STATE OF GEORGIA

CITY OF HAMPTON

RESOLUTION NO. 22-18

WHEREAS, the City of Hampton (hereinafter "City") is governed by the Mayor and Council; and

WHEREAS, the City of Hampton is a provider of electricity to its customers within its service area; and

WHEREAS, to determine the City's sustainability as an electric provider, it is in the City's best interest to engage the services of a professional provider to evaluate by way of a "SWOT" analysis (Strengths, Weaknesses, Opportunities, Threats) the City's electrical utility; and

AND WHEREAS, it is in the City's best interest to engage Patterson and Dewar, an electric firm to serve as the City's consultant to conduct a SWOT analysis of the City's electric utility.

NOW THEREFORE IT IS HEREBY RESOLVED that the City shall engage Patterson and Dewar to serve as the City's electric consultant for the initial SWOT analysis and on an as-needed basis.

SO RESOLVED, this 12 day of July, 2022.

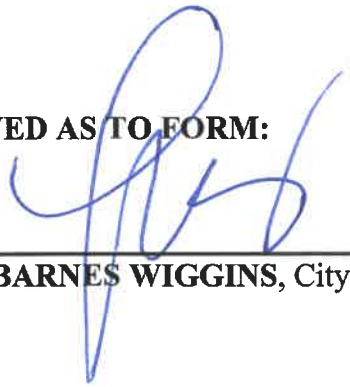
CITY OF HAMPTON, GEORGIA:

ANN TARPLEY, Mayor

ATTEST:

RASHIDA FAIRLEY, City Clerk

APPROVED AS TO FORM:



L'ERIN BARNES WIGGINS, City Attorney

July 1st, 2022

Mr. Alex S. Cohilas, City Manager
City of Hampton
17 E. Main Street South
Hampton, GA 30228

patterson & dewar ENGINEERS

850 Center Way
Norcross, GA 30071

(770) 453-1410
pdengineers.com

RE: Conductor Loading Concerns and Recommended Solutions

Mr. Cohilas,

This memorandum is to provide you with information and solutions regarding a situation of concern on the electric system of the City of Hampton (COH) and to provide Patterson & Dewar's (P&D) professional opinion on the best course of action. We believe an overhead power line on your system is in jeopardy and warrants immediate corrective measure.

COH takes delivery of electricity at two locations. One is at a Georgia Power meter point located next to the COH water tower near Woodlawn Ave and Cunningham Ave. This was the only COH electrical delivery point up until about 2015, when a second delivery point was added from Central Georgia Electric Membership Corporation's (CGEMC) substation located at the intersection of McDonough St. and Hampton Locust Grove Rd. When the arrangements were made for the second delivery point, load previously fed from the water tower delivery point was shifted to be served from the second source. Consequently, the COH owned 1/0 ACSR conductor (overhead electric lines) that provides electric power down Hampton Locust Grove Rd and McDonough St is too small. This 1/0ACSR conductor is loaded well beyond even emergency levels of operation typical in the industry. The below table shows the ratings of the conductor compared to readings provided by the COH Electric Department and by CGEMC:

	1/0 ACSR
Normal Operating Conditions	198 amps
Emergency Operating Conditions	226 amps
June 15, 2022 5:00 – 5:15 pm	300 amps

It is likely that this small conductor has sustained some level of damage as a result of this excessive loading and is in jeopardy of failure. A failure of this type will cause blackouts for the citizens of the COH. Being within the summer months (with COH having already experienced a peak in excess of that seen in 2021), it is critical that action be taken as soon as possible.

P&D performed a Construction Work Plan, a study of the electrical facilities with recommendations for improvements, and delivered this plan to the COH in August 2010. It was to have served as a guide to the COH to prepare the electric distribution system to grow from approximately 8,900 kW to approximately 11,200 kW. Based upon readings from June 15, 2022, the system peaked at approximately 10,500 kW. One of the critical components of that plan was to construct a tie line along the Hwy 20 Bypass with large conductor that would have prevented the emergency the COH faces today.

Based on these loading conditions, the metered data we have reviewed, and the quantity of in-progress and proposed development in the area, we recommend that both immediate, and long-term measures be taken.

Immediate Recommendations:

We advise that portions of the distribution system be switched from the second feed near McDonough St back to the delivery point at the water tower. At a minimum, at least 80 amps (per phase) should be shifted to bring the conductor loading back under emergency operating ratings. Ideally, 100 – 120 amps (per phase) should be shifted to bring loading within the normal operating ratings of the conductor. There was initial concern expressed that the regulator sizes at the water tower would prohibit this, however after a field check performed by P&D and COH Electric Department personnel on 6/30/2022, it was confirmed that there is enough excess capacity to accommodate the additional load.

To accomplish this, P&D can provide estimates and initial recommendations on where switching should take place. Our recommendations should then be field verified during the heat of the day using hot sticks equipped with amp meters to

verify current prior to switching. When switching is done, personnel should be stationed at both delivery points to monitor loading to ensure the desired result is accomplished.

This step should be completed as soon as practically possible and will greatly reduce the risk of substantial failure of this line. We believe this crucial step will provide COH with time to make an informed decision regarding a permanent solution.

P&D can be present when switching is performed to provide counsel and analysis on the results of the switching, if that is desired.

Medium-Term Recommendations:

A permanent solution needs to be identified to properly serve load out of the second delivery point on McDonough Rd. To do this, a second feed is required at this location. At present, two options are worth considering.

One option would be to construct a new feed as proposed by CGEMC. Information was provided to P&D on 6/30/2022 detailing plans that have been discussed with CGEMC to construct a new line. This new line would follow Locust Grove Rd with 336 ACSR conductor (overhead) and would transition to 1000 MCM conductor (underground) before following Rosenwald Dr with 336 ACSR conductor (overhead). The project would conclude at the Rosenwald/E Main St. intersection. The existing electrical facilities along Rosenwald Dr present a substantial cause for concern about this plan. This line is joint-use, sharing poles with Georgia Power Company. The cost to engineer and construct the replacement of existing conductors along Rosenwald Dr will be substantially higher than costs to engineer and construct a new line. Any conductor replacement project would require all facilities to be brought up to current national electric codes and standards, drastically increasing costs of construction.

Another option would be to revisit the previously proposed tie line along the Hwy 20 Bypass. Given what is known about in progress and proposed construction within the COH, we believe the tie line along the Hwy 20 Bypass continues to present a solution that would not only solve the conductor loading concerns presented within this memo but will also position the COH well to be prepared for additional residential and commercial development. The proposed Hwy-20 Bypass line would be mostly new construction.

P&D recommends that one of these two projects be implemented to maintain a healthy electrical system for COH. We propose that a meeting be held between P&D, the City Manager, the Public Works Director, and members of the Electric Department to discuss and evaluate these solutions. Once a solution is identified, design should begin as soon as possible.

Material supply issues are being felt by electric utilities nationwide. If material procurement (through existing COH vendors or the relationship with CGEMC) proves difficult, we advise reaching out to neighboring utilities, Georgia electric cooperatives, Georgia Power Company, or other vendors to try to speed the timeline of this project. In correspondence with P&D, CGEMC expressed willingness to aid in sourcing materials with their vendors. Additionally, they expressed wiliness to utilize CGEMC contractors for construction if available at the time of the project.

P&D is able to provide design of the selected project, permitting assistance, contract development, etc. as needed by the COH.

Long-Term Recommendations:

It is general best industry practice for an electric utility to have in place a long-term plan with short and medium term milestones of system improvements and modifications. The Construction Work Plan prepared in 2010 by P&D no longer serves as such a roadmap to aid the COH in maintaining a healthy electrical system. We believe that the preparation of a Long-Range Plan of the City of Hampton Electric Distribution System is necessary. These plans typically forecast at least 10 years, should be revisited every five years, and should be based on current system data. To accomplish this, a general outline of tasks required is as follows:

- Prepare a Load Forecast to project demand requirements of the future COH system
- Prepare a new engineering model for use in all analysis of the COH system
- Prepare a Long-Range Plan that will include:
    - Evaluation of long-term options to serve the COH system, including a recommendation for the preferred plan based on engineering and economic analysis.

- Detailed construction recommendations based upon the preferred plan
- Detailed system maps of the COH electric distribution system
- Cost estimates for all system improvements
- Budgeting information based upon system O&M costs as well as recommended construction items.
- Other analysis as requested by COH

P&D will provide COH with a proposed scope for these recommended services by the close of business on Friday, July 8th, 2022. Once questions have been answered and the scope has been refined based on COH input, P&D will prepare a full proposal of the requested services.

We look forward to assisting the City of Hampton with this important task.

JD Bush, PE, Manager, Distribution & Planning
Chris Hammond, PE, Senior Engineer

CC:
John Burdin, Public Works Director (COH)
Rodney Peterson, Electric Department (COH)
Robert Penna, Senior Engineering Associate (P&D)
Anita Atkinson, PE, VP of Engineering & Surveying (P&D)

July 7th, 2022

Mr. Alex S. Cohilas, City Manager
City of Hampton
17 E. Main Street South
Hampton, GA 30228

patterson & dewar ENGINEERS

850 Center Way
Norcross, GA 30071

(770) 453-1410
pdengineers.com

Mr. Cohilas,

Patterson & Dewar Engineers, Inc. (P&D) is pleased to provide this Statement of Qualifications to the City of Hampton regarding our history and services. P&D served the City of Hampton from 1992 until 2012 providing distribution design, system planning, and other services for the city's electric distribution system. We would be delighted to return to serve the City of Hampton once again as an engineering consultant.

Our business is straightforward – P&D is an employee-owned firm that specializes in designing and evaluating vital power delivery infrastructures, and we truly understand the challenges our utility clients face. This focus allows us to be selective about the projects we pursue, the clients we serve, and the employees we recruit to build value-driven relationships that last a lifetime. Our clients enjoy direct access to knowledgeable and experienced engineers and technical staff who treat your projects as if they were our own.

This Statement of Qualifications includes information regarding the history and organization of our firm, our technical qualifications, and the services that we offer. I have also included resumes for the four individuals who will serve as primary contacts for the City of Hampton.

The memorandum we have provided you dated July 1st, 2022 details our professional opinion of a key deficiency of the City of Hampton and presents a pathway forward to address the concern both immediately and long-term. It is our hope that we will be able to partner with you to solve these issues, as well as others that may arise.

I have included a copy of our 2022 rate structure. Our services are billed by hourly rates. For any longer-term projects or studies, budgets will be established at the beginning of the project.

If you have any questions about this document or would like further information about P&D, feel free to contact me at 770-354-0568 or jbush@pdengineers.com. Thank you for this opportunity.

Sincerely,
Patterson and Dewar Engineers, Inc.

JD Bush, PE, Manager, Distribution & Planning

Firm Qualifications

Power Delivery Engineering Solutions

Presented to:

Mr. Alex S. Cohilas, City Manager
City of Hampton
17 E. Main Street South
Hampton, GA 30228

acohilas@hamptonga.gov

Presented by:

JD Bush, PE
Manager, Distribution and Planning
jbush@pdengineers.com

Patterson & Dewar Engineers, Inc.
PO Box 2808
Norcross, GA 30091

Arizona | Georgia | Tennessee | Texas | Virginia

pdengineers.com | (770) 453-1410

Introduction to P&D

Patterson & Dewar Engineers, Inc. (P&D) provides engineering, land surveying, and construction management services to clients from our offices in Arizona, Georgia, Tennessee, Texas, and northern Virginia. We are an employee-owned firm that offers a wide range of services to clients across the country and around the world.

Rated one of the best places to work by our employees in the Atlanta Journal Constitution's Top Workplaces survey, P&D employs staff who are genuinely committed to our company. Over 89% of eligible employees own stock and 60+ team members have been serving clients at P&D for more than 10 years. We deliver quality-assured engineering services, bankable expertise, and results-oriented solutions. But more than that, we are a cohesive and collaborative team of talented people united by a common mission:

Champion a servant leadership mentality to create strong personal relationships, client success, and employee satisfaction.

P&D is a niche firm, adept at addressing the challenges our clients face while crafting enduring relationships and remaining responsive to their needs. We purposefully seek clients that are a cultural fit, then cultivate high-value partnerships by serving as an extension of their teams. We are especially honored by the long-term relationships we maintain with our clients, some of whom have depended on us for decades. We approach each project with an unyielding commitment to excellence and integrity; these guiding principles make us a trusted ally to the clients we proudly serve.

Staff Composition

Total Staff	198
Professional Engineers (PE)	34
Graduate Engineers (non-PE)	54
Technicians/Analysts	73
Surveyors & GIS Specialists	7
Designers & CAD Technicians	5
Support Staff	25

Office Locations

Arizona
1525 North Hayden Road, Suite 100
Scottsdale, AZ 85257
(612) 964-3583

Tennessee
1531 Hunt Club Blvd, Suite 200
Gallatin, TN 37066
(615) 527-7084

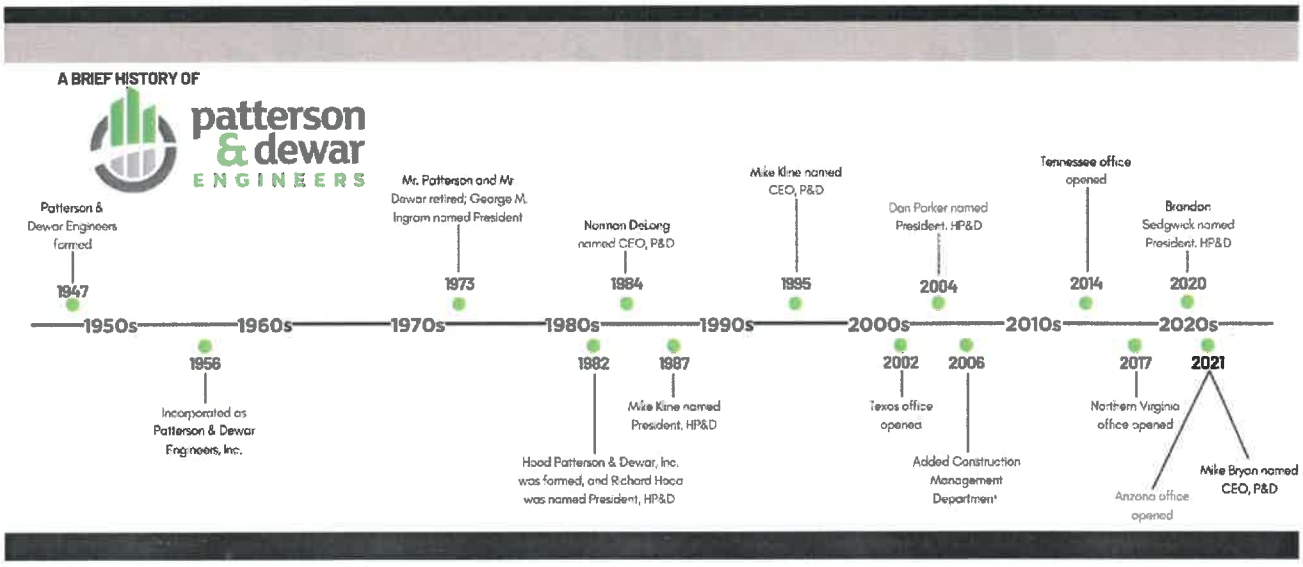
Virginia
4511 Daly Drive, Suite I
Chantilly, VA 20151
(770) 453-1410

Georgia (Corporate HQ)
850 Center Way
Norcross, GA 30071
(770) 453-1410

Texas
15924 Midway Rd
Addison, TX 75001
(214) 461-0760

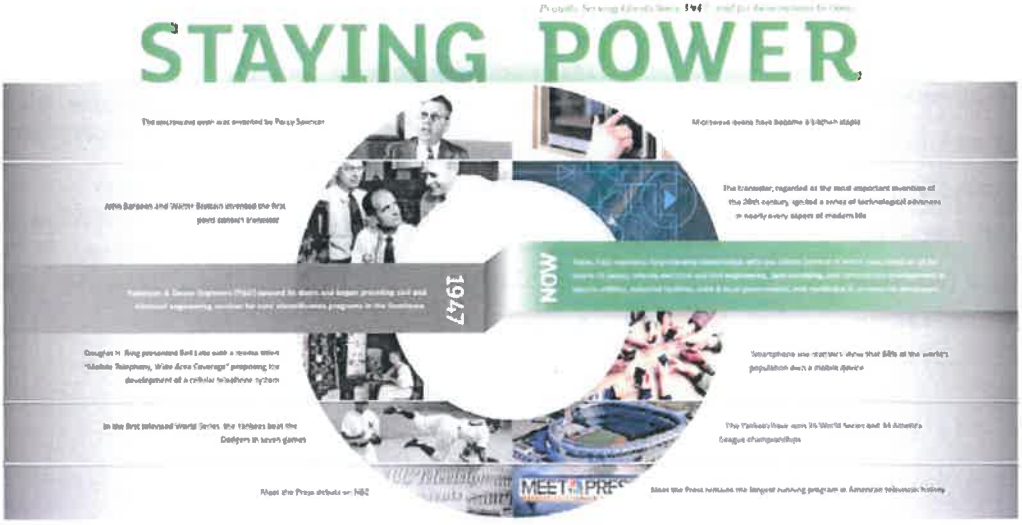
75 Years of Staying Power

Howard M. Patterson met Harry D. Dewar while working on the Norris Dam project for the Tennessee Valley Authority. The two worked closely together, became good friends, and eventually formed a partnership. Patterson & Dewar Engineers, Inc. began in 1947 by providing civil and electrical engineering and land surveying services for rural electrification programs that were extending service to towns and farms in the Southeast.



Fast-forward to today, and P&D has added multiple lines of service, including the construction management department in 2006 and Hood Patterson & Dewar, our wholly-owned subsidiary that provides testing and commissioning services for critical facilities, in 1982. Currently, P&D has multiple offices and has grown to almost 200 employees. Although we've changed considerably since 1947, we continue to value the strong relationships we have with our employees and our clients – many lasting for decades.

Mr. Patterson and Mr. Dewar founded our company upon integrity, professionalism, technical know-how, and a client-oriented approach to every project, every time. We continue their legacy today by holding on to these core values, ensuring that Mr. Patterson and Mr. Dewar would be proud of the company they founded.



The P&D Advantage – Our Team

What truly distinguishes P&D from other firms is the team of dedicated, experienced, and knowledgeable professionals we have been fortunate enough to attract and retain. Our people are our most valuable asset. Many of our talented professionals have spent their entire careers serving P&D's clients. Others who began their careers elsewhere now broaden our collective expertise, and our recent grads and interns provide enthusiasm and fresh perspectives that fuel innovation and teamwork. Together, our employees offer a deep pool of technical experience to draw from, and our in-house and field training programs help us sustain our tradition of excellence and continue to serve our clients' evolving needs for generations to come.

Our Vision: To be our client's first choice by empowering each employee to provide reliable solutions drawing on decades of technical expertise.

We created our employee development program, titled "The Employee Journey," specifically to meet the needs of our people and to provide them with the support that they need to continue to grow and develop their technical skills as well as leadership and other soft skills. With both online and in-person training, P&D provides our employees with flexible avenues to progress professionally. Employee development is a long-term initiative, but it also leads to short-term benefits like increased loyalty and improved performance and engagement. We focus on making growth a priority because growth compounds and accelerates as you remain intentional about it.

We foster a collaborative culture where managers and staff routinely work side-by-side in the office and the field. This model allows us to share knowledge and experience blended with lessons learned and new ideas to strengthen the team and enrich the customer experience.

Senior Leaders

Whether during the onboarding process with new employees or with new leaders, mentoring others is both valuable and rewarding. We believe in that value, which is why we have a formal mentoring program for all new employees and newly promoted leaders. Each is assigned a trained mentor who provides guidance, advice, and support during the transitioning process. Since we hire the best people, we want to ensure that we are setting them up for sustained success with us so that we can continue to delight our clients.

Our employees have extensive experience with transmission, substation, and distribution engineering; site development; system planning and analysis; Smart Grid consulting; power studies; construction management; land and aerial surveying; testing and commissioning; and more. Our cross-functional teams focus their attention on clients who enjoy direct access to knowledgeable engineers and technical staff.

Electrical Services and Solutions

We specialize in designing and evaluating vital power delivery infrastructures for electrical cooperatives, municipalities, investor-owned utilities, and private entities, such as industrial facilities and data centers.

Analysis & Planning

Our engineering team specializes in power delivery systems and are distinctly qualified to deliver comprehensive plans, studies, and consulting services that support short- and long-term client objectives, including:

- Long-range system studies and plans
- Construction work plans
- Power supply studies (one-ownership studies)
- Distributed generation impact studies
- Load forecasts
- Environmental reports
- Cable ampacity studies
- Sectionalizing studies
- Arc hazard assessments
- Load flow analysis
- Motor start analysis
- Transient and harmonic analysis
- Power factor correction studies

Substations

We offer turnkey solutions and engineering services for substations ranging from 4kV to 500kV, including:

- Physical and structures design
- 3D modeling and design
- Drawings and specification development
- Contract preparation and bid evaluation
- Protective relaying and control design
- Protective device coordination and settings
- Substation automation
- Testing and commissioning of substation components, equipment, and systems
  - Factory and field witness testing criteria development
  - Functional and acceptance testing
  - Oil testing (Dielectric, PCB, etc.)
  - Procedures development, documentation, and training
- Electrical system troubleshooting

Distribution Systems

By blending current technology with time-tested best practices, we deliver high-quality distribution solutions to address the challenges faced by the evolving power delivery market, including:

- Distribution line design and staking
- Work order inspections
- Underground system design
- Specification development and procurement support
- Easement acquisition
- Underground pad and pole inspections
- Compliance verification (NESC, RUS, etc.)
- Joint-use "make-ready" assessment and remediation
- RUS contract preparation and close-out
- Field inventory with GPS location
- Storm restoration facilitation
- Training (NESC, line design, safety, etc.)

Transmission Systems

P&D provides transmission engineering services for lines ranging from 69kV to 345kV, including:

- Transmission line engineering
- NERC compliance assessment and remediation
- Line inspection (field teams and UAV/drone)
- Site acquisition assistance
- Siting and permitting
- Line construction standards development
- Asset inventory collection
- Specialized transmission line surveying
- Community and public relations
- Forensic analysis and expert witness testimony

Smart Grid, Communications, & Automation Solutions

Our experienced staff evaluates your current environment against your desired outcomes, offers objective advice on technology solutions, and helps implement solutions that address the needs of your entire organization, such as:

- Substation integration and automation
- Legacy RTU system modernization and replacement
- Advanced communications challenges and architectures
- Upgrading serial communications with a wide range of TCP/IP/Ethernet technologies
- Designing/upgrading revenue metering systems
- Advanced SEL RTAC programming
- Relay/IED integration, installation, programming, and testing
- Supervisory Control and Data Acquisition (SCADA)
- Strategic planning
- Best practice assessments
- Operations Technology (OT) cybersecurity

Renewable Energy Consulting

For wind and solar energy providers, and utilities with distributed generation from renewable energy sources, we offer:

- Conceptual design
- Peer review
- Microgrid consulting
- Interconnection consulting
- System impact studies
- Site selection and development
- Environmental permitting
- Site and equipment layout
- Testing and commissioning

Grounding Systems Design & Testing

P&D offers comprehensive grounding system design and testing services, including:

- Building and substation grounding system design
- Modeling and evaluation of grounding system design
- Modeling of two-layer soil resistivity
- Site-specific recommendations
- Lightning protection system design and coordination
- Smart Ground® Multimeter (SGM) testing

Civil Services and Solutions

Civil Engineering

Equipped with expert knowledge ranging from code-compliant constraints to the latest design practices, our civil engineering team delivers safe, efficient, and cost-effective solutions, including:

Site Development & Land Planning

- Site design
- Environmental permitting
- Feasibility studies
- Conceptual land planning
- Storm water management
- Grading, earthwork, and storm drainage
- NPDES erosion and sediment control
- Flood studies
- Site investigation
- Re-zoning and variance requests

Structural Engineering

- Utility structure design and analysis
- Foundation design (caissons, spread footers, pads)
- Soils investigation analysis
- Retaining wall design

Environmental Engineering

- Spill, Prevention, Control and Countermeasure (SPCC) design, and retro-fit
- Erosion and sediment control
  - Storm Water Pollution Prevention Plans (SWPPP)
- Archaeological and biological site impact assessment

Geomatics

Geomatics is the integrated approach of measuring, analyzing, managing, storing, and displaying two- and three-dimensional Earth-based spatial data. Whereas in the past classic surveying techniques relied solely on standard tripod-mounted surveying tools, today those tools are combined with LiDAR (ground-based or aerial), digital imagery, and Geographic Information Systems (GIS) to collect and organize data using state-of-the-art technology.

Land & Unmanned Aerial Vehicle (UAV) Surveying

P&D's Professional Land Surveyors have an average of 30 years of experience and are licensed in several states. Our crews have worked together for more than a decade, leveraging each other's experience, streamlining processes, and improving quality and efficiency. We offer a full range of surveying services, such as:

- Boundary surveys
- Topographic surveys
- ALTA/NSPS surveys
- Laser scanning
- 3D modeling
- Route & roadway corridor surveys

With multiple team members who hold FAA remote pilot licenses for small, unmanned aircraft systems, P&D is ready to meet your UAV surveying needs. These surveys are efficient at delivering surveying data for both large and small projects.

Our survey teams specialize in linear route surveys of transmission and distribution lines. This valuable expertise allows us to correctly locate and identify additional detail that traditional surveyors may not, such as: pole-mounted equipment and appurtenances (streetlights, transformers, etc.); underbuilds and 3rd party attachments (cable, phone, fiber optic, etc.); mid-span and lowest overhead clearances; conductor sizes; voltage levels; pole and structure types; and guy wires and anchors. This focused experience and knowledge distinguish us from other surveyors and add significant value to our electric utility clients.

GIS Mapping & Consulting

Our GIS specialists collect geospatial data from a designated location, then format the data as dynamic maps, enabling clients to use the information for management, production, and delivery. P&D's experienced GIS team provides:

- System creation, customization, implementation, and training
- 3rd party system integration
- Recurring system QA/QC assessments
- Mapping/billing system discrepancy resolution
- Data input using field inspections, information systems, CAD drawings, paper maps, aerial imagery, and other documentation
- Conversion, verification, and cleaning of existing data
- Ongoing maintenance support and work order posting
- Conversion of existing mapping systems (paper, AutoCAD®, other) into Esri ArcGIS®
- Data evaluation and cleanup for Utility Network migration
- Enhanced GIS as-builts
- Fiber make-ready analysis & maps
- Milsoft WindMil® engineering exports
- Client-specific customizations
  - Right-of-way, tree trimming, service areas, etc.
  - Queries, maps, and image design
  - Layouts, publishing, and printing

Additional Services

Construction Management

We collaborate with peers and associates at every stage of the project providing services including:

- Design and construction firms' selection
- Construction document review
- Utility, permitting, and procurement coordination
- Value engineering analysis
- Equipment specification and procurement oversight
- Budget, schedule, and construction quality monitoring
- On-site construction supervision
- Equipment installation, testing, and commissioning

Facility Support & Safety Services

P&D offers a variety of tailored Occupational Health Safety Management System (OHSMS) assessment, development, and training services, including:

- Facility assessments
- Health and safety assessments
- Electrical Safety Program (ESP) development, assessment, and training
- Accident investigations
- Safety program development
- Procedures development
- On-site and classroom instructor-led training
  - Customized facility operations training
  - Arc flash hazard awareness classes
  - Employee safety training
  - OSHA-required training

Consulting Services

- Peer review
- Forensic evaluations
- Custom training programs for utilities (NESC, line design, etc.)
- Expert witness services

Testing and Commissioning Services and Solutions

Hood Patterson & Dewar

As a wholly-owned subsidiary of P&D, Hood Patterson & Dewar (HP&D) is a leading provider of electrical and mechanical testing and commissioning services in critical facilities across the country and around the world. HP&D takes a hands-on approach to commissioning, providing thousands of hours of peer review, site evaluation, MOP development, and problem-solving services each year. Together, P&D and HP&D share an unyielding commitment to preserving our tradition of excellence and integrity.

HP&D's in-depth knowledge and expertise in device, component, and sub-component electrical testing is widely recognized. As our clients' trusted advisor, we are thorough yet flexible to the needs of each individual project, providing independent, unbiased consulting and professional services in a wide range of critical environments. HP&D serves as an independent 3rd-party commissioning agent for owners, engineering firms, construction managers, and electrical subcontractors in a wide range of environments. This experience, coupled with the in-depth sub-component and device knowledge gained through our component testing services, gives HP&D a unique understanding of the intricacies of integrated systems, associated equipment performance, and interface issues that can arise.

NETA Certification

International Electrical Testing Association (NETA) is the preeminent professional organization in the industry, setting the standard for electrical power systems testing and equipment assessment. As a NETA-accredited company, HP&D employs a team of NETA-Certified Technicians and support personnel experienced in all facets of electrical power system testing and maintenance, doing so in accordance with ANSI/NETA Standards. NETA's two-fold accreditation process certifies both HP&D and our staff, assuring our clients of our company qualifications and individual technician credentials. Our NETA Technicians' work experience, education, and training keeps them current with new technologies and provides them the knowledge to perform testing across a wide variety of power systems.

NETA ACCREDITED COMPANY

Certified Commissioning Firm (CCF)

HP&D became recognized as a Certified Commissioning Firm in 2021 through the Building Commissioning Certification Board (BCCB). This designation recognizes that HP&D demonstrates the highest standards for professional commissioning firms. Organizations that hold the CCF designation stand out among competitors as experts with the determination and ability to provide premier services to clients and the commitment to the advancement of the commissioning industry.

CCF Certified Commissioning Firm

Electrical & Mechanical Commissioning

Our commissioning services are offered either independently or as part of a comprehensive commissioning solution tailored to your specific environment, needs, and budget:

- Design, drawing and specification review
- Equipment submittal review, commissioning script development, factory witness testing
- On-site assessment of equipment installation
- Functional testing (energized) of individual electrical and mechanical components and systems
- Integrated systems functional coordination, outage behavior, capacity verification, and performance analysis
- Live-site commissioning, re-commissioning, and retro-commissioning

Electrical Testing

Leveraging in-depth knowledge and extensive field experience, we thoroughly examine each component; we look beyond the individual device and consider its place within the whole system to verify it will perform as intended. Testing services include:

- **Acceptance Testing** to verify that equipment functions properly in your facility before it's accepted and energized
- **Maintenance Testing** to identify problems before they arise and extend the lifespan of your critical systems
- **Infrared Thermography** to identify abnormal heat conditions within your electrical system using this non-contact and nondestructive testing

QA/QC

Our mechanical and electrical equipment and systems experts tailor a QA/QC approach specific to your unique requirements:

- Manufacturer and factory QA/QC processes and best practices
- Documentation of procedures and timelines
- Sequencing of equipment installation, testing, and start-up
- Start-up assistance
- MEP coordination
- Installation review
- Contractor oversight

Energy Efficiency Consulting

Our energy specialists help reduce costs, improve uptime and efficiency, cultivate consistency, reduce operational risk, and promote sustainable energy conservation practices:

- Rate, utility bill, and usage trend analysis
- Operations and utility rate structure alignment
- Capacity allocation assessments
- System performance analysis and optimization
- Predictive and single-point-of-failure analysis
- Equipment maintenance impact evaluation
- Optimized facility efficiency verification

Procedures & Safety Training

Our classroom, web-based, and site-specific training programs include:

- Site-specific equipment operating procedures
- Employee safety training
- OSHA-required training
- Arc flash hazard awareness
- Procedure gap analysis

Building Envelope Commissioning

The building envelope commissioning process focuses on the materials, components, systems, and assemblies that provide shelter and environmental separation between the interior and exterior of the facility. The building envelope is required to meet well-defined performance criteria in all weather conditions. The materials are manufactured by different companies and assembled by various tradespeople (often with minimal coordination), which can lead to future issues.

Exterior water-tightness, airflow, and durability cannot be verified until the building is completely enclosed. Involving an expert with technical knowledge of the proposed systems in the specification and the design process to visually observe a statistical sampling of the installation work improves the likelihood of attaining a robust and problem-free exterior building envelope. Verification testing should be performed throughout the installation of the enclosure subsystems and components. Mock-ups can also be utilized to perfect construction methods on a smaller scale to alleviate full-scale failures.

HP&D utilizes subcontractors for the field testing of the building envelope; we have completed these services on multiple projects partnering with the same testing team.

patterson & dewar engineers

JD Bush, PE
Electrical Engineer

About JD

Serving electric utility clients throughout the southeast, JD specializes in power distribution systems and infrastructure, distribution planning, and system protection.

Education

Bachelor of Science in Electrical Engineering
Georgia Institute of Technology

Licenses & Certifications

Licensed Professional Engineer
GA, MS, TN

Areas of Expertise

- Electrical engineering
- Utility system studies
  - Arc hazard assessments
  - Long-range system studies
  - Construction work plans
  - Coordination studies
  - Power supply studies
  - Load forecasts
- RUS requirements & guidelines
- Milsoft's WindMil® & LightTable® applications

Representative Project Experience

Solar Hosting Analysis

Cumberland Electric Membership Corporation (Tennessee)

CEMC hired P&D to evaluate their distribution system to determine available hosting capacities across the distribution for large scale solar installations. The criteria was that no equipment would be overloaded and that there would be no back-feeding onto the TVA network. P&D evaluated loading at each delivery point at varying loading conditions in order to determine reasonable daytime minimums. The analysis yielded a priority list that was utilized with a solar developer to identify target locations for large scale solar installations.

Sectionalizing Study

Horry Electric Cooperative (South Carolina)

HEC hired P&D to prepare a full distribution system sectionalizing study, including the coordination and response of substation feeder protection equipment, as well as distribution line devices. P&D based recommendations on expected system changes included in their recent CWP. These changes included voltage conversion to 24.94 kV, new substations, and changes of feed. P&D also recommended:

- Line device changes due to the higher fault current level
- Replacement, removal, or relocation of existing devices
- Installation of new devices in critical locations
- New settings guidelines for electronically controlled devices

Long-Range System Study and Construction Work Plan

West Florida Electric Cooperative Association (Florida)

To determine the most economical plan for accommodating growth, P&D executed this 20-year study to examine existing load and growth patterns, as well as projected size, configuration, and characteristics of the system required to serve the anticipated load. Alternative plans were developed for comparison, which included voltage conversion, new substation construction, and distribution system upgrades for consideration. The most cost-effective plan was then adopted, and a four-year work plan was developed in conjunction with the study that included:

- Voltage conversion
- Capacitor recommendations
- Substation recommendations
- Historical cost analysis

Substation One-Ownership Study

4-County Electric Power Association (Mississippi)

In a growth region that contains both rural and urban areas, 4-County wanted to consider installing a substation that had been recommended in its most recent long range system study. P&D conducted an analysis comparing alternative plans to find the most cost-effective one-ownership solution between 4-County and TVA. As a result, construction of the substation and 2.3 miles of 161kV transmission line was approved.

Distributed Generation (DG) Impact Studies
Throughout his career with P&D, JD has performed or assisted with the DG studies for the following utilities:

- City of Athens – Alabama
- Pickwick EC – Tennessee
- Dixie EPA – Mississippi

Arc Hazard Assessment
Middle Tennessee Electric Membership Corporation (Tennessee)
P&D conducted a system-wide arc hazard assessment for Middle Tennessee EMC, which serves more than 203,000 customers through 34 substations and 7,400 miles of 26kV distribution line.

- Analyzed distribution lines at normal operating and hot-line-tag conditions
- Summarized how substation fast-bus-trip relaying could be modified to mitigate arc hazard incident energy

Long-Range System Study and Construction Work Plan
Forked Deer Electric Cooperative (Tennessee)
Forked Deer Electric Cooperative serves approximately 10,000 electric customers in western Tennessee. To determine the most economical plan for accommodating growth, P&D performed this 30-year study to examine existing load and growth patterns, as well as projected size, configuration, and characteristics of the system required to serve the anticipated load. A four-year work plan was developed in conjunction with the study which included:

- Additional regulators to accommodate back-feeding during peak loading conditions
- Capacitor recommendations
- Substation recommendations
- Historical cost analysis

Long-Range System Study and Construction Work Plan
Fayetteville Public Utilities (Tennessee)
Fayetteville Public Utilities operates as both a municipal and cooperative system serving 19,000 electric customers across 1,800 miles of distribution lines, as well as 6,000 natural gas and 3,300 telecom clients. P&D conducted a 20-year study in conjunction with a four-year work plan, including:

- Distribution upgrades
- Voltage conversions
- Substation upgrade and conversions
- Model development and analysis

P&D also examined the amount of copper conductor that remained throughout the system, and subsequently included a plan to replace it within 20 years.

Arc Hazard Assessment
Murray Electric System (Kentucky)
Murray Electric System owns and operates its distribution and sub-transmission systems to serve its customers in southwest Kentucky. P&D conducted a system-wide arc hazard assessment including:

- Analysis of 161-69kV sub-transmission station
- Summary of how substation hot-line-tag relaying could be modified to mitigate arc hazard incident energy

Coordination Study
Gibson Electric Membership Corporation (Tennessee)
Gibson EMC acquired a neighboring utility and proceeded to merge the two systems together. P&D developed recommendations to correct coordination issues and improve system reliability on the acquired system. This study included:

- Recommendations to ensure adequate coordination between line protection equipment
- Development of settings for electronic reclosers
- In addition to the coordination recommendations, an analysis was done on the capacitors on the system in order to determine the most cost effective locations to place new capacitors to ensure adequate power factor.

patterson & dewar engineers

Christopher R. Hammond, PE
Principal Engineer

About Chris

Chris is a principal engineer with more than 28 years of experience. He specializes in power distribution systems and infrastructure, distribution planning, and system protection.

Education

Bachelor of Science in Electrical Engineering Technology
Southern College of Technology

Licenses & Certifications

Licensed Professional Engineer
AL, CO, GA

Areas of Expertise

- Electrical engineering
- Utility system studies
  - Arc hazard assessments
  - Long range system studies
  - Construction work plans
  - Coordination studies
  - Power supply studies
- Line construction contracts
- RUS requirements & guidelines
- Proficiency with Milsoft's WindMil® & LightTable® applications

Representative Project Experience

Construction Work Plan

Sequachee Valley Electric Cooperative (Tennessee)

Sequachee Valley Electric Cooperative (SVEC) serves approximately 34,000 customers with 3,000 miles of distribution line and 16 substations in eastern Tennessee across Appalachian terrain. The four-year construction work plan included:

- Feeder allocation on an unbalanced system
- Cost-effective alternative approaches to potential projects
- Sectionalizing review
- Load balance analysis
- Capacitor and regulator placement analysis
- Client project review meetings with real-time model modification results
- Environmental review

Substation One Ownership Study

Sand Mountain Electric Cooperative (Alabama)

Sand Mountain Electric Cooperative (SMEC) is located in rural and metropolitan areas of northeast Alabama, serving approximately 30,500 customers. As load developed in the area, SMEC considered the installation of a substation suggested in its long range system study. The study compared alternative plans to find a cost-effective one ownership solution between SMEC and TVA. Construction of the substation and four miles of 161kV transmission line to serve the substation were approved after completing the study.

Long Range System Study

Sequachee Valley Electric Cooperative (Tennessee)

Conducted a 20-year study of the utility's electric system including:

- Allocation by feeder on a balanced system
- Distribution upgrades
- Voltage conversions
- New 69kV and 161kV substation additions
- Existing substation modifications
- Evaluation of the 69kV system

Arc Hazard Assessment

GreyStone Power Corporation (Georgia)

Conducted a system-wide arc hazard assessment analyzing distribution lines at normal operating and hot-line-tag conditions.

Distributed Generation Impact Study

Sand Mountain Electric Cooperative (Alabama)

SMEC's customer wanted to install a 6 MVA methane gas generator facility located approximately 9 miles from the substation. The Distributed generation impact study determined substation and distribution improvements were required to connect to SMEC's electrical system. P&D designed nine miles of double and triple circuit line, prepared a labor and materials contract, and solicited bids. The substation was a fused 46-12.5kV substation. The recommended improvements included adding a 46kV circuit breaker, adding a feeder, and changing the relaying on the existing reclosers. The protection scheme was coordinated with TVA for the proper protection on its 46kV system.

patterson & dewar engineers

Robert Penna
Senior Field Technician

About Robert

With more than 30 years of experience in the electric utility industry, Robert is a senior field technician who assists electric utility clients with distribution system design services.

Education

Electrical Technology
Marietta Cobb Technical School

Electric Line Design
Georgia Electric Membership Cooperative Sponsored Course

Topographic, Linear & Transit Surveying
National Education Corporation

Licenses & Certifications

Integrated Transmission Switching
GA

OSHA 10-Hour Construction Safety Training

Areas of Expertise

- Overhead & underground distribution line design
- Distribution line field inspections
- Transmission line design (up to 69kV)
- Utility line relocation for Department of Transportation projects
- Project estimating
- Electric distribution line construction contract preparation, solicitation, awarding, monitoring & close-out

Representative Project Experience

115kV Transmission Line with Double Circuit 35kV Distribution Underbuild

North Virginia Electric Cooperative (Virginia)
This three-quarter mile project contained 14 concrete structures, including eight self-supporting structures on foundations, ten intermediate distribution wood structures, and a temporary transmission line. A clause in the contract prohibited blasting due to the proximity of residential buildings and a rock quarry. Construction on this project began at the beginning of the COVID-19 outbreak. He served as on-site transmission construction inspector and as the inspector for a double circuit.

69kV Transmission Line Design

Sand Mountain Electric Cooperative (Alabama)
Designed 69kV transmission line with a 15kV distribution line under-build from the base to the top of Lookout Mountain in Mentone, AL. Services included design, solicitation of bids, contractor selection, project management, monitoring and inspections, billing verification, and project close-out.

10-mile Electric Distribution Line Design

Sand Mountain Electric Cooperative (Alabama)
Designed a 10-mile overhead and underground triple-circuit large-conductor electric distribution line for a Green Power project. Two circuits served the cooperative's normal distribution and one circuit served as a tie from the landfill generation plant to the nearest substation allowing energy to be sold back to the G&T.

Distribution Line Design

Twin County EPA (Mississippi)
Designed a distribution line for a Mississippi River levee crossing with spans ranging from 600 to 1,000 feet installed on 100-110-foot structures compliant with all U.S. Army Corps of Engineers guidelines. Services included design, solicitation of bids, contractor selection, project management, monitoring and inspections, billing verification, and project close-out.

Double Circuit Overhead Design

Lockheed Martin (Georgia)
Designed a double circuit overhead and underground concrete-encased duct system (600 amp) serving the facilities where F22 Raptor Aircraft testing is conducted. Services included design, solicitation of bids, contractor selection, project management, inspections, billing verification and project close-out.

Underground Triple Circuit Distribution Design

Southern Pine Electric Cooperative (Alabama)
Designed an underground triple circuit (600 amp) distribution, looping the system from the substation with automated switching to serve Wind Creek Casino in Atmore, AL.

Storm Damage Restoration

Sand Mountain Electric Cooperative (Alabama)
Assisted with storm damage restoration following five tornadoes, some rated as EF4 on the Fujita scale, that ripped through the utility's distribution system causing a system-wide power outage. Managed several line and right of way crews, staked line, and prepared material list to aid in line restoration. Remained on-site to help the utility recover from a storm that damaged power lines, substations, and property.

Emergency Power Backup Generator Design

West Florida Electric Cooperative (Florida)
As project manager, Robert designed and sized generator, electrical panels, wiring, and automatic transfer switch to power the facility's headquarters in the event of a power outage.

patterson & dewar engineers

Samantha Runge
GIS Utility Solutions Specialist

About Samantha

Samantha is a GIS Utility Solutions Specialist with more than 15 years of experience in project management and design using GIS mapping and CAD drafting for the electrical utilities industry.

Education

Geographic Information Systems Certificate
Penn State University

Bachelor of Science in Geology
Georgia State University

Areas of Expertise

- Data evaluation & analysis
- GIS maintenance
- System customization
- Work order updates
- System inventory & GPS services
- Engineering maps for RUS & CFC funding
- Solutions consultation & training

Representative Project Experience

SWPPP BMP Map Standardization
Xcel Energy (Texas)

This utility serves more than 3.3 million electric customers and is the nation's #1 wind power utility. P&D developed and produced standardized Storm Water Pollution Prevention Plan (SWPPP) Best Management Practices (BMP) maps for all engineering projects, providing a reliable and familiar product for field implementation. As GIS coordinator, Samantha:

- Developed standardized map formats
- Streamlined data research and acquisition for SWPPP reports
- Trained staff for workflow efficiency
- Implemented QA/QC procedures

Mapping & Engineering Services
Yazoo Valley Electric Power Association (Mississippi)

This project consisted of a complete turnkey GIS beginning with the GPS field inventory of the electric distribution system. The data was then converted into an ESRI-based FuturaMap GIS and backlogged work orders were added into the system. As GIS utility solutions specialist, Samantha:

- Managed, converted data schemas, combined, and validated field collected GPS data as substations were completed
- Evaluated and analyzed GIS geometric network and relationship connectivity
- Provided client with GIS transition assistance and training
- Created client maps with custom symbology and labels for all electrical distribution features and background data
- Produced RUS-compliant engineering study maps

Storm Water Analysis
S. Bamby Lane Watershed (Georgia)

P&D analyzed the hydrologic and hydraulic conditions within the watershed. Feedback was gathered from the residents via a questionnaire and a public meeting. Services included presentation of project goals, determination and preliminary design of solutions, preliminary construction cost estimate, and report of the results. As GIS utility solutions specialist, Samantha:

- Evaluated and extracted GIS data
- Created maps specific for meeting with residents for field reconnaissance and for engineering analysis
- Extracted and converted data into AutoCAD Civil 3D

Exhibit A

PATTERSON & DEWAR ENGINEERS, INC.
Norcross, Georgia
FEES FOR GENERAL UTILITY ENGINEERING SERVICES
EFFECTIVE: JANUARY 1, 2022

CLASSIFICATION		$ PER HOUR
ENGINEERING		
	Engineering Technician I	104.00
	Engineering Technician II	116.00
	Engineering Technician III	129.00
	Engineering Technician IV	142.00
	Systems Integration Technician	165.00
	Engineering Test Technician	139.00
	Engineering Associate I	117.00
	Engineering Associate II	127.00
	Sub/Trans. Engineering Associate I	130.00
	Sub/Trans. Engineering Associate II	140.00
	Sr. Engineering Associate I	139.00
	Sr. Engineering Associate II	153.00
	Sr. Engineering Associate III	197.00
	Sub/Trans. Sr. Engineering Associate I	152.00
	Sub/Trans. Sr. Engineering Associate II	166.00
	Engineering Supervisor I	180.00
	Engineering Supervisor II	194.00
	Project Consultant	150.00
	Senior Project Consultant	189.00
	Principal Project Consultant	205.00
	Engineer I	147.00
	Engineer II	160.00
	Engineer III	173.00
	Project Engineer	175.00
	Sub/Trans. Engineer I	159.00
	Sub/Trans. Engineer II	174.00
	Sub/Trans. Engineer III	186.00
	Sub/Trans. Project Engineer	234.00
	Senior Engineer	199.00
	Sub/Trans. Senior Engineer	217.00
	Principal Engineer I	229.00
	Sub/Trans. Principal Engineer I	239.00
	Principal Engineer II	244.00
	Principal Engineer III	268.00
	Sub/Trans. Principal Engineer II	259.00
	Sub/Trans. Principal Engineer III	288.00

Exhibit A

PATTERSON & DEWAR ENGINEERS, INC.
Norcross, Georgia
FEES FOR GENERAL UTILITY ENGINEERING SERVICES
EFFECTIVE: JANUARY 1, 2022

	CLASSIFICATION	$ PER HOUR
CAD		
	CAD Technician I	87.00
	CAD Operator I	98.00
	CAD Operator II	108.00
	CAD Operator III	118.00
	Senior CAD Designer I	128.00
	Senior CAD Designer II	138.00
	Senior CAD Designer III	148.00
	Senior CAD Designer IV	158.00
SURVEYING & GIS		
	Survey Technician/CAD	105.00
	Senior Survey Technician/CAD	126.00
	Surveying Project Manager	100.00
	Survey Field Technician	89.00
	Crew Chief	95.00
	Senior Crew Chief	105.00
	Registered Land Surveyor	150.00
	Survey 1-man crew	112.00
	Survey 2-man crew	165.00
	Survey 3-man crew	179.00
	GIS Technician I	105.00
	GIS Technician II	118.00
	GIS Technician III	130.00
PROJECT SUPPORT		
	Admin Assistant	85.00
	Project Coordinator I	107.00
	Project Coordinator II	117.00
	Project Coordinator III	127.00
TESTING		
	Test Associate	185.00
	Test Technician	200.00
	Senior Test Technician	220.00

TRAVEL AND EXPENSES	- Actual Out-of-Pocket Cost
PRINTS, PHONE CALLS, ETC.	- Actual Cost
OUTSIDE CONSULTANT	- Actual Cost + 20%

NOTE: Fees are subject to annual increases.

Load Forecast

Project Understanding

The City of Hampton, GA (COH) would like P&D to perform a Load Forecast of the COH electric distribution system to evaluate and predict the power requirements for the next 20 years. The Load Forecast will be based upon COH historic cost data, predictions for growth for the city, and input from city planning representatives. The proposed scope is presented below:

Scope of Services

P&D will execute the tasks as outlined below to complete the Load Forecast.

Task 1 – Data Collection

COH will collect and provide the following information to P&D:

- Historic peak demand data (10 preceding years)
- Historic kWh purchased (10 preceding years)
- Historic kWh sold (10 preceding years)
    - Broken down by consumer class if possible (residential, small commercial, large commercial, etc.)
- Historic number of consumers (10 preceding years)
    - Broken down by consumer class if possible (residential, small commercial, large commercial, etc.)

Task 2 – Data Evaluation and Analysis

P&D will utilize data provided by COH for analysis and will begin developing initial forecast models. Initial projections based on historic trends will be developed.

Task 3 – Review Meeting

P&D will meet with COH to review the historic data and to discuss projections for consumer growth, energy usage growth, and overall projections.

Task 4 – Load Forecast Report

P&D will prepare the remainder of the full forecast based on input and discussion from the review meeting. A report will be prepared that will include projections for kWh usage, total number of consumers, and peak demand. After review by COH and any needed adjustments, the final report will be prepared and provided to COH.

Long Range Plan

Project Understanding

COH would like P&D to perform a 20-year Long Range Plan (LRP). For the LRP, P&D will develop a new engineering model, grow the model based upon the new Load Forecast, propose recommended construction projects to serve current and projected loads, and evaluate system contingency options. The study will include detailed budgetary information for the O&M expenses of the COH electric distribution system for the first 5 years of the study period. This process is detailed further in the below Scope of Services.

Scope of Services

P&D will execute the tasks as outlined below to complete the System Study.

Task 1 – Kick-off Meeting

P&D will meet with COH to complete the following:

- Define methodology, scope of work, planning vision and project schedule
- Discuss system reliability, capacities, loads and aging facilities
- Identify loading and reliability problem areas
- Discuss new potential loads for the system
- Review existing design criteria established in prior planning studies and discuss any needed changes or modifications for inclusion in the proposed LRP
- Discuss preparation of unit cost estimates for LRP projects
- Discuss application of the Load Forecast

At least 1 week prior to the initial kick-off meeting, COH shall deliver the following system information to P&D:

- Complete GIS export of the electric distribution system (if available)
- Construction/equipment costs and economic parameters from the preceding 2 years (if available)
- Annual Operating Reports for COH from the last 5 years, or other documentation presenting costs of the electric department
- In cooperation with CGEMC, customer billing information for the 2022 summer peak demand month
- In cooperation with CGEMC, peak demand information for both delivery points for the 2022 summer peak month
- In cooperation with CGEMC, feeder peak currents for both delivery points for the 2022 summer peak month

Task 2 – System Study Model Development, Growth, and Analysis

Following the kick-off meeting, P&D will allocate a base model of the COH system. This model will be based on the GIS export provided by COH, consumer billing information, and feeder load totals. P&D anticipates some GIS work being required to prepare an engineering model. Following the allocation, P&D will provide COH with data from the allocated model to verify the accuracy of the model.

P&D will utilize the base system model and grow it to projected long-term loading according to the new Load Forecast. Using the grown models along with the COH design criteria and cost estimates, and input from the COH, P&D will identify potential projects and study solutions to serve future system loads. If multiple alternatives are identified, each will be studied for electrical viability and compared utilizing engineering economics. Once all model work is complete, P&D will prepare all documents needed for a review meeting with COH. Initial map development will also begin during this task.

Model analysis will be done to study contingency options on the COH system. The priority will be in determining what areas do and do not have contingency options in the event of the loss of key system equipment (such as the loss of delivery point). Based on this analysis, P&D will develop and compare alternatives to address any gaps found. P&D will develop a list of recommendations for improvements that would improve contingency options on the COH system.

Initial budgetary projections for construction costs and O&M expenses will be prepared as well.

Task 3 – Review Meeting

P&D will meet with COH. At this meeting, the analysis performed will be discussed and alternatives will be reviewed with the intent of selecting the preferred long-term solution. Other documentation prepared will be reviewed and discussed. Timeline for preparing the LRP draft will be discussed.

Task 4 – Finalize LRP & Maps

Following the Review Meeting, P&D will complete the remaining documentation and make any needed adjustments following the review meeting. Maps will be updated to include the final LRP recommendations. The draft of the LRP will then be sent to COH for review. After any adjustments, P&D will produce a final draft of the LRP that will be sent to COH for final review. If a meeting to discuss the final report is necessary, that request can be accommodated. Once COH accepts the LRP, the report will be finalized and stamped by a Professional Engineer licensed in the state of Georgia.

Task 5 – Project Deliverables

Once the LRP report is finalized, P&D will deliver the following to COH:

- Four (4) bound System Study books to COH along with electronic versions included on storage drives.
  - Bound books and electronic versions to include:
    - Written Report specifying:
      - Engineer's Certification and Qualifications
      - System Study methodology, assumptions, and recommendations
      - Exhibits that detail costs for the LRP period
      - Detailed O&M and construction budgets for the first 5 years of the LRP period
    - Printed copy of the LRP maps
- Project recommendations in electronic shapefile format (for importing into GIS system)

Electronic copies will be provided as well.

July 8th, 2022

Mr. Alex S. Cohilas, City Manager
City of Hampton
17 E. Main Street South
Hampton, GA 30228

patterson & dewar ENGINEERS

850 Center Way
Norcross, GA 30071

(770) 453-1410
pdengineers.com

Mr. Cohilas,

This letter serves as documentation of our conversation on July 8th, 2022 regarding remaining work to study and provide a solution regarding the emergency power line loading concern that presently exists on the City of Hampton electric distribution system.

We believe that we can complete our review and provide recommendations for this situation for a Not-To-Exceed fee of Twelve Thousand Dollars ($12,000). The work remaining to be done includes a review of field measurements conducted by COH personnel, preparation of load switching recommendations, and having two of our engineers present when COH personnel perform switching to confirm the results (should that be desired).

Sincerely,
Patterson and Dewar Engineers, Inc.

JD Bush, PE, Manager, Distribution & Planning