and operation of Electrical Power Systems including the generation, transmission, distribution and utilization of electrical power.
- Development of fuel sources, fuel contracts and alternative energy sources.
- Technical assistance and professional analysis legal cases involving electrical related failures and accidents.
- Served on numerous committees for the advancement of IEEE.
- Served and chaired several technical committees for a major electrical utility.
- Performed numerous in plant inspections on major electrical equipment.
- Provided safety and training seminars to employees and clients regarding the design, operation and maintenance of electrical power systems.
- Provided technical assistance on industry/utility interface between electrical substations & Cogeneration plants with the electric utility.

RESUME OF MR. ANDREW ACKERMAN

Andrew is responsible for managing NEI's day to day operations including Accounting, Information Technologies, and General Administration at **NEI Electric Power Engineering, Inc.** Andrew actively consults with clients and engineers for power system projects in a diverse array of industries. Andrew has over 18 years of experience at NEI managing multidisciplinary teams, performing detailed design, providing planning studies, performing financial analysis, and providing field engineering services.

Extensive experience includes planning, design engineering, startup engineering, testing, maintenance, inspection and operation of Electrical Power Systems including the generation, transmission, distribution and utilization of electrical power. He has worked on development of fuel sources, fuel contracts and alternative energy sources, and provided technical assistance and professional analysis on legal cases involving electrical related failures and accidents.

He has held a series of positions at NEI Electric Power Engineering since 2000. .

E*mployment History*

2018 – Present	**NEI Electric Power Engineering, Inc.** Wheat Ridge, Colorado Chief Operating Officer
2008 – 2017	**NEI Electric Power Engineering, Inc.** Wheat Ridge, Colorado Vice President
2000 – 2008	**NEI Electric Power Engineering, Inc.** Wheat Ridge, Colorado Electrical Power Engineer

Education

December 2000	**University of Colorado at Denver** Denver, Colorado Masters of Business Administration
June 1991	**United States Merchant Marine Academy** Kings Point, New York Bachelor of Science, Marine Engineering Systems

Registered Professional Engineer

- California (2007), Colorado (2005), Florida (2007), Louisiana (2017), New York (2017), New Hampshire (2009), Utah (2008), and Wyoming (2007)
- Select Work Experience

The following is a select list of past project experience segregated by project type. For additional projects, more information on a specific project, or reference contact information, please do not hesitate to ask.

NEI Electric Power Engineering, Inc.

Utility Planning, Consulting and Audits

- **New Hampshire 2008 Blackout** – Utility Emergency Response Assessment
- Was on a team that interviewed all four major electric utilities in New Hampshire to assess their emergency preparedness and response to the 2008 blackout that left nearly half a million customers without power.
- Wrote and edited parts of a final report submitted to the New Hampshire Public Utilities Commission outlining our findings and enumerating specific recommendations pertaining to engineering, maintenance, emergency preparedness, emergency response, and vegetation management.

Utility Substations

- **Lee County Electric Cooperative**
- Retrofitted (3) existing 138kV-25kV Substations to an in and out configuration and add a second low side bus with tie breaker to improve system reliability. Retrofits included new protective relay panels, SCADA additions, and all interconnection design.
- Retrofitted (2) existing 138kV-25kV Substations to ring bus configuration and provided new substation protection and transmission line relaying.
- Protective relaying upgrade design and replacements.
- Perform substation commissioning and energization.
- Continued design, review, commissioning, and general engineering support.
- **Climax Substation** – Climax Mine
- Substation was a 138kV high side open air substation with (2) 56MVA transformers and a low side 13.8kV switchgear. Substation located at 11,500 feet requiring special considerations for high altitude design.
- Full design package of pen air substation to interface with low side switchgear. Design included electrical, civil, ground grid, cable schedule, bill of materials, wiring diagrams, SCADA, and protective relaying.
- Commissioned and energized the substation.
- **Pumpkin Buttes Substation** – Powder River Electric Cooperative, Basin Electric
- 100MVA 230kV/69kV substation with two owners.
- 230kV was a breaker and a half configuration and a ring bus configuration was used for the 69kV bus with a tie to a natural gas peaker generation plant.
- Performed entirety of electrical and civil engineering design. Provided system studies and protective settings for 69kV substation and transformer.

Renewable Generation

- **Chowchilla Biomass Plant**
- Provided engineering support and field services in re-starting retired biomass generating plant.
- Provided electrical and civil design of new 15MVA PG&E/CAISO interconnect substation including protection, metering, and SCADA.

Oil and Gas

- **Kome Electrical Reliability & Maintenance** – {PRIVATE CLIENT}
- Currently provide on-call electrical support for an oil production facility in Chad, Africa.

- Over the past 5+ years, participated in multiple in-country efforts including generator MV frame reconstruction following arc-fault event, substation tripping troubleshooting, overhead line reliability during lightning storms, UPS maintenance program, 7000hp, 6.6kV VFD root failure analysis, load shedding optimization, generator rotor replacement, and polymer injection load planning.
- **Generator and Switchgear Upgrades** – Hilcorp Alaska
- Provided specifications and turnkey engineering design for new MCC and GIS switchgear onboard the King Salmon and Dolly Varden oil platforms in the Cook Inlet.
- Performed on-site testing, commissioning, and start-up services.
- Provided Automatic Load Shedding Scheme using SEL RTAC.
- Offshore Oil Facilities Electrical Review (Nigeria) – {PRIVATE CLIENT}
- Over the course of twelve months participated in multiple in-country investigations including generator load shedding, generator synchronizing, ground fault trips, motor failures, UPS maintenance program, and general electrical preventative maintenance review.
- Provided comprehensive list of recommendations to improve electrical reliability through equipment replacement and improved maintenance procedures. Recommendations included priorities and specifications for new equipment.
- Stewarded the specification, purchase, and factory inspection of new fin fan motors.

Hydro Generation

- **Micro-Hydro Project**– Soldier Canyon Filter Plant
- Provided design for reconfiguration of plant utility service to include new Revenue and Production Metering.
- Design included interconnection of 265kW micro-hydro generator.

Field Engineering Services

- **PAR 701 – Power distribution system improvements** – MWRD
- Spent 2 years on site at the Robert W Hite Treatment Facility as the Owner's engineer.
- Answered RFI's, reviewed pay applications, provided construction QA/QC, worked with contractor to schedule work around process limitations.
- Field engineered solutions to meet construction schedule and reliability concerns.

- **Annual Relay and Equipment Maintenance Testing** – MWRD
- Preformed annual maintenance testing on electrical distribution equipment including MV and LV switchgear, switches, and transformers.
- Tested protective Relays including Schweitzer overcurrent and differential relays. Testing included verifying automatic throw over scheme on medium voltage switchgear.

Electrical System Studies & Relaying

- **System Coordination Study** – Lee County Electrical Cooperative
- Updated Aspen Models for all transmission lines in the LCEC system.
- Recommended relay settings for selective coordination for both distance and overcurrent elements.
- Assisted in developing standard distribution protection settings.
- Generated settings files for protective relays including Schweitzer and ABB.
- **Transmission Loop Coordination** – City of Tallahassee

- Built upon existing Aspen Model to simulate the City's transmission system once their HV loop is closed.
- Recommend protective relaying upgrades and settings based on construction schedules and NERC requirements.
- Coordination and Arc Flash Study – MWRD
- Created power system model in EDSA modeling software and completed short circuit, coordination and arc flash study for Robert W Hite Treatment Facility.
- Converted power system model to SKM modeling software and updated model to reflect new equipment. Provided protection settings for breakers on new construction and updated arc flash incident energy values and labeling.

Institutional and Commercial

- **Cedar City & Pocatello Air Tanker Facilities** – BLM
- Designed low voltage distribution including utility metering connection for two BLM Air Tanker Facilities.
- Provided power one line, panel schedules, cable and conduit schedules, lighting, data and power receptacle layouts, fire/security design, and radio communications.

Professional Activities and Services

Institute of Electrical and Electronics Engineers (IEEE)

- Senior Member Grade
- Member since 2000
- Member of Industry Applications Society
- Member of Power and Energy Society

IEEE IAS Petroleum and Chemical Industry Committee (PCIC)

- Active participant and volunteer since 2010.
- Transportation Subcommittee Chair (2015 – 2016), Vice Chair (2013 – 2014), Secretary (2011-2012)
- Subcommittee Leadership
- Responsible for Subcommittee Technical Papers
- Paper selection and author guidance
- Paper review
- Develop policies and procedures for subcommittee
- Train and mentor new subcommittee leadership
- Electrochemical and Emerging Technologies Subcommittee Secretary (2017 – Present)
- Manage subcommittee documents including meeting minutes, subcommittee member roles, and technical papers

Rocky Mountain Electrical League (RMEL)

- Silver Member, Sponsor, and Active Participant since 2003

American Council of Engineering Companies (ACEC)

- Member and active participant of Colorado Chapter since 2015
- 2015-2017 – TCRH Golden Sock Champion

RESUME OF MR. PATRICK J. SPILMAN

Mr. Spilman is a utility engineer with over 25 years of experience. Much of that work was in the field of utility Information Systems and Operational Control, both as a management consultant and as an employee and officer of Basin Electric Cooperative.

KEY SKILL SETS

WORK EXPERIENCE

- Contracted as a consultant to prepare a business plan for an IT Cyber Security Services practice within a large clients organization.
- Contracted by Basin Electric to continue with the development, installation and start-up of the Energy Trading and Risk Management system. Performed coordination between outside consultants and contractors, Basin Electric personnel, and regional independent system operators (Southwest Power Pool).
- Responsible for the overall "cyber security" and data integrity of the Basin electric Cooperative while ensuring compliance with all legal and regulatory requirements and to establish lines of control for current and proposed information and operational systems.
- Primary leadership position to manage and optimize the convergence of information technology (IT) and operation technology (OT) within Basin Electric. The operational technology used in the facilities is rapidly changing from "closed" or proprietary systems to "open" software based systems.
- Responsible for cooperative energy data analytics - gathering, analysis, manipulation, and utilization.
- Successfully led a Cooperative wide initiative to centralize IT services, networking and computing. IS&T became responsible for purchasing, installation and licensing, of all software and hardware for the Cooperative
- Accountable for the day to day operation of the Information Services and Telecommunications (IS&T) department and that of Basin Telecommunications, Inc. (BTI). IS&T provided networking, application, database, infrastructure, desktop, mobility and help desk services to the Cooperative and members.
- Maintained a staff of five engineers within the IT structure to meet the needs of IT and facility operations. This included SCADA and EMS for generation, transmission, and CO2 pipeline.
- Developed, implemented, and exercised a cost effective disaster recovery and business continuity plan for the Cooperative.
- Accountable for the oversight and responsibility for supervising, recruitment, development, retention and organization of all IS&T staff in accordance with corporate budgetary objectives and personnel policies. Staffing included 104 full time employees with an overall expense budget of $28.8 million and capital budget of $7 million.
- Successful in initiating and leading a two year initiative to unify Basin Electric's facilities onto a common voice platform, to improve operational efficiencies and economy.
- Continuously monitored the telecommunication business, regulatory, legal and legislative issues, and evaluated their effect on the Cooperative and Members

while being a source to Senior Management in these areas.

EDUCATION AND CERTIFICATION

- BS Electrical Engineering – University of North Dakota
  BS Civil Engineering – University of North Dakota
  Licensed Professional Engineer 3226 – State of North Dakota

RESUME OF MR. RON REBENITSCH

RELEVANT CREDENTIALS

MBA, and licensed professional engineer, with broad experience in the energy industry, particularly renewables, including wind, solar and biomass, as well as a comprehensive grasp of industry issues, such as distributed generation, combined heat & power (CHP), alternative energy, carbon constraints, power supply costs, transmission, deregulation, energy tariffs and legislative policy. Extensive experience in proforma development, project management and litigation avoidance. Career experience includes roughly $3 Billion in utility and renewable energy projects.

SELECTED EXPERIENCE

Current and Recent Activities: Founder and President of Energy Engineering, Inc, an independent consulting firm providing services to the power industry. Significant activities over the past 5 years include:

- Wind project development for multiple projects (200 MW each) in the Midwest. Activities include siting, business development, contract negotiation, landowner relations and business development
- Technical advisor & author for NRECA/CRN publications on a renewable energy publications and battery storage and distributed generation, including reciprocating internal combustion engine generation (RICE units).
- Former board director for OwnEnergy Inc., a developer specializing in mid-size wind projects (OwnEnergy was purchased by EDF Renewables)
- Senior Energy Engineer, SIA Solutions – providing renewable energy analysis, distributed generation options and studies for military and government installations.
- CEO - Managing a start-up company, developing projects using biomass-to-chemicals and liquid fuels technology
- Project development for military base energy security and oilfield applications focusing on reciprocating internal combustion engine (RICE) generation.
- Site manager for an Alaska utility project owner - $22 million small hydro/pipeline project
- Project development work & feasibility studies for CHP, distributed generation and alternative energy.
- Former Executive Director – South Dakota Wind Energy Association
- Registered Lobbyist for Wind Energy – South Dakota
- Solar Business Plan for small utility
- Former Member of Rapid City Mayor's Sustainability Committee
- Technical advisor for a 15 MW wind project in New York

Basin Electric Power Cooperative, Bismarck, ND -- 35 Years from 1976 to 2011

Manager of Alternative Technologies & Wind Project Manager

As vice-president of wholly-owned wind subsidiary, responsible for the development of over $600 million of cooperative-owned wind projects and distributed generation, including waste heat recovery (using geothermal technology), plus negotiation of over $400 Million in power purchase agreements from 3rd party developers. Duties also included development of proformas for distributed generation, including RICE units, technical support to member cooperatives on issues including consumer key accounts, self-generation, power quality, and economic analysis. This position also involved extensive local and national interaction with the public, state legislatures, governmental agencies and elected officials, as well as frequent public presentations, including events sponsored by the US Dept. of Energy.

Responsibilities as Basin Electric's Wind Project Manager/Developer

- Vice President for two wholly-owned Prairiewinds subsidiaries (Investments of $250 Million & $350 Million, respectively)
- Landowner, State, County and Local hearing/meetings
- Wind project's site selection and acquisition
- Power purchase agreements
- Project budget
- Environmental Permitting, including completion of Federal NEPA Environmental Assessment and Environmental Impact Statement for projects
- Federal Requirements for Section 106 Tribal Consultations
- Federal Aviation Administration Permits
- Landowner leases and relations
- Site modeling and turbine micro-siting
- Project procurement: Turbines, construction, substation/transmission, etc
- All site design & engineering
- Construction management
- Project commissioning
- Settlement of all claims
- Final reclamation, contract closeout, and project turnover to Operations Division

Civil Engineering Supervisor

Developed and led the civil engineering division, including surveyors and designers. During this timeframe, completed MBA and began providing economic analysis for proposed projects as well as technical support to Marketing and members. This technical support included extensive coop member and consumer contact.

Civil Engineer

Civil design, construction quality control and construction management for large power plants and other miscellaneous infrastructure projects.

SUMMARY OF NOTEWORTHY PROJECTS AND EXPERIENCE

- Extensive experience in project management on large projects
- Active roles in litigation avoidance and claims resolution in roughly $3 Billion of utility projects
- Consultant and Owner's Site Manager for a $22 million civil engineering project to address re-licensing requirements for a hydroelectric dam in Alaska.
- Project Manager for the siting, development and construction of 120 MW wind project in North Dakota and a 162 MW wind project in South Dakota which also included participation by a community-based group of 600+ local investors. Both projects were completed under budget and well exceed projected production targets. (See "Responsibilities" below)
- Developed, implemented and managed renewable energy credit (REC) marketing program for renewable resources. This program ranked in the U.S. top 10 for several years based on volumes sold and currently manages/markets over 2 million RECs per year (1 REC represents 1 MWH of renewable generation).
- Negotiated & oversaw development of 44 MW (8 sites) of waste heat recovery projects.
- Project manager for a $2 Million Department of Energy "Wind-to-Hydrogen" R&D project.
- Participated extensively in rate-making, particularly renewable-related rates.
- Ongoing evaluation and investigation of alternative technologies, including geothermal, biomass, distributed internal combustion, small hydro, micro-turbine, etc., to incorporate into the power supply portfolio. New technologies were monitored for competitive advantages and threats.
- Member of the buyout team for acquisition of the $1.2 Billion Great Plains Synfuels Plant. Developed the initial computer economic model used by the buyout team to analyze the Plant's economic structure and feasibility of asset purchase.
- Developed Basin Electric's first spreadsheet model to determine marginal power production costs for power marketing purposes.

ACTIVITIES IN PUBLIC POLICY

- Former Board Director for Utility Wind Integration Group, a national technical research organization for the integration of wind energy into the electrical industry.
- Former committee member on Western Governors Association wind task force subcommittee
- Former member of NERC wind task force

- Participated in the early development of Midwest Renewable Energy Tracking System and the Western Renewable Energy Generation Information System.
- Authored industry articles on wind energy in Energy Central and The Futurist.
- Former Chair of Cooperative Research Network's (CRN) Renewable Energy Member Advisory Group – funded research projects, including geothermal, wind, biomass, etc.
- Former chairman for ND Society of Professional Engineers' legislative committee and registered lobbyist for seven legislative sessions.

EDUCATION & CREDENTIALS

- MBA (w/emphasis on economics), University of North Dakota. Elected member of business honor society, Beta Gamma Sigma
- BS Civil Engineering, North Dakota State University. Elected member of engineering honor society, Tau Beta Pi
- Other Graduate Studies: Environmental Engineering at North Dakota State University
- Licensed as a Professional Engineer in ND, SD and CO.
- Several industry awards for achievement or leadership

RESUME OF MR. CLIFTON OERTLI

Clifton is responsible for managing NEI's growing team of 45+ electrical and civil engineers. In addition to his managerial responsibilities, Clifton still actively consults with clients and engineers for power system projects in a diverse array of industries. Clifton has over 10 years' experience at NEI managing multidisciplinary teams, performing detailed design, providing planning studies, performing financial analysis, and providing field engineering services.

E*mployment History*

2018 – Present	**NEI Electric Power Engineering, Inc.** Wheat Ridge, Colorado Chief Engineering & Sales Officer
2013 – 2017	**NEI Electric Power Engineering, Inc.** Wheat Ridge, Colorado Vice President
2007 – 2013	**NEI Electric Power Engineering, Inc.** Wheat Ridge, Colorado Electrical Power Engineer

Education

May 2013	**University of Colorado at Denver** Denver, Colorado Masters of Business Administration
May 2009	**Colorado School of Mines** Golden, Colorado Masters of Science, Engineering Systems Electrical Power Specialty Advisor: PK Sen
May 2007	**Colorado School of Mines** Golden, Colorado Bachelors of Science, Engineering Systems Electrical Specialty

Registered Professional Engineer

- California (2010), Colorado (2011), Minnesota (2011), North Dakota (2013), Nebraska (2013), Ohio (2014), Michigan (2015), Pennsylvania (2016), Maine (2017), and New York (2017).

Select Work Experience

The following is a select list of past project experience segregated by project type. For additional projects, more information on a specific project, or reference contact information, please do not hesitate to ask.

NEI Electric Power Engineering, Inc.

Utility Planning, Consulting and Audits

- Capital Plan & Impact Fee Analysis – Provo City Power
- Utilizing Aspen and Milsoft, provided 20-year capital planning study for the City of Provo, including new substations, additional feeders, sub-transmission line voltage upgrades, and addition of capacitors/regulators.
- Developed cost estimates for each project and performed financial analysis to develop an electrical impact fee rate table based on service voltage and type.
- Fort Collins Capital Planning & Load Growth Study – Fort Collins, CO
- Developed basis for distribution load growth projections and modeled in City software.
- Generated load scenarios for 20 years and assess current electrical infrastructure.
- Developed capital projects and cost estimates to alleviate load growth contingencies.
- Assessed O&M practices and developed recommendations based on industry best practices.
- New Hampshire 2008 Blackout – Utility Emergency Response Assessment
- Was on a team that interviewed all four major electric utilities in New Hampshire to assess their emergency preparedness and response to the 2008 blackout that left nearly half a million customers without power
- Wrote and edited parts of a final report submitted to the New Hampshire Public Utilities Commission outlining our findings and enumerating specific recommendations pertaining to engineering, maintenance, emergency preparedness, emergency response, and vegetation management
- HV/MV Electrical Reliability Initiative – {PRIVATE CLIENT}
- Performed a full audit of past datacenter design documents, engineering records, testing records, maintenance records, as well as current company standards and specifications.
- Traveled to all US datacenter facilities (and 1 international) to audit on-site teams and equipment against documentation.
- Provided comprehensive report summarizing opportunities to improve electrical reliability and maintainability ranging from design through operations and maintenance.

Utility Substations

- Reid EHV Substation – Big Rivers Electric
- Retrofitted existing 345kV radial yard into ring bus configuration for interconnection of new 345kV tie-line to adjacent Vectren Energy.
- Performed electrical engineering design, equipment specifications, system studies, and protective relay settings.
- Performed substation commissioning and energization.
- BAL and Belcogen Substations – Belize Electricity Limited
- Each substation was a 25MW generation step-up radial configuration, with high-side voltages of 69kV and 115kV, respectively
- Reviewed full design package including electrical, civil, cable schedule, bill of materials and vendor drawings
- Traveled to Belize to commission each substation with local engineers
- Gill Ranch Substation – Interstate Electrical Contractors
- 175MW 115kV/12.47kV substation

- Performed entirety of electrical design and system studies.

Renewable Generation

- Owners Engineering Review Services – Lincoln Clean Energy
- Provide ongoing engineering review design services for substation, transmission line, and collection system design on multiple EPC wind farm projects.
- Work closely with Owner, EPC Contractor, and engineering subcontractor to ensure designs are accurate, reliable, constructible, and on budget/schedule.
- Buffalo Dunes Wind Farm Substation – ALSTOM Grid
- Performed engineering design and system studies to construct a 250MW 345/34.5kV wind farm interconnection substation in Kansas. Instead of outdoor bus, the project utilized 34.5kV Gas Insulated Switchgear (GIS).
- Traveled to site to perform testing, commissioning, start-up, and SCADA check-out services.

Hydro Generation

- PPL Montana Hydroelectric Upgrades – PPL Montana
- Upgraded protective relaying, switchgear, transformers, and balance-of-plant equipment at Morony, Ryan, Cochrane, Black Eagle, and Holter power plants over a 4-year period.
- Provided turnkey engineering design, installation, and commissioning services.
- Taylor Draw Hydro – Rio Blanco Water Conservancy District
- Designed new Allen Bradley PLC replacement at a 2MW, single turbine plant, including local HMI and remote control center.
- Performed installation, startup and acceptance testing on-site.

Conventional Generation

- Birdsall Plant Relaying Upgrade – Colorado Springs Utilities
- Developed specifications and performed engineering design to replace existing electromecahnical relays on all three natural gas generators.
- Work included detailed demolition and construction documents, panel retrofit details, and bill of material.
- Performed on-site installation and wiring of new panels, followed by commissioning and startup services.
- Comanche Relaying Upgrade – Xcel Energy
- Performed engineering design to upgrade Unit 2's existing electromechanical relays, including GSU and auxiliary transformers, with microprocessor relays.
- Developed comprehensive settings calculations and native files to comply with strict NERC reliability requirements.
- Provided on-site commissioning oversight and startup services.

Field Engineering Services

- Lenoir Substation Field Engineering – GE Grid Solutions
- Spent over 4 months on site overseeing substation contractor and providing QA/QC for the construction of a 100/25kV, 250MW substation, which was designed by others.

- Field engineered solutions to meet construction schedule and reliability concerns.
- Provided full testing, commissioning and start-up services.
- Annual Relay Maintenance Testing – Mountain View Electric Assn.
- Preform annual maintenance testing on all MVEA transmission, transformer, and distribution relays using Omicron test set.
- Relays include ABB, Beckwith, Schweitzer, and electromechanical.

Electrical System Studies & Relaying

- System Coordination Study – Belize Electricity Limited
- Built ETAP and Aspen Models for all transmission and distribution lines in Belize from 115kV to 6kV
- Recommended relay settings for selective coordination for both distance and overcurrent elements
- Generated settings files for protective relays including GE, Schweitzer and Beckwith
- Transmission Loop Coordination – City of Tallahassee
- Built upon existing Aspen Model to simulate the City's transmission system once their HV loop is closed.
- Recommend protective relaying upgrades and settings based on construction schedules and NERC requirements.

Institutional and Commercial

- University On-Call Engineering Services – CU Boulder
- Provide ongoing electrical engineering support for campus generation, power distribution, and MV assets.
- Past projects include campus-wide electrical modeling and coordination study, annual relay maintenance testing, power quality troubleshooting and solutions, SCADA and RTAC upgrade projects, owner's engineer review for new cogeneration plant, and others.
- Pump House Electrical Service – Hiwan Golf Club
- Provided electrical service design and bill of materials for two irrigation pump houses on the Hiwan Golf Club.
- Worked closely with Hiwan, the City, the Contractor, and the pump manufacturers to ensure proper service ratings and design.

SCADA and Controls

- Substation SCADA Design & Installation – IREA
- Performed engineering design and SCADA programming to install new RTAC and remote I/O modules at nearly a dozen IREA substations.
- Following design, performed on-site installation, testing and SCADA check-out with control center operators.

RESUME OF MR. ROBERT T. DWYER

AREAS OF SPECIALIZATION

Mr. Dwyer has diversified experience base that encompasses CEO and senior level positions. Range of experience includes Generation and Transmission Cooperative, Municipal, Non-utility generation and Investor-owned utility business. Responsibilities have included a range of assignments with excellent accomplishments. A number of these experiences have been in "start-up" environments in the competitive power markets.

PROFESSIONAL EXPERIENCE:

RTD Consulting, LLC **2011-Present**

A firm specializing in unique projects related to wholesale energy markets, energy conservation and managements services. The experience and extensive contacts and relationships established over an extensive professional career have resulted in a network of key leaders and opportunities.

Client List:

- American Municipal Power
- Traverses City Light and Power
- Merced Irrigation District
- Pasadena*
- Cogentrix*
- Missouri River Energy Services
- Moneta Partners*

*Subcontractor to other Consultants

Assignments:

- Development of Risk and Credit policies.
- Evaluating the role of the Risk Officer and areas of responsibilities within the organization.
- Overviewing a proposal to locate the responsibilities for day-ahead trading within the dispatch area of the organization.
- Provided Board of Trustee training on resource planning and basics of RTO operation.
- Resource plan development and implementing the first year of the plan.
- Evaluation of buying out an existing wind energy contract by buying the facility.
- Distributed generation and its application within municipal utility systems.

Resume of Dr. Robert Dwyer

- Investigation of innovated fuels to introduce biomass into existing coal fired generation units.

- **The Energy Authority, Inc. 1997 to 2010**
- **President & CEO**
- TEA became the first stand-alone public power marketing organization. A unique feature of TEA, is it is owned by the public power organizations it serves and is recognized as a leader in the industry. TEA provides a full range of power marketing service, which covers, hourly through long-term purchases and sales, financial products and service, physical and financial natural gas, and all risk management, risk control, power management and scheduling services including all services in structured markets i.e. MISO, PJM, and SPP. Some key accomplishments:
- Returned $1.22 Billion of net income over the first 12 years of operations,
- Exceeded net income expectations in 12 of 13 years of operation,
- Recruited and developed a staff of 160 people from 1997 to 2010 and developed major offices in Jacksonville and Seattle,
- Developed an accomplished senior staff that has CEO level capabilities'
- Increased membership in TEA from 3 to 7 Members and 40 Resource Management Partners (RMPs) with one RMP's scheduled to become member by 2011,
- Increased total capacity under TEA management increased from 8,000 MW to 30,000 MW'
- Expanded geographical area where TEA has members and RMPs from 3 states to 20 states,
- Increased TEA trading partners to over 200 counter parties,
- Established TEA's Natural Gas business to the 6 members and 4 RMP's.

Cinergy Power Marketing and Trading 1994 - 1997

I was responsible for the development of a power marketing organization to provide service to the eastern US, which contributed to Cinergy being in the top five in the energy power marketing and trading business in 1997.

Midland Cogeneration Venture 1989 to 1994

Vice President, Bulk Power Sales & Industrial Development

The position supported the "start-up" requirements for the project. The project went on-line 9/90 with (350 MW) available capacity and energy to be sold. Success required the recruiting of staff, business planning and development of an operational plan to maintain qualifying status as a QF under PUPRA. All of these plans culminated with power sales to Ontario Hydro and steam sales to Dow Corning, which successfully maintained the QF status.

Resume of Dr. Robert Dwyer

Plains Electric Generation & Transmission Cooperative, Inc. **1980 to 1989**

Albuquerque, NM

Vice President – Administration

This position was required to support the building of a 210 MW coal fired generation station. The organization grew from 40 people to 312 in three years. I was responsible for recruiting the planning, contracts, forecasting, rates, and financial staff (21 professionals). It also required the development of a plan and implementation of all transmission services and obtaining the approval of rates through the NM Public Service Commission. I was the principal witness in all proceedings before the NMPSC and supported all federal and state lobbying efforts for the organization working with the NM Rural Electric Cooperative Associations.

Jacksonville Electric Authority 1974 – 1980

Division Chief, System Planning Division

Responsible for all generation, transmission and distribution planning. This division had a staff of 26 professional positions. Major accomplishments resulted in the approval of construction of a jointly owned coal generation unit and ownership in a 500KV transmission line, which when built, resulted in JEA enjoying the lowest rates in Florida for a number of years.

EDUCATION:

- University of North Florida, MBA
- University of Florida, Gainesville, BSEE Power Option
- Registered Professional Engineer: Florida-#16382

RESUME OF MS. MARIE H. DAVIDSON, CPA

AREAS OF SPECIALIZATION

Ms. Marie Davidson has been a Senior Consultant with Vantage for over 15 years and has extensive experience in the electric and gas utility industries. Her consulting experience includes the areas of accounting, cost of service allocation methods, project cost management, and holding company affiliated transactions. She was a member of the Ernst & Young Utilities Consulting practice from 1988 to April 1995, where she provided expertise in the areas of utility accounting, ratemaking, financial planning, and operational analysis.

Prior to that period, Ms. Davidson was a senior accountant with Arthur Andersen & Co. where she planned and supervised financial audit engagements for retail, manufacturing, and government contracting concerns. In addition, she evaluated financial control systems of client companies, prepared financial forecasts and assisted clients with public stock offerings. She was also employed in the Pratt Group Treasury Department, a large international manufacturing concern in Melbourne, Australia. Her duties included arranging for short-term borrowings from the company's banks and analyzing the financial results of the company's U.S. operations.

SELECTED CONSULTING EXPERIENCE

Duke Energy Carolinas – Lead consultant for a review of affiliated transactions between DEC and its affiliates, parent and other regulated subsidiaries. This audit addressed merger compliance issues that were mandated by the Merger of Duke and Florida Progress Energy. Affiliated transactions were audited, the Cost Allocation Manual was reviewed and services provided by the Duke Service Company were addressed.

Duke Energy Ohio – Lead consultant for a review of affiliated transactions between DEO and its affiliates, parent and other regulated subsidiaries. All aspects of compliance with the merger between Cinergy and Duke Energy were reviewed. Affiliated transactions were audited, the Cost Allocation Manual was reviewed and services provided by the Duke Service Company were addressed.

Long Island Power Authority (LIPA) – Consultant for a review LIPA's outage management and system restoration which examined: (1) the preparation for Tropical Storm Irene; (2) LIPA's performance in restoring electric service to customers; (3) LIPA's communications with its customers and with municipal and other government officials responsible for responding to emergencies during and after Tropical Storm Irene; and (4) emergency response plans. Responsible for analyzing and quantifying costs associated with the storm response and for evaluating LIPA's storm-related accounting procedures and records management.

Public Service Electric & Gas – Senior Consultant on a comprehensive review of all competitive services and affiliate standards based on recently implemented Affiliate Rules in New Jersey. Ms. Davidson addressed the issue of cross-subsidization for the overall organization. This included extensive work with SAP and other accounting systems.

Sempra Energy – Lead Accountant for an independent audit of the holding company's compliance with the affiliated interest guidelines established by the California Public

Utilities Commission. Projects included San Diego Gas & Electric and Southern California Gas Company.

New Jersey Board of Public Utilities – Assisted in the evaluation of Public Service Electric & Gas's stranded cost quantification as part of the utility's electric deregulation proposal. Testified before the Board of Public Utilities regarding the utility's calculation of deferred income taxes, accumulated depreciation, and electric plant balances. This included a reconciliation of FERC and regulatory balance sheets, analysis of proposed changes of T&D depreciation rates, an assessment of proposed capital additions, reconciliation of cost-of-service inputs, analysis of depreciation and tax changes needed for stranded cost calculation, and assessment of tax implications of tax issues of securitization.

Entergy Corporation - Consultant for an affiliated relations audit for five commissions composed of four states (Arkansas, Louisiana, Mississippi, and Texas) and the city of New Orleans. Audit focused on transactions between the regulated affiliates and the non-regulated affiliates, but included an overall review of all transactions which was performed using statistical sampling.

California Utilities - Consultant on this financial audit for the California Public Utility Commission of Pacific Gas & Electric, Southern California Edison, San Diego Gas & Electric, and Southern California Gas Company's Demand-Side Management Pilot Bidding Program comparing administrative costs and services between the utilities and developing recommendations and methodologies for future competitive services with energy service companies.

Pacific Bell, AT&T, Sprint and Verizon – Lead Consultant for an Attestation Examination of Surcharge Revenues collected for the California High Cost Fund B and the California Teleconnect Fund. Project was done for the respective committees at the CPUC.

Baltimore Gas & Electric Company - Directed a review of the Company's affiliated company transactions and policies. Identified and quantified additional costs which should be allocated to the non-utility subsidiaries and developed new inter-company cost allocation procedures. Developed expert testimony.

Jersey Central Power & Light Company - Reviewed the company's accounting, cash management, internal audit, affiliated transactions, and financial management practices as part of a comprehensive management audit.

South Jersey Gas Company - Reviewed the company's accounting, financial management, income taxation, regulatory affairs, and internal audit practices as part of a comprehensive management audit.

Centra Gas British Columbia - Conducted a cost of common service allocation study in order to develop an allocation of common operating and maintenance costs to the Fort St. John district.

Southeast Compact Commission - Conducted a review of all actual and budgeted expenditures to be incurred in constructing a low-level radiological waste facility. Developed recommendations for improving the estimation of project costs.

Village of Freeport - Directed the cost of service analysis prepared in connection with the village's proposed addition of new generating and transmission facilities.

Abitibi-Price Inc - Assisted in the review of Newfoundland and Labrador Hydro's proposed new cost of service methodology and developed portions of expert testimony relating to cost of service methodologies.

Commonwealth Electric Company - Reviewed the company's budgeting and cost control practices as part of a focused management audit.

Duquesne Light Company - Reviewed the company's accounting, internal audit, financial management, and affiliated transactions practices as part of a comprehensive management audit.

Destec Energy Corporation - Developed an alternate basis for pricing cogenerated power.

Public Utility Commission of Texas - In a prudence review of the South Texas Nuclear Project, Ms. Davidson evaluated the cost overruns that were incurred during the project's construction and assessed the actions that were taken by the project's owners to minimize the construction costs. Ms. Davidson developed portions of expert testimony relating to cost analysis of the project and presented testimony for the PUCT staff on quantification of unreasonable costs.

Cajun Electric Cooperative - Developed a methodology to quantify damages pursuant to a litigation claim and identified information which would be required to calculate damages.

Texas-New Mexico Power Company - In a prudence review of Texas-New Mexico Power's TNP One Project, Ms. Davidson performed a cost management analysis. This task required reconciling actual cost increases to the conceptual estimate. In addition, Ms. Davidson developed portions of expert testimony relating to financial prudence of the project.

Arizona Corporation Commission - In a prudence review of the Palo Verde Nuclear Generating Station, Ms. Davidson quantified the costs associated with delays in placing nuclear units in operation by assessing past and future differences in system-wide energy costs and fixed costs of operations. Ms. Davidson also calculated the net present value of costs and benefits ratepayers would realize as a direct result of the delay in placing these nuclear units in operation and developed portions of expert testimony relating to revenue requirements analysis.

State of Vermont - Assisted the State of Vermont in its evaluation of the projected financial statements of one of its electric cooperatives. Developed a financial projection model and prepared expert testimony.

EDUCATION

MBA, University of Virginia

BSBA, Georgetown University (cum laude)

Ms. Davidson is a Certified Public Accountant

RESUME OF MR. JAMES HABBERFIELD

RELEVANT CREDENTIALS

Experienced **Energy Consultant and Executive** with a demonstrated history of **managing energy** portfolios and trading, working with distributed generation and renewable energy, and leading complex regulatory programs. Demonstrated history of working with utilities, stakeholders, and public interest groups, and leading energy innovation. Strong **Business Development and Project Management** background with a passion for energy and emerging energy technologies.

SELECTED ENERGY INDUSTRY EXPERTISE

- Extensive energy industry knowledge, including state regulations, Public Utility Commission filings and approval processes, regional and national energy market rules and standards, and federal energy regulation and legislation.
- Leading Regulatory Filings and Project Management, heading compliance efforts, and designing and implementing innovative energy programs.
- Served on industry committees such as PJM, NERC, and Pennsylvania state collaboratives.
- Worked in wholesale and retail markets, including pricing, trading, and program design.

Energy Market Trading and Portfolio Risk Management

- Including Bilateral Contracts, Options and Forward Contracts.
- Daily Spot Market trading on regional electricity markets including PJM, NYISO, MISO, ERCOT, ISO-NE, exchange trading such as NYMEX and CME.
- Managing commodity portfolios, open positions, Value at Risk (VaR) analysis, price forecasting and volatility analysis.
- Hosted RFP's and Online Auctions to fulfill utility commodity supply needs.

Distributed Generation and Renewable Energy

- Developed energy infrastructure plans and projects, including microgrids, renewable energy such as wind and solar, geothermal, and biogas.
- Worked with power plants and wind farms to increase revenue in regional electricity markets.
- **WGL Energy;** Washington, DC - Developing energy investment opportunities for WGL Energy. Focused on distributed generation, renewable energy, geothermal, fuel cells, and energy storage opportunities in Pennsylvania. Leading efforts to construct the energy system for the Hazelwood Green development in Pittsburgh.

Resume of Mr. James Habberfield

Business Planning and Strategy

- Crafted business plans, Investor Pitches, and Marketing Plans.
- Responsible for Budgeting, Forecasting, and analysis.

Sales, Business Development, and Project Development

- Drove Sales and Business Development, prospecting and networking.
- Developed relationships with Stakeholders.
- Managed accounts for Customers, Suppliers, Vendors, and Partners.
- Extensive Pricing and Contract Negotiation experience.

Big Data, Advanced Analytics, and Software Design

- Experienced with Big Data, Artificial Intelligence, Machine Learning, and Advanced Analytics.
- Led product design for energy software and analytics tools.

kWantera, Inc.
Senior Vice President of Commercial Operations

- Recruited to join kWantera, a technology start-up that used artificial intelligence technology to make specific trading and operational recommendations to energy market decision-makers.
- Quickly promoted to executive level and acted as a member of the five-person leadership team that determined all strategic business decisions for the company.
- Doubled Revenue within one year of being put in charge of Commercial Operations.
- Improved Customer Satisfaction by 50% by building strong customer and partner relationships.
- Created an improved Commercial Strategy and grew the Sales Pipeline by 400%.
- Won a major deal by signing GE as a partner. Developed a product for renewable generators and then fully licensed it to GE as part of their Digital Wind Farm in 2016.
- Successfully launched multiple new products by guiding the Product Development process.

Duquesne Light Company

Supervisor, Forecasting and Supply Procurement

Forecasting and Risk Management Specialist

- Led strategic projects including multiple successful regulatory outcomes in front of the Public Utility Commission.
- Responsible for all power supply needs for the company, including wholesale trading and conducting auctions.

Resume of Mr. James Habberfield

- Increased company revenue by $40 Million by successfully testifying as a company witness in multiple successful rate hike proceedings in front of the Public Utility Commission.
- Drafted forecasts and business plans for Board approval, and led Business Development efforts.
- As project leader, led the company's default service team to a successful outcome in our regulatory filings to the Public Utility Commission. Submitted written testimony, multiple rounds of rebuttal testimony, and worked with the legal team to draft briefs and petitions.
- Designed and won approval from the PUC for the utility's first Time of Use rate plan for customers who have received smart meters. Drafted program rules and supply contracts for retail suppliers.

EDUCATION

- **University of Pittsburgh, Pittsburgh, PA**, Bachelor of Science - Dual Major: Economics and Business

RESUME OF MS. SHANNON A. CLEMENTS

RELEVANT CREDENTIALS

An accomplished writer and editor who has broad experience with complicated, technical repots. She has a Bachelor and Master degrees in English and communications, and has worked with many non-profits agencies as a grant writer. She will fill the role of editor on this assignment.

SELECTED EXPERTISE

- Freelance writer for not-for-profit organizations serving low-resource, high-need minority and refugee constituents in youth and adult healthy living, mental health, trauma and substance abuse prevention (drugs, tobacco) housing, community education, pre-K and early elementary programs, job skills and employment training, leadership and college prep for high school students, and other related programs.
- Freelance writer for internationally recognized opera theater, volunteer at executive-level events
- Successfully write state and district charter school applications and U.S. Dept. of Ed grants for nationally recognized charter school network in Nashville
- Volunteer at University of Michigan Center for the Education of Women (CEW) and Motor City Dragon Boat Team (part of Ford Employee Recreation Association).
- Led work with national, federal and local foundations: grant research & writing, budget development and reporting; executive-level and stewardship activities with foundations
- Initiated and implemented start-up and operations processes for new 501c3
- Led work with national, federal and local foundations: grant research & writing, budget development and reporting; executive-level and stewardship activities with foundations
- Managed aspects of 3 new charter school start-ups during planning years (Dearborn, San Antonio and Detroit) and pre-development work for one school (Chicago)
- Guided internal and external operations: budget, compliance, HR, facility use and maintenance; training for support staff in accountability, customer relations and presentation skills
- Served as Assistant Secretary of HFLI Board of Directors
- Designed and implemented executive and signature events for 10 people to 1,500 people
- Researched and wrote grants from local, state, federal, and private sources
- Initiated and facilitated relationships with community organizations to fulfill Academy mission
- Developed agendas for and managed Board of Directors' meetings and follow-up work

Resume of Ms. Shannon Clements

- Coordinated projects at the request of the Principal and Chairman of the Board of Directors
- Managed budget projections and developed and coordinated fundraising activities
- Worked with legal counsel to negotiate staff and grant contracts and other legal matters
- Worked with Ford Motor Company and Museum staff to develop public relations materials
- Managed technology infrastructure and physical plant; coordinated new facility development
- Designed and implemented student/staff recruiting and orientation including salaries/benefits
- Worked with board members to review Museo's mission and vision
- Balanced budget and led staff reduction process
- Point of contact for media and public relations issues
- Prepared staff for executive leadership transition
- Implemented and managed fundraising events
- Facilitated scan and integration of Museo and community resources to support new Henry Ford Academy: Alameda School for Art + Design, opened in August 2009
- Simultaneously served as Executive Director and Planning Director of HFA: ASAD
- Developed partnerships with local arts and educational organizations to partner with schools for student programming and support
- Wrote state, federal and private grants, including interim and final reports
- Organized Annual Fund solicitation schedule for 25,000 donors, members and prospects
- Recruited/supported trustees, community leaders, volunteers for Annual Fund solicitations
- Arranged site visits and managed events for individual, corporate and foundation donors
- Managed Annual Fund solicitation process for 10,000 lapsed and current small-dollar donors
- Wrote state operating support grant to MCACA, earning the state's top score 2 years in a row
- Planned, attended and evaluated small and large donor cultivation events
- Worked with volunteers to implement projects, events and mailings
- Developed tracking and thank-you process for contributions to Museum

EDUCATION

Bachelor and Master of Arts, English Minor in Communications Purdue University, West Lafayette, Indiana

VIII. WRITING SAMPLES

The Vantage energy Consulting LLC website has over twenty copies of report on it that can be downloaded or reviewed online. Access can be gained at the following address.

https://vantageenergyconsulting.com/reports.htm

IX. CONFLICTS OF INTEREST

Vantage has surveyed all of its employees regarding potential conflicts of interest.

- Neither Vantage or any of its consultants have performed any work for National Grid or any of its subsidiaries during the last five years. We have no previous work to disclose.
- None of Vantage's employees are former employees of the DPS.
- Neither Vantage, its personnel, or any subcontractor have or will in the future offer any gift, favor, or gratuity of any value, or make any offer of employment to any officer or employee of the utilities or to any Commissioner or Department Staff.
- Finally, Vantage and its consultants agree to not perform any work for National Grid or any of its subsidiaries during the course of the audit.

X. REFERENCES

Kansas City Power & Light Iatan 1&2 (2008-2017)

Vantage has performed two very large and complicated projects for the Kansas Corporation Commission:

Most recently, Vantage analyzed the merger of Westar and KCP&L regarding T&D, Customer Service, Supply Chain and other activities as they relate to the prosed merger. Walter Drabinski testified at the hearings in February 2017.

Vantage provided oversight of the $500 million installation of an Air Quality Control System (AQCS) on the existing (KCP&L) Iatan Unit 1 and monitored construction of the $2 billion Iatan Unit 2 coal fired, supercritical power plant. Reviewed organization, cost, schedule, project controls, contractor performance, contract monitoring, site conditions, and other key attributes associated with a mega-project. Provided regular assessments to the KCC on progress and risks, monitored startup and acceptance testing, and provided testimony in rate cases for both Iatan 1 and 2, with recommendations for almost $240 million in prudence disallowances.

Reference Contact

Jeff McClanahan, Executive Director
Kansas Corporation Commission
785-271-3212
j.mcclanahan@kcc.ks.gov

Kentucky Public Service Commission (2010-2017)

Vantage has provided a broad range of audit and regulatory support related to electric utility generating resource Environmental Cost Recovery (ECR) mechanism for the Kentucky PSC. On this assignment, Vantage consultants reviewed filings from four utilities and then acted as an extension of staff in four separate cases. In total over $5 billion was requested through a separate surcharge after a formal proceeding. Vantage reviewed applications, submitted and reviewed interrogatories, prepared summaries for and briefed the Commissioners and Staff, assisted in hearings and helped draft the final orders.

Vantage had a five year contract to monitor construction and implementation of almost $2 billion of projects.

In addition to the assignment above, Vantage has conducted Comprehensive Management Audits of Western Kentucky Gas, Kentucky Utilities, Louisville Gas & Electric, Kentucky American Water Company; Bell South and East Kentucky Power Company.

Reference Contact

Daryl Newby, Audit Manager
daryl.newby@mail.state.ky.us
502-564-3940

Virgin Island Water & Power Authority (2014-2015)

Management audit of VIWAPA addressed many issues, including the implementation of new generating technology, a move to LPG from oil and the integration of wind and solar. Also,

reviewed implementation of AMI, SCADA, development of a capital budget as well as traditional operational audit activities.

Reference Contact

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Austin, TX 78746
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XI. INSURANCE ATTESTATION

Vantage Energy consulting LLC attests that it will comply with all insurance requirements for this assignment.

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Jean A. Gormley, CEO