GDS ASSOCIATES, INC.
engineers and consultants

response to request for proposals

LOUISIANA PUBLIC SERVICE COMMISSION

 ORIGINAL
docket no. I-34694

2017 INTEGRATED RESOURCE PLANNING

prepared by
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in partnership with

BAYHAM ENVIRONMENTAL

DAYMARK
ENERGY ADVISORS

December 7, 2017
December 7, 2017

Ms. Melanie A. Verzwyvelt
Louisiana Public Service Commission
Office of the General Counsel
602 North Fifth Street
Galvez Building
Baton Rouge, Louisiana 70821-9154


Dear Ms. Verzwyvelt:

GDS Associates, Inc.’s (“GDS”) in partnership with Baynham Environmental, LLC and Daymark Energy Advisors, LLC, is pleased to submit the enclosed proposal to the Louisiana Public Service Commission (“LPSC” or “Commission”) seeking bids from independent technical consultants to assist the Commission with conducting a review of the second Integrated Resource Planning (IRP) process of Entergy Louisiana, LLC (“ELL” or “the Company”). GDS has a wide range of experience and expertise with integrated resource planning and is well positioned to meet the needs of the Commission for this effort. In summary, GDS possesses the following expertise:

- Hands-on experience and expertise with reviewing the integrated resource plans of investor-owned electric and natural gas utilities
- Three decades of direct experience with developing integrated resource plans for electric and natural gas utilities
- Wide-ranging regulatory expertise with developing and presenting expert witness testimony relating to our reviews of IRP filings done by utilities
- Experience providing regulatory support to public utility commissions with respect to identifying key issues, analysis of IRP filings, preparation of data requests and cross examination questions for utility company witnesses, and assistance with preparation of final briefs in IRP dockets.

GDS will perform the services noted in your letter for a not-to-exceed amount of $58,000 ($55,000 for labor and $3,000 for expenses). GDS understands that all budgets and expenses will need to be pre-approved by Commission Staff. We are appreciative of this opportunity to submit a proposal for this project. Please call me if you have any questions regarding our proposal. Thank you for your consideration.

Sincerely,

Richard F. Spellman
President
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GDS' Understanding of the Scope of Representation

In response to the interest of the Louisiana Public Service Commission’s (“LPSC” or “Commission”) Request for Proposals (RFP) seeking bids from outside consultants to assist the Commission with the review and critique of the second Integrated Resource Planning (IRP) process of Entergy Louisiana, LLC (“ELL” or the Company”), GDS Associates, Inc. (“GDS”) has assembled a team of nationally recognized integrated resource planning consultants and prepared a proposal which addresses the scope of work listed in the Commission’s RFP.

GDS is proposing to serve as the prime contractor. Our subcontractors include Louisiana-based subcontractor, Baynham Environmental, LLC (“Baynham”) and Daymark Energy Advisors (“Daymark”). Collectively, we are the GDS Team as referenced in this proposal. The GDS Team has completed numerous integrated resource planning and related regulatory support projects for state public utility commissions.

This GDS proposal explains how our Team will provide a range of technical and regulatory support to the Louisiana Public Service Commission relating to the process for Entergy Louisiana’s second IRP filing. The GDS Team will assist the Commission staff with the following tasks:

- Holding technical conferences
- Drafting comments
- Drafting and responding to discovery
- Preparing direct and cross-answering testimony
- Reviewing and analyzing stipulation terms
- Testifying before an administrative law judge
- Conducting informal meetings with the parties
- Performing other tasks upon request of the Commission staff

1.1 ADVANTAGES OF SELECTING THE GDS TEAM

There are several advantages which our team can offer the Commission for this project.

PRIOR LOUISIANA UTILITY EXPERIENCE • GDS is headquartered in Marietta, Georgia. Our energy industry clients in Louisiana include the following:

- Louisiana Association of Electric Cooperatives
- City of Alexandria, Louisiana
- Louisiana Energy and Power Authority
- Louisiana Generating LLC
- Louisiana Public Service Commission
- Louisiana-Pacific Corporation
- Southwest Louisiana Electric Membership Corporation

EXTENSIVE IRP RELATED EXPERIENCE WITH PUBLIC UTILITY COMMISSIONS • GDS has assembled a highly experienced, tight-knit consulting team for this project. We have worked for state public utility commissions on many prior IRP, resource planning, retail rate, regulatory support, energy efficiency, renewable energy and demand response consulting projects. Our senior consultants are already very knowledgeable of the resource planning and electric rate issues facing the electric grid in the southeastern U.S. GDS has performed similar IRP related projects for a number of state public utility commissions, such as the following:

- Florida Public Service Commission
- Georgia Public Service Commission
- Maine Public Utilities Commission
- New Hampshire Public Utilities Commission
- North Carolina Public Utilities Commission
- Pennsylvania Public Utilities Commission
- Rhode Island Public Utilities Commission
- Vermont Department of Public Service
UNIQUE LOCAL KNOWLEDGE • Our Team encompasses consultants that have been actively involved with DSM programs in the City of New Orleans since the 1990’s. Team Partner Bayham Environmental, is based in New Orleans and has been involved in consultation for various DSM programs and initiatives in the City of New Orleans for almost 20 years.

COMMITMENT TO DIVERSIFIED BUSINESSES • GDS has solicited and recruited industry experts as team members, who also happen to be women and minority owned businesses. Team partner Bayham Environmental is a certified State and Local Disadvantaged Business Enterprise (SLDBE) as recognized by the City of New Orleans and is categorized by the City under the specialties of Energy Efficiency Inspection Services and Environmental Consulting.

PROJECT MANAGEMENT SKILLS • The GDS Team has the necessary project management experience to assign tasks to consultants with the requisite level of education and experience. GDS uses a standard set of project management practices to keep our IRP projects on schedule and within the approved budget. The GDS Team includes personnel who have ample time and are highly qualified to serve the roles defined for them for this project. Engagement of key personnel and the client throughout the effort by the project manager will help to ensure timely/on-target delivery of key project elements.

DEPTH OF PERSONNEL • GDS is a 170-person engineering and management consulting firm with the range of necessary IRP and electrical engineering experience, analytical skills, IRP modeling and strategy development acumen to provide the range of regulatory support and technical services required by the Commission’s proposed scope of work. Due to the size of our firm and the in-depth IRP knowledge and experience of our consultants, GDS can provide the full range of technical services that will be needed by the Commission, including expertise with load forecasting, optimization of supply-side and demand-side resources, production costing, transmission planning, fuel price forecasting, knowledge of the costs and performance characteristics of supply-side and demand-side resources, unit retirement.

EXPERIENCE WITH IRP MODELING • GDS consultants have experience with using integrated resource planning software packages, e.g. ABB’s Strategist planning system, zonal and nodal production cost modeling systems such as PROMOD, and detailed excel-based resource screening models.

KNOWLEDGE OF DATA AVAILABILITY • The GDS Team maintains extensive libraries and in-depth familiarity regarding the contents and potential relevance of numerous national and regional data sources for developing and verifying the costs and performance characteristics of supply-side and demand-side resources.

NO CONFLICTS • The GDS Team has no actual, potential or perceived conflicts of interest.
Overview & Qualifications • The GDS Team

2.1 INTRODUCTION & BACKGROUND OF GDS ASSOCIATES, INC.
Headquartered in Marietta, Georgia, with offices in Austin, Texas; Auburn, Alabama; Manchester, New Hampshire; Madison, Wisconsin; Orlando, Florida; and Augusta, Maine, GDS Associates, Inc. (GDS) serves clients throughout the United States and Canada. Our broad range of expertise focuses on clients associated with electric, natural gas, water, and wastewater utilities. GDS has unique expertise and knowledge of power markets in the southeastern U.S. and Texas, and the most of our clients are located in this region of the U.S.

Drawing upon many years of experience in problem-solving for both utility and non-utility clients, we have developed a keen insight into the causes of and cures for our clients’ challenges in the energy markets. Our consultants are recognized leaders in their respective fields, dedicated to their clients, innovative in their approach to meeting unique challenges, and known for consistently being available and responsive when needed. Our broad range of expertise focuses on end-users, state public utility commissions, and utility clients associated with, or affected by electric, natural gas, water, and wastewater utilities. In addition, we offer market research, statistical services, and information technology services to a diverse client base. The consulting areas in which GDS has specialized skills are listed in FIGURE 2-1. For more information regarding the services listed below, please visit our website at gdsassociates.com.

2.1.1 Corporate Core Values & Philosophy of GDS Associates, Inc.
The size and depth of our firm permits us to offer clients multiple sources of assistance, ensuring complete, competent, and timely service. GDS’s long history of meeting client needs has established our reputation within the industry. In fact, most of our project assignments are derived from repeat work for existing clients or from client referrals. GDS recognizes that no two clients or problems are exactly alike, so we strive to deliver “right-fit” solutions for each client’s situation. Our firm conducts its business in accordance with stated core values which we follow steadfastly in providing services to our clients.
2.1.2 GDS Prior Integrated Resource Planning Experience


The GDS Team has assisted the Georgia Public Service Commission in IRP dockets since the initial IRP filings were made in 1992. The Team also has a wide range of experience in integrated resource planning activities elsewhere in the United States. Please see Section A.2 for Dockets in which the GDS Team has provided IRP and supply-side testimony before the Georgia Public Service Commission, as well as for descriptions of other recent IRP related projects.

The GDS Team personnel have presented expert testimony in the following IRP and supply-side related proceedings before the Georgia Public Service Commission:

<table>
<thead>
<tr>
<th>Docket</th>
<th>Description</th>
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<tbody>
<tr>
<td>40161</td>
<td>Georgia Power Company’s 2016 Application for an Integrated Resource Plan</td>
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<tr>
<td>36498-U</td>
<td>Georgia Power Company’s 2013 Application for an Integrated Resource Plan</td>
</tr>
<tr>
<td>34218-U</td>
<td>Georgia Power Company’s Application for Decertification of Plant Branch Units 1 &amp; 2 and Plant Mitchell Unit 4C, Application for Certification of the Power Purchase Agreements with BE Alabama, LLC from the Tenaska Lindsay</td>
</tr>
<tr>
<td>31958-U</td>
<td>GPC 2010 Rate Case</td>
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<tr>
<td>31081-U</td>
<td>Georgia Power Company’s 2010 Application for an Integrated Resource Plan</td>
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<tr>
<td>27800-U</td>
<td>Georgia Power Company’s Application for Certification of Units 3 and 4 at Plant Vogtle and Updated Integrated Resource Plan</td>
</tr>
<tr>
<td>17688-U</td>
<td>Savannah Electric and Power Company’s 2004 Application for an Integrated Resource Plan</td>
</tr>
<tr>
<td>17687-U</td>
<td>Georgia Power Company’s 2004 Application for an Integrated Resource Plan</td>
</tr>
<tr>
<td>13306-U</td>
<td>Savannah Electric and Power’s 2001 Application for Approval of an Integrated Resource Plan</td>
</tr>
<tr>
<td>13305-U</td>
<td>Georgia Power’s 2001 Application for Approval of an Integrated Resource Plan</td>
</tr>
<tr>
<td>8709-U</td>
<td>Savannah Electric and Power’s 1998 Application for Approval of an Integrated Resource Plan</td>
</tr>
<tr>
<td>8708-U</td>
<td>Georgia Power’s 1998 Application for Approval of an Integrated Resource Plan</td>
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In Docket 4136-U, the GDS Team developed an alternative IRP for Savannah Electric that was subsequently approved by the Commission.

In addition to our extensive experience in Georgia, GDS Associates has a wide range of experience in integrated resource planning around the country. This experience includes the following consulting engagements:

- Development of an IRP for the Big Rivers Electric Corporation in Kentucky
- Development of an Integrated Resource Plan for the Electric Department of the City of Grand Island, Nebraska
- Analysis of the Integrated Resource Plan of Black Hills Power & Light on behalf of the South Dakota Public Service Commission
- Development of Integrated Resource Plans for the East Texas Electric Cooperative
- Development of an Integrated Resource Plan for the 2008 Maine Power Reliability Study
- Listed below are several examples of our related IRP, renewable energy and load forecasting experience and provide numerous client references in the industry.

### 2.1.3 GDS Integrated Resource Planning Projects

**Project Name:** Georgia Power Company 2016 Integrated Resource Plan  
**Client Organization:** Georgia Public Service Commission  
**Project Duration:** 2016  
**Client References:** Sheree Kernizan  
47 Trinity Ave., SW 6TH Floor  
Atlanta, GA 30334  
404-656-0948  

**Project Description:** GDS conducted an extensive review and evaluation of the Georgia Power Company 2016 Integrated Resource Plan. Specifically, GDS evaluated the IRP with respect to: (a) the validity of the long range load forecast; (b) existing supply-side and demand-side resources; (c) the selection and screening of new demand-side measures to ensure that potentially viable measures have been included; (d) the selection and screening of new supply-side resources (with emphasis on the nuclear power option) to ensure potentially viable resources have been included: (e) the analysis used to develop the fuel price forecast for reasonableness; (f) comparison of alternative IRPs and preferred IRP to ensure the best possible IRP selection; (g) assumptions used to develop the Companies’ clean air act compliance strategies; and (h) the four year action plan to implement the preferred IRP for reasonableness. GDS has performed reviews of Georgia Power Company’s IRP on behalf of the Georgia Public Service Commission since 1992.

**Consultant:** John Hutts (load forecasting), Brian Smith (supply-side resource screening and selection), Bill Jacobs (nuclear issues), Dick Spellman (demand-side), Paul Wielgus (fuel price forecast), John Chiles (transmission)
Project Name: Development of 2014 Integrated Resource Plan
Client Organization: Big Rivers Electric Corporation
Project Duration: 2014
Client Reference: Marlene Parsley
201 Third Street
Henderson, KY 42420-0024
270-844-6155

Project Description: GDS performed all optimization modeling using the Strategist Integrated Planning System in order to develop the optimal resource expansion plan for Big Rivers. The process involved modeling projected load and energy requirements, all existing resource operating characteristics and costs, fuel contract information, and all potential resource additions for the model to consider when additional capacity was needed in order to maintain adequate reserve criteria. GDS participated in the development of sensitivity cases which were defined by load growth assumptions, fuel price growth assumptions, renewable energy target assumptions, and emission cost assumptions. Optimal expansion plans were developed for each sensitivity case. GDS authored associated portions of the Integrated Resource Plan document.

Consultants: John Hutts (load forecasting), Brian Smith (supply-side resource screening and selection), Warren Hirons (demand-side)

Project Name: Development of 2014 Integrated Resource Plan
Client Organization: Hoosier Energy Rural Electric Cooperative
Project Duration: 2014
Client Reference: Mike Mooney
2501 South Cooperative Way
Bloomington, IN 47403
812-876-0316

Project Description: GDS performed all optimization modeling using the Strategist Integrated Planning System in order to develop the optimal resource expansion plan for Hoosier Energy. The process involved modeling projected load and energy requirements, all existing resource operating characteristics and costs, fuel contract information, and all potential resource additions for the model to consider when additional capacity was needed in order to maintain adequate reserve criteria. GDS participated in the development of sensitivity cases which were defined by load growth assumptions, fuel price growth assumptions, and emission cost assumptions. Optimal expansion plans were developed for each sensitivity case. GDS authored associated portions of the Integrated Resource Plan document. Dick Spellman of GDS presented the results of the new IRP to the Board of Directors of Hoosier Energy at an Annual Board Forum held in Indiana in August 2014.

Project Name: Load Forecast Review - Georgia Power Company Integrated Resource Plan
Client Organization: Georgia Public Service Commission
Project Duration: 2016
Client Reference: Sheree Kernizan
47 Trinity Ave., SW, 6TH Floor
Atlanta, GA 30334
404-656-0948

Project Description: Evaluation of Georgia Power Company’s 2016 Integrated Resource Plan filed with the Georgia Public Service Commission in 2010. The evaluation included a review of the company’s short-term and long-term load forecast. Utilized EPRI’s long-term forecasting packages (REEPS, COMMEND, INFORM, HELM) to evaluate the company’s long-term energy sales forecast and peak demand. Used RER’s MetrixND in evaluating the short-term
energy sales forecast. Provided expert testimony before the Georgia Public Service Commission regarding load forecast issues. GDS also performed load forecast reviews for forecasts that were filed in support of IRPs completed in 2013, 2010, 2007, 2004, 2001, and prior years.

Prime Consultant: GDS/John Hutts (load forecasting issues)

**Project Name:** Georgia Power Company Fuel Cost Recovery Application (FCR-22)

**Client Organization:** Georgia Public Service Commission

**Project Duration:** 2011

**Client Reference:** Veronica Thomas
47 Trinity Ave., SW 6TH Floor
Atlanta, GA 30334
404-656-0948

**Project Description:** Reviewed the forced outages, planned outage extensions and deratings at Plants Hatch and Vogtle during the period from November 1, 2009 through February 1, 2011. Provided an opinion on whether the outages were prudently incurred or the result of imprudence. Provided the Commission with guidance based upon experience in application of the standard with respect to evaluating nuclear plant outages.

**Consultant:** Bill Jacobs

**Project Name:** Progress Energy Florida Nuclear Cost Recovery Rule

**Client Organization:** Florida Office of Public Counsel

**Project Duration:** 2011

**Client Reference:** Charles Rehwinkel
111 West Madison
Room 812
Tallahassee, FL

**Project Description:** Assisted the Florida Office of Public Counsel by conducting a review and evaluation of requests by Florida Power and Light Company (FPL) for authority to collect historical and projected costs associated with extended power uprate (“EPU”) projects being pursued at the Turkey Point 3 and 4 and St. Lucie 1 and 2 nuclear plants, and historical and projected costs associated with FPL’s Turkey Point 6 and 7 new nuclear project through the capacity cost recovery clause.

**Consultant:** Bill Jacobs

**Project Name:** Georgia Power Company 2010 Integrated Resource Plan

**Client Organization:** Georgia Public Service Commission

**Project Duration:** 2010

**Client Reference:** Sheree Kernizan
47 Trinity Ave., SW 6TH Floor
Atlanta, GA 30334
404-656-0948

**Project Description:** GDS conducted an extensive review and evaluation of the Georgia Power Company 2010 Integrated Resource Plan. Specifically, GDS evaluated the IRP with respect to: (a) the validity of the long range load forecast; (b) existing supply-side and demand-side resources; (c) the selection and screening of demand-side measures to ensure that potentially viable measures have been included; (d) the selection and screening of supply-side resources (with emphasis on the nuclear power option) to ensure potentially viable resources have been included; (e) the analysis used to develop the fuel price forecast for reasonableness; (f) comparison of alternative IRPs and preferred IRP to ensure the best possible IRP selection; (g) assumptions used to develop the Companies’ clean air act compliance
strategies; and (h) the four year action plan to implement the preferred IRP for reasonableness.

Consultant:
John Hutts (load forecasting)
Bill Jacobs (supply side, clean air compliance)
Dick Spellman (demand side)
Paul Wielgus (fuel price forecast)
John Chiles (transmission)

Project Name: Georgia Power Company Vogtle 3 and 4 Certification
Client Organization: Georgia Public Service Commission
Project Duration: 2008-2009
Client Reference: Sheree Kernizan
47 Trinity Ave., SW 6TH Floor
Atlanta, GA 30334
404-656-0948
Project Description: Provide analysis of AP1000, EPC contract and project risk during Vogtle 3 and 4 certification proceedings.
Consultant: Bill Jacobs

Project Name: Georgia Power Company Vogtle 3 and 4 Construction Monitoring
Client Organization: Georgia Public Service Commission
Project Duration: 2009 to present
Client Reference: Sheree Kernizan
47 Trinity Ave., SW 6TH Floor
Atlanta, GA 30334
404-656-0948
Project Description: Monitor construction of the Vogtle 3 and 4 units. Keep the Staff and Commission apprised of all significant issues that could impact project schedule and/or cost. Review Company semi-annual VCM reports and testimony. Provide testimony at semi-annual VCM hearing.
Consultant: Bill Jacobs

Project Name: Georgia Power Company Plant Mitchell Conversion to Biomass
Client Organization: Georgia Public Service Commission
Project Duration: 2008 - 2014
Client Reference: Sheree Kernizan, Jamie Barber
47 Trinity Ave., SW 6TH Floor
Atlanta, GA 30334
404-656-0948
Project Description: Assist Staff in review of GPC application for certification of the conversion of Plant Mitchell to biomass fuel, assist Staff with monitoring conversion of Plant Mitchell to a biomass fired plant, and assist Staff in reviewing GA Power’s Plant Mitchell decision filing.
Consultant: Paul Wielgus

Project Name: Georgia Power Company GPC Rate Case – Transmission Cost Analysis
Client Organization: Georgia Public Service Commission
Project Duration: 2007
Client Reference: Sheree Kernizan
47 Trinity Ave., SW 6TH Floor
Atlanta, GA 30334
404-656-0948
Project Description: Review GPC transmission expenditures to assess reasonableness of costs, and analyze GPC transmission expansion plan for projected expenses.

Consultant: Seth Brown

2.1.3.1 Unit Retirement Study/Decertification Analysis

Project Name: Georgia Power Company 2013 IRP
Client Organization: Georgia Public Service Commission
Project Duration: 2013
Client Reference: Sheree Kernizan
47 Trinity Ave., SW 6TH Floor
Atlanta, GA 30334
404-656-0948

Project Description: Reviewed Georgia Power’s Retirement analysis, which was part of its 2013 IRP study. Georgia Power’s study compared the cost to upgrade and maintain its fleet of oil-fired and coal-fired generating units, particularly to account for the cost of numerous environmental regulations. This study led to the decision to retire thousands of MWs of Georgia Power’s generating unit capacity.

Project Name: Georgia Power Company 2007 IRP
Client Organization: Georgia Public Service Commission
Project Duration: 2007
Client Reference: Sheree Kernizan
47 Trinity Ave., SW 6TH Floor
Atlanta, GA 30334
404-656-0948

Project Description: Reviewed Georgia Power’s Retirement analysis, which was part of its 2007 IRP study. Georgia Power’s study compared the cost to upgrade and maintain its fleet of oil-fired and coal-fired generating units, particularly to account for the cost of numerous environmental regulations. This study led to the decision to retire McDonough 1 and 2 coal units.

2.1.3.2 Transmission Study and Ten-Year Transmission Plan

The GDS Team has participated in multiple efforts regarding the assessment of regional transmission systems for effectiveness in meeting the needs of a particular load region, both with the Company and in other jurisdictions. The GDS Transmission Team has conducted the Ten Year Transmission Plan assessment of the Georgia Power system in the 2007, 2010 and 2013 Integrated Resource Plan filings. In addition, GDS represents clients who have load within the MISO South/Entergy and Southwest Power Pool areas, and are active participants in the annual transmission planning processes in both of those regions. That participation includes the conducting of reliability assessments, the development of potential transmission solutions, and in reviewing the reliability and economic effects of various transmission projects.

Project Name: Evaluation of Regional Transmission Expansion Plan
Client Organization: East Texas Electric Cooperative
Project Duration: 2004-2015
Client Reference: Edd Hargett
Sam Rayburn G&T Electric Cooperative
P.O. Box 631623
Nacogdoches, TX 75963
936-560-9532

Project Description: GDS serves as the ETEC representative on all transmission matters within the Midcontinent Independent System Operator (MISO) and Southwest Power Pool (SPP) regions, including the assessment of annual transmission plans developed by the respective regions,
performing power flow and economic evaluations of the need and benefit of various transmission expansion projects, and representing the client on multiple stakeholder processes, which included reliability planning, economic planning, interconnection policy, power flow and stability model development and transmission planning policy.

Project Name: Evaluation of 500-kV Transmission Line Need
Client Organization: Virginia State Corporation Commission
Project Duration: 2012-13
Client Reference: Mr. Tim Faherty
P.O. Box 1197
Richmond, VA 23218-1197
804-371-9611
Project Description: GDS served as the Staff technical witness on the evaluation of the need for the 500-kV Surry-Skiffes Creek transmission line proposed by Dominion Virginia Power. GDS conducted the power flow review and verification of the Company results, developed and responded to data requests, submitted written testimony on behalf of Staff, and represented Staff at the hearing.

2.2 ENVIRONMENTAL COMPLIANCE STRATEGY

Project Name: Clean Power Plan Impact Analysis
Client Organization: East Texas Electric Cooperative
Project Duration: 2015
Client Reference: Edd Hargett
Sam Rayburn G&T Electric Cooperative
P.O. Box 631623
Nacogdoches, TX 75963
936-560-9532
Project Description: GDS is currently modeling the systems of AEP West and Entergy in order to measure the impacts of proposed carbon emission limitations. GDS is using the Strategist Integrated Planning System in order to project unit retirements and optimal expansion plans in order to estimate financial implications of compliance to cooperative clients that are embedded in the AEP West and Entergy transmission systems.

Project Name: Evaluation of Environmental Upgrades to Flint Creek Power Plant
Client Organization: General Staff - Arkansas Public Service Commission
Project Duration: 2012
Client Reference: Diana Brenske
Director, Electric Utilities Sector
Arkansas Public Service Commission
P.O. Box 400
Little Rock, Arkansas 72203-0400
Project Description: The General Staff of the Arkansas Public Service Commission retained La Capra Associates (now Daymark Energy Advisors) to assess the prudence of investing hundreds of millions of dollars in new pollution control equipment at the Flint Creek coal-fired power plant. One of the key elements of the proceeding was whether the plant was needed for local reliability. La Capra Associates (now Daymark Energy Advisors) performed a reliability assessment to determine if the reliability criteria violations did occur and whether the continued operation of this local generation would resolve those criteria violations. We also reviewed and critiqued the economic analysis of alternatives to the upgrades.

Consultants: Dan Koehler, Carrie Gilbert
Project Name: Evaluation of Air Quality Control System at Big Stone Coal-fired Power Plant
Client Organization: North Dakota Public Service Commission
Project Duration: 2011
Client Reference: Michael Diller
Director, Economic Regulation
600 East Boulevard
Department 408
Bismarck, ND 58505-0480

Project Description: The North Dakota Public Service Commission retained La Capra Associates (now Daymark Energy Advisors) to provide expert analysis and testimony relative to the application by Otter Tail Power and Montana-Dakota Utilities for an advance determination of prudency for a proposed emissions control project at their jointly-owned Big Stone coal-fired power plant (Docket Nos. PU-11-163 and 165). The proposed controls were required to comply with various Clean Air Act rules including the Regional Haze Rule and Mercury and Air Toxics Rule. La Capra Associates (now Daymark Energy Advisors) filed expert testimony in this proceeding.

Consultants: Dan Koehler, Carrie Gilbert

Project Name: Development of Commonwealth of Virginia Energy Plan
Client Organization: Commonwealth of Virginia, Department of Mines, Minerals and Energy
Project Duration: October 2006 – September 2007
Client Contact: Thomas Thompson
Virginia Department of Mines, Minerals and Energy
202 North Ninth Street
Richmond, Virginia 23219
Phone: (804) 692-3230

Project Description: In September 2007 GDS completed the Virginia Energy Plan for the Virginia Department of Mines, Minerals and Energy. The purpose of the Virginia Energy Plan was to chart a path forward that will provide for reliable energy supplies at reasonable rates and increase the use of conservation and efficiency measures in Virginia. The Plan was developed in accordance with 2006 legislation (Title 67 of the Code of Virginia; see Appendix B) that set out energy policy statements and objectives and directed the Department of Mines, Minerals and Energy to develop a ten-year state energy plan. The Plan is to be updated every five years. This Plan was developed using information gathered from the Virginia Energy Plan Advisory Group, which met five times to address the Plan’s major components. The Plan is also the product of input received at five public workshops held around the state and from public comments submitted via the Internet. The plan, written by GDS, was reviewed and approved by the Department of Environmental Quality and other state agencies, State Corporation Commission (SCC) staff, and the Virginia Center for Coal and Energy Research. The research and development recommendations are derived from a study by the Center for Innovative Technology.

Consultants: Dick Spellman, John Hutts, Jeffrey Huber, Jacob Thomas

2.2.1.1 Renewable Resources

Daymark is knowledgeable about a variety of renewable energy issues through its work with state planning agencies and developers. Daymark has expertise in both the policy issues and economics of renewable project technologies. Daymark has significant project-level experience in all renewable technologies including onshore and offshore wind, hydro, biomass, and solar and has performed numerous project economic analyses in support of investment or procurement decisions by utilities and end users. Consequently, Daymark has been extensively involved in renewable energy resource potential assessment, project development, finance, pro forma development, financing planning and support, siting applications and technical reviews, and policy evaluation.
Daymark has worked on several renewable energy projects for the GPSC Staff including an evaluation of a wind power purchase agreement, evaluation of solar installations on Army bases and reviewing Georgia Power’s proposed avoided cost of solar.

**Project Name:** Evaluation of a Wind Power Purchase Agreement  
**Client Organization:** Georgia Public Service Commission  
**Project Duration:** 2014-2015  
**Client Reference:** Jamie Barber  
Energy Efficiency and Renewable Energy Manager  
244 Washington Street Southwest  
Atlanta, GA 30334-9052  
404-651-5958  
**Project Description:** La Capra Associates (now Daymark Energy Advisors) was retained by the GPSC to evaluate a wind power purchase agreement (PPA) between Georgia Power and two Oklahoma wind projects. The project included reviewing the economics of the project and resulting in filing testimony before the Commission. La Capra Associates’ (now Daymark Energy Advisors) work also includes evaluating the Company’s filings on the Wind Request for Information, which was completed as part of the settlement agreement for this case.

**Consultant:** Dan Peaco and Carrie Gilbert

**Project Name:** Evaluation of 3x30 Army Solar Projects  
**Client Organization:** Georgia Public Service Commission  
**Project Duration:** 2014  
**Client Reference:** Jamie Barber  
Energy Efficiency and Renewable Energy Manager  
244 Washington Street Southwest  
Atlanta, GA 30334-9052  
404-651-5958  
**Project Description:** La Capra Associates (now Daymark Energy Advisors) was retained by the GPSC to evaluate three 30 MW solar projects proposed by Georgia Power. The projects will be owned by Georgia Power and sited on Army facilities within Georgia. La Capra Associates (now Daymark Energy Advisors) evaluated the economics of the projects and reviewed the contracts with the Army and engineering procurement and construction (EPC) contractor.

**Consultant:** Dan Peaco and Carrie Gilbert

**Project Name:** Review of Georgia Power Avoided Cost  
**Client Organization:** Georgia Public Service Commission  
**Project Duration:** 2014  
**Client Reference:** Jamie Barber  
Energy Efficiency and Renewable Energy Manager  
244 Washington Street Southwest  
Atlanta, GA 30334-9052  
404-651-5958  
**Project Description:** La Capra Associates (now Daymark Energy Advisors) was retained by the GPSC to review the solar avoided cost that was provided by Georgia Power in the Advanced Solar Initiative (ASI).

**Consultant:** Dan Peaco and Carrie Gilbert
**Project Name**: Analysis of 5,000 MW Solar Deployment in New York State  
**Client Organization**: New York State Energy Research and Development Authority  
**Project Duration**: 2011  
**Client Reference**: Carl Mas  
518-862-1090, ext. 3294  
**Project Description**: La Capra Associates (now Daymark Energy Advisors) was one of the primary authors and performed a number of modeling tasks for a major study of 5,000 MW of solar development in New York State. La Capra Associates (now Daymark Energy Advisors)’ staff reviewed and participated in the modeling of energy market, environmental, and economic impacts of different regional solar deployments and policies under various sensitivities. La Capra Associates (now Daymark Energy Advisors) developed spreadsheet models that linked pro forma, energy, and economic impact models to calculate wholesale and retail cost premiums, ratepayer impacts, and cost-benefit values.

**Consultant**: Carrie Gilbert

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**Project Name**: North Carolina Renewable Energy and Energy Efficiency Portfolio Standard (REPS) Study  
**Client Organization**: North Carolina Energy Policy Council  
**Project Duration**: 2010-2011  
**Client Reference**: Seth Effron  
919-707-9200  
**Project Description**: La Capra Associates (now Daymark Energy Advisors) conducted a review of the REPS policy in North Carolina and a study of policy design options for the future of that policy. La Capra Associates (now Daymark Energy Advisors) reviewed the results and progress from the initial years of implementation of the North Carolina REPS and conducted an economic analysis of the future of that policy and alternative policy options under consideration. The project included a stakeholder process to incorporate issues, concerns and information available from the renewable energy sector in North Carolina. The work was documented in a June 2011 final report: *North Carolina's Renewable Energy Policy, A Look at REPS Compliance To Date, Resource Options for Future Compliance, and Strategies to Advance Core Objectives.*

**Consultant**: Dan Peaco, Carrie Gilbert, Dan Koehler

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**Project Name**: Independent Evaluator of Wind Power and Wind Power Acquisition Evaluation  
**Client Organization**: Oklahoma Corporation Commission and Attorney General (OG&E)  
**Project Duration**: 2007-2012  
**Client Reference**: William L. Humes, Of Counsel, Phillips Murrah P.C.  
405-235-4100  
billh2121@att.net  
Mr. Humes served as Assistant Attorney General in Oklahoma throughout the tenure of our work for that office. He has recently joined the law firm Phillips Murrah.

**Project Description**: La Capra Associates (now Daymark Energy Advisors) was hired jointly by the Oklahoma Corporation Commission and the Oklahoma Office of the Attorney General (OAG) to serve in the role of Independent Evaluator during Oklahoma Gas & Electric’s (OG&E) development and execution of an RFP based solicitation for 300MW of wind capacity. The La Capra Associates (now Daymark Energy Advisors) team advised OG&E collaboratively on the RFP decision, scoring criteria and economic evaluation analytics. This solicitation was designed to receive bids for projects that would be sold to OG&E as well as projects making an offer to sell wind generation power output for up to 25 years. The La Capra Associates (now Daymark Energy Advisors) team advised on the having the scoring system account for the differences in risk between plant ownership and power purchase agreements. The
team reviewed all the bids and issued a report expressing any concerns on the bid evaluation process.

In addition to the independent evaluator work, La Capra Associates (now Daymark Energy Advisors) has analyzed and written testimony on four other acquisitions of wind power by OG&E or PSO since 2007 for the OAG. La Capra Associates’ (now Daymark Energy Advisors) work has included analyzing the value of the wind farms to OG&E and its customers, understanding the value of renewable energy certificates and evaluating OG&E’s adherence to competitive bidding rules in the State of Oklahoma.

Consultant: Dan Peaco and Carrie Gilbert

Project Name: New York Renewable Portfolio Standard Costs (RPS) and Benefits
Client Organization: New York State Energy Research and Development Authority (NYSERDA)
Project Duration: 2004-2014
Client Reference: Carl Mas 518-862-1090, ext. 3294
Project Description: To help NYSERDA understand the cost of meeting New York’s proposed RPS, La Capra Associates (now Daymark Energy Advisors) co-authored a report in 2004 detailing the region’s renewable supply curve to capture the cost and quantity of renewable resources. This culminated in an interactive spreadsheet model that allowed NYSERDA to test various market conditions and their impact. La Capra Associates (now Daymark Energy Advisors) updated this report in 2008, which included an updated supply-demand model for the Main Tier of the RPS and a new spreadsheet model to estimate costs of the Customer Sited Tier. Since the 2008 update, La Capra Associates (now Daymark Energy Advisors) has done two smaller updates to help NYSERDA understand the impact of market changes and proposed policy changes on the RPS cost. In 2013, La Capra Associates (now Daymark Energy Advisors) updated the analysis again as part of a larger study on the cost and benefits of the RPS. For the full report, see North Carolina’s Renewable Energy Policy, A Look at REPS Compliance To Date, Resource Options for Future Compliance, and Strategies to Advance Core Objectives, prepared for the North Carolina Energy Policy Council. June 2011
Consultant: Carrie Gilbert

2.2.1.2 Fuel Price Forecast
The GDS Team has prepared fuel price forecasts for several clients during the previous five years. The GDS Team has also reviewed information prepared by other entities. Samples of these projects are shown below:

**BLUE RIDGE POWER AGENCY**
- Projection of APCO wholesale rates – included development of fuel price forecasts for each APCO generating asset.
- Projection of PJM market clearing prices – included analysis and adjustment of fuel price forecasts developed by vendor of market price forecasting system.

**INDIANA MICHIGAN MUNICIPAL DISTRIBUTORS ASSOCIATION**
- Projection of I&M wholesale rates – included development of fuel price forecasts for each I&M generating asset.
- Projection of IMPA costs.
- Review of IMPA internal cost projections.

**EAST TEXAS ELECTRIC COOPERATIVE**
- Projection of AEP wholesale rates – included development of fuel price forecasts for AEP generating assets.
- Projection of fuel price forecasts for evaluation of specific assets.
KANSAS ELECTRIC POWER COOPERATIVE
- Projection of incremental energy purchase costs from wholesale supplier – included development of fuel price projections for wholesale supplier.
- Projection of average system energy purchase costs from wholesale suppliers – included development of fuel price projections for each wholesale supplier.

COLONIAL PIPELINE
- Projection of energy supplier rates – included development of fuel price projections for numerous utilities in the southeast and middle Atlantic regions.

ARKANSAS ELECTRIC COOPERATIVE CORPORATION
- Evaluation of proposals received in response to Request for Proposals – including assessment of fuel price assumptions.

**Project Name:** Georgia Power Company’s Semi-Annual Natural Gas Status Report Review for Plant Gaston and Plant Yates
**Client Organization:** Georgia Public Service Commission
**Project Duration:** Current
**Client Reference:** Blair Fink
47 Trinity Ave., SW 6TH Floor
Atlanta, GA 30334
404-656-0948

**Project Description:** As a result of the Georgia Public Service Commission’ Stipulation for Georgia Power Company’s 2013 Integrated Resource Plan, assists Staff in reviewing the Semi-Annual Updates on the status of the natural gas delivery outlook and natural gas fuel supply plans for Plant Gaston Units 1-4 and Plant Yates Units 6 and 7 until the fuel switch of the units is completed.

**Consultant:** Paul Wielgus

**Project Name:** Natural Gas and Power Risk Management Services
**Client Organization:** Utah Office of Consumer Services (UOCS)
**Client Reference:** Cheryl Murray, Utility Analyst
160 East 300 South, Suite 227
Salt Lake City, UT 84111
(801) 530-6957
cmurray@utah.gov

**Project Description:** GDS is providing natural gas and power risk management services under a multi-year contract with the UOCS to review all aspects of the natural gas and power hedging activities of Rocky Mountain Power (RMP). RMP is one of the largest utilities in the US to hedge extensively their natural gas and power supply needs. RMP is part of PacifiCorp which is owned by MidAmerican Holdings, a Warren Buffet company.

**Consultant:** Paul Wielgus

**Project Name:** Georgia Power Company Plant Mitchell Conversion to Biomass
**Client Organization:** Georgia Public Service Commission
**Project Duration:** 2008 - 2014
**Client Reference:** Sheree Kernizan, Jamie Barber
47 Trinity Ave., SW
6TH Floor
Atlanta, GA 30334
404-656-0948
Project Description: Assist Staff in review of GPC application for certification of the conversion of Plant Mitchell to biomass fuel, assist Staff with monitoring conversion of Plant Mitchell to a biomass fired plant, and assist Staff in reviewing GA Power’s Plant Mitchell decision filing.

Consultant: Paul Wielgus

Project Name: Long-Term Fuel and Retail Rate Forecast
Client Organization: Colonial Pipeline
Project Duration: 2006
Client Reference: Robert Williams
Colonial Pipeline
1185 Sanctuary Parkway, Suite 100
Alpharetta, Georgia 30004
(678) 762-2415

Project Description: Developing rate projections for electricity purchases from power suppliers throughout Colonial’s thirteen state pipeline system. Project includes electric rate projections for Colonial’s pipeline facilities for the 2010 through 2030 planning horizon. Forecasts of fuel, energy, and base rate components for Colonial’s power suppliers are being developed along with sensitivity scenarios and comparisons to other energy price forecasts. Project report will provide an overview of all major industry issues that could affect Colonial’s expected electricity cost in the future.

Consultant: Brian Smith/Paul Wielgus

2.3 APPLICATION FOR A DEMAND-SIDE RESOURCE CERTIFICATE AND/OR AMENDMENTS

Project Name: Review of Application for Demand-Side Resource Certificates
Client Organization: Georgia Public Service Commission
Project Duration: January – June 2013 and January – June 2016
Client Reference: Jamie Barber
Energy Efficiency and Renewable Energy Manager
Internal Consultants/Georgia Public Service Commission
Georgia Public Service Commission
244 Washington Street
Atlanta, Georgia
Phone: (404) 656-0994
Email: jamieb@psc.state.ga.us

Project Description: GDS reviewed Georgia Power Company’s application for certificates for several energy efficiency programs, prepared data requests, reviewed the Company’s filed testimony, prepared cross examination questions, filed and delivered direct testimony, and stood cross examination on this testimony. GDS assisted the Commission staff with preparing the final brief in this docket.

Consultant: Dick Spellman, assisted by Andrea Jester, Jeffrey Huber and Melissa Young

2.4 MONITORING A DEMAND-SIDE RESOURCE PROGRAM

The GDS Team has extensive experience in monitoring demand-side resource programs. An example of such a GDS project is provided below.

Project Name: 2014 – 2015 DSM Monitoring and DSM Technical Assistance for GPSC
Client Organization: Georgia Public Service Commission
Project Duration: January 2014 – December 2015
Client Reference: Jamie Barber
Energy Efficiency and Renewable Energy Manager
Internal Consultants/Georgia Public Service Commission
Georgia Public Service Commission  
244 Washington Street  
Atlanta, Georgia  
Phone: (404) 656-0994  
Email: jamieb@psc.state.ga.us

Project Description: GDS is providing on-going technical and regulatory support to the GPSC staff for monitoring of Georgia Power Company’s implementation and evaluation of the Programs approved in the 2013 IRP and the subsequent DSM Certification docket. This support includes attending quarterly Georgia DSM Working Group meetings, assisting with the development and review of EM&V plans prepared by the Company, reviewing EM&V survey instruments and reviewing the Company’s latest energy efficiency potential study and evaluation reports filed with the Commission during the 2016 to 2018 time period and reviewing request from the company for program design and program budget modifications. GDS has also assisted the staff with other on-going DSM monitoring tasks on an as needed basis. GDS has provided identical DSM monitoring services to the Commission staff for Georgia Power IRP filings in 1998, 2001, 2007, 2010 and 2013.

Consultant: Dick Spellman, assisted by Andrea Jester, Jeffrey Huber and Melissa Young

2.5 INTRODUCTION & BACKGROUND OF BAYNHAM ENVIRONMENTAL, LLC
Baynham Environmental is a woman-owned consulting firm that brings together over fifteen years of experience in the environmental and energy efficiency fields. The company draws on a unique combination of financial expertise, corporate skills, and hands-on environmental management. The company owner, Linda Baynham, brings experience in both the utility industry and the public and non-profit sectors to all projects that Baynham Environmental, LLC manages. Her corporate experience includes working on energy efficiency, demand response, green power and climate change programs for Entergy Corporation, a 4-state, 2.6 million customer utility-based in New Orleans. Baynham Environmental’s expertise is rounded out through her work with nationally recognized organizations including the Rocky Mountain Institute and the International Institute for Energy Conservation, plus her work in the public sector at the Environmental Protection Agency’s Energy Star Programs, the Louisiana Governor’s Office, the White House Office on Environmental Policy and the New Orleans City Council and Entergy New Orleans Energy Smart energy efficiency programs.

2.6 INTRODUCTION & BACKGROUND OF DAYMARK ENERGY ADVISORS, LLC
Daymark Energy Advisors is a leading provider of integrated planning, policy, and strategic analysis and advisory services to the North American electric and natural gas industries. Daymark consultants apply their knowledge, experience, and technology to provide clients with the highest quality actionable analysis and advice to support efficient and sustainable decisions under uncertainty. For over 35 years, they have proudly served a diverse client base, including electric and gas utilities, suppliers and large end-use consumers, developers and investors, and regulatory commissions and public policy organizations. Richard La Capra founded La Capra Associates in 1980. In 2001, the firm incorporated and transitioned to an employee-owned company under an employee stock ownership plan. In 2015, La Capra Associates was renamed Daymark Energy Advisors. Daymark serves their clients from locations in Massachusetts, Maine, Vermont, Florida, and California.

2.6.1 Daymark Integrated Resource Planning & Renewable Energy Policies
Daymark has extensive experience in integrated resource planning, including the economic analysis that has informed renewable energy policies across the country. They regularly advise policymakers on strategy, legislation and rulemaking matters, coupling our broad experience in the technical matters of the energy industry with our understanding of stakeholder perspectives.
2.6.2 Integrated Resource Planning-Related Testimony

The following table provides a listing of the integrated resource planning-related testimony of Daniel E. Peaco of Daymark Energy Advisors.

<table>
<thead>
<tr>
<th>Client</th>
<th>Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric Power Research Institute (EPRI)</td>
<td>Benchmarking of Nationwide Resource Planning Practices, with the objective of identifying how practices are evolving to address changes in the industry</td>
</tr>
<tr>
<td>Southern Environmental Law Center (SELC)</td>
<td>Review of Duke Energy Carolinas IRP Analysis and Modeling, with the objective of replicating the analysis and offering alternative resource planning recommendations, where appropriate</td>
</tr>
<tr>
<td>Connecticut Energy Advisory Board (CEAB)</td>
<td>Energy Planning and Procurement Services, where our review of individual utility resource plans was used in the facilitated collaboration between those utilities and the CEAB, resulting in recommendations on peak demand reduction programs, energy efficiency programs, renewable generation, combined heat and power facilities, and reliability considerations including dependence on natural gas for electric power generation</td>
</tr>
<tr>
<td>Manitoba Public Utilities Board</td>
<td>Need for and Alternatives to Review of Manitoba Hydro’s Proposal to Develop the Keeyask and Conawapa Hydro Power stations and Associated US Transmission and Expert Contracts, serving as the PUB’s independent expert in its decision-making relative to transmission and generation investment plans proposed by Manitoba Hydro</td>
</tr>
<tr>
<td>Arkansas Public Service Commission</td>
<td>Entergy Arkansas, Inc.’s Withdrawal from the Entergy System Agreement, Response to EAI’s Analysis of All Strategic Options, supplemental initial report prepared for the General Staff of the Arkansas Public Service Commission</td>
</tr>
<tr>
<td>Vermont Electric Power Company (VELCO)</td>
<td>Non-Transmission Alternatives Studies, providing siting application decision-makers with economic insights on the implications of multiple transmission projects proposed by VELCO; projects included upgrade and new construction (345 kV) investments in Vermont</td>
</tr>
<tr>
<td>Green Mountain Power (GMP)</td>
<td>Integrated Resource Plans, recurring engagements with each electric company to define long-term investment and planning strategies to meet substantial baseload energy requirements and peaking resource needs, considering the impact to short-term factors, societal costs, air emissions, and electric market and fuel price projections</td>
</tr>
<tr>
<td>Docket No.</td>
<td>Testimony Description</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Public Service Commission of Utah Docket No. 17-035-39</td>
<td>Expert testimony regarding PacifiCorp’s application for pre-approval of its proposed repowering of 999 MW of existing wind turbines, including issues regarding PTC qualification, economic benefits analysis, and project risks. Pre-filed Testimony, September 20, 2017 Surrubtal Testimony, November 15, 2017</td>
</tr>
<tr>
<td>Arkansas Public Service Commission Docket No. 12-069-U</td>
<td>Testimony regarding the evaluation of Entergy Arkansas’s proposed divestiture of its transmission business to ITC Holdings. Direct Testimony, April 19, 2013 Surrubtal Testimony, June 7, 2013 Supplemental Testimony - Rate Mitigation, Aug 15, 2013</td>
</tr>
<tr>
<td>Oklahoma Corporation Commission Cause No. PUD 201000037</td>
<td>Testimony regarding a 198 MW wind farm proposed by Oklahoma Gas &amp; Electric, addressing cost pre-approval, resource need, and competitive procurement requirements. Pre-filed Testimony, June 11, 2010</td>
</tr>
</tbody>
</table>
Project Approach & Plan of Action

This section of our proposal presents our approach to the scope of work (i.e., our plan of action) and a timeline for completing the tasks listed in the Commission’s RFP. GDS is willing to adjust the scope of work, the project timeline and the project budget to meet the needs of the Commission staff.

**Task 1: Review the IRP Filing and Subsequent File Testimony Submitted by Entergy Louisiana**

**Approach:** The initial step in the GDS Team's review and evaluation of the Entergy Louisiana (the “Company”) 2017 IRP filing will be to conduct an initial review of the filing for completeness, to determine if the filing meets the requirements of the Commission’s IRP rule, to identify any preliminary data or analytical issues or areas of concern, to identify any deficiencies in the IRP filing, and to identify any deficiencies or uncertainties in the information presented. The GDS Team will notify the Commission staff of any deficiencies in the Company’s 2017 IRP filing.

**Task 2: Identify Key Issues in the Entergy Louisiana IRP Filing**

**Approach:** In this task, GDS will thoroughly review the IRP filing and identify (for the Staff’s consideration) the most critical issues relating to IRP input assumptions, costs and performance characteristics of supply-side and demand-side resources, IRP modeling approaches, risk analysis, load forecasts, fuel price forecasts, etc.

*Generation Mix Study, Generation Technology Assumptions, Reserve Margin, Wholesale Generation Contracts*

The GDS Team will assess the reasonableness of existing and proposed supply-side and demand-side resources in the Company’s filed 2017 Integrated Resource Plan (IRP). The team will verify the validity and accuracy of the Company’s screening and selection of supply-side and demand-side alternatives. Viable supply-side generation types would include, but not necessarily be limited to, clean coal, nuclear, natural gas, solar, wind, and biomass. The team’s review and assessment would also include a detailed review of energy efficiency and demand response options. Viable demand-side options include those in the latest Arkansas Technical Reference Manual¹ as well as other options suggested by Commission Staff and other interested stakeholders. The GDS Team has many years of experience using the ABB Strategist Integrated Planning System (formerly the Ventyx Strategist system). Our Team has extensive experience with conducting integrated resource planning to select the least cost mix of supply-side and demand-side resources. If deemed necessary by the Commission staff, the GDS Team will develop an alternative generation mix and demand-side plan for recommendation to the Commission.

Upon request from Commission staff, the GDS Team will thoroughly review the demand-side resources selected for inclusion in the Company’s IRP. If this task is selected, we can review and evaluate the following DSM planning issues: (a) the selection and screening of demand-side measures to ensure that potentially viable measures have been included; (b) comparison of alternative DSM plans and the preferred IRP to ensure the best possible selection of DSM resources; (c) assumptions used to develop the Company’s DSM plans and budget; and (d) we can review any DSM year action plan developed by the Company to implement the DSM programs included in the Company’s IRP. GDS has provided identical DSM technical support to the Georgia Public Service Commission staff for Georgia Power IRP filings in 1998, 2001, 2007, 2010, 2013 and 2016. The GDS Team will also review and evaluate DSM testimony filed by interveners in the IRP docket if requested to do so by Commission staff.

¹ From the LA PSC General Order, Docket No R-31106: “Given the scrutiny that has already taken place by stakeholders and regulators in Arkansas, and to meet the goals of quickly implementing an initial set of EE programs in Louisiana, utilities are strongly encouraged to use the September 2012 Arkansas Technical Reference Manual to support their EM&V activities.”

http://lpscstar.louisiana.gov/star/ViewFile.aspx?id=8e1a6516-adb0-4a37-ad5b-f324f32976ad

Prepared by GDS Associates Inc
Load Forecast

In its IRP filing, the Company will provide a load forecast that provides the basis of the IRP with respect to future electric load and energy requirements. The forecast should contain projections of energy sales and peak demand and span the required planning horizon, beginning with the filing year. Forecast documentation will likely include the rationale and pertinent factors used in the development of the forecast. The load forecast document will likely include and describe the impact on peak demand and energy usage of various influential factors, such as appliance and building energy efficiency codes and standards. The forecast should be based on end-use models or some other comparable methodology that quantifies all relevant factors impacting consumption and peak demand. In addition to a base case, the forecast should include different scenarios and sensitivities to evaluate uncertainties associated with key forecast inputs. Key factors that may have more impact in the Company's load forecast relative to previous forecasts include: impacts of remote solar installations, faster than expected penetration of LED lighting technologies, the potential for significant growth in ownership of electric vehicles, and potential increases in retail electric rates.

Unit Retirement Study/Decertification Analysis

Typically, electric utilities perform a unit retirement study to determine which electric generation units should continue to operate and be maintained and upgraded, and which units should be decertified and retired. Such studies are often used to make decisions on whether to decertify any existing coal and oil-fired steam turbine units and oil-fired CT units, to switch certain coal-fired steam turbines to be fired on natural gas, and to amend prior decertification dates of units scheduled to be retired. In addition, if such assets are retired, then there may be a need for the Commission staff to address certain stranded cost recovery issues including costs such as the remaining net book value, materials and supplies, and fuel transportation contracts.

Decisions to retire units are driven by costs required to maintain units in an operable state, and costs required to upgrade units in order to meet environmental regulations. To the extent that the costs of maintaining and upgrading generating units exceed the economic benefit of the units compared to other resource alternatives, then the unit retirement analysis would likely determine that retirement would be prudent. Reliability and other operational requirements must be considered, and sometimes necessitate continuing to operate units regardless of their potential retirement benefits. GDS has the qualifications and experience to review such analyses and make recommendations to Commission staff.

Given the dynamic nature of changing environmental regulations, some of which are final and others that are being finalized, for example the Clean Power Plan and MATS, it is likely that Entergy Louisiana may perform and file evaluations to determine the economic viability of its remaining fossil generating units, and to determine if any of its planned retirements or compliance plans should be altered. Furthermore, Entergy Louisiana may address stranded cost issues in its IRP filing, if applicable.

Transmission Study and Long-Term Transmission Expansion Plan

Electric utilities update their long-term transmission expansion plans on a regular basis. Such plans are designed to address the needs of the Entergy Louisiana system including load and generation changes all while meeting mandatory NERC reliability requirements at the lowest reasonable cost. The lowest reasonable cost transmission plan needs to be more than just the minimal cost of constructing grid upgrades. The transmission expansion plan needs to be assessed as one of several components to optimally meet the Company's needs, through reducing congestion and improving system dispatch, increasing import capability to access lower cost generation assets, and optimally connecting new central station or distributed generation resources to target reliability needs without building expensive bulk upgrades. The GDS Team proposes to compare transmission plans from the 2015 Entergy Louisiana IRP to the current year submittal to identify changes made to the long-term plan and to assess the effectiveness and robustness of the transmission plan in light of potential regulatory changes at the state and Federal level. We will also examine the important transmission issues raised by the increase of any imports of wind power onto the Entergy Louisiana system.
**Environmental Compliance Strategy**

Upon request, the GDS Team will review the Company’s compliance with Federal environmental laws and regulations, such as the following:

- MATS
- CSASPR
- Regional Haze Rule
- National Ambient Air Quality Standards
- Clean Water Requirements
- Effluent Limitation Guidelines
- Clean Water Act, Section 316(b) Cooling Water Intake Structure Rule
- Management of Coal Combustion Residuals

Many of these regulations will require upgrades and Entergy Louisiana will likely perform detailed assessments of each to determine what upgrades are necessary, and to determine the associated costs that will have to be spent in order to comply with the regulations.

**Renewable Resources**

The GDS Team will assess progress made by the Company on the implementation of any renewable energy initiatives included in the Company’s 2015 IRP, including any proposed self-built renewable energy projects. Additionally, upon request of the Staff, Dan Peaco of Daymark Associates can review and assess the potential for and the issues related to adding additional renewable generation to the Entergy Louisiana system.

**Fuel Price Forecasts**

The GDS Team can conduct a review and analysis of the process employed by Entergy Louisiana in its development of the fuel price forecast(s) used in the IRP. The objective of this thorough review and analysis will be to determine if the Company’s filing complies with the Commission’s IRP rule and to evaluate the reasonableness of the Company’s efforts and results in this area. If elements of the forecast are found to be unreasonable, a comprehensive but easy to understand explanation of any shortcomings will be provided and the GDS Team will provide any recommended adjustments. The GDS Team will provide alternative fuel price forecasts as appropriate.

**Financial Review and Revenue Requirement Analysis**

The GDS Team can review the financial information that the Company used in evaluating its integrated resource plans, and to conduct a financial sensitivity analyses. As part of the IRP, the Company is required to provide the general rate of inflation, AFUDC rates, cost of capital and the assumed capital structure, discount rates, tax rates, and its derivation of capital revenue requirements. Furthermore, the IRP Rule requires the Company to financial impact analyses, which are useful in comparing the costs and benefits of one resource plan versus other plans.

The GDS Team has performed all of these tasks for other clients and has provided expert witness testimony on these issues before state regulatory commissions.

**TASK 3** Assist with development of data requests (discovery), development of cross-examination questions and briefings for the Staff

**APPROACH:** After completing Tasks 1 and 2, the GDS Team will prepare data requests to obtain data and other information necessary for the analysis and review of the Company’s filing and to address deficiencies and uncertainties regarding the load forecast.

**TASK 4** Organize and facilitate IRP technical conferences

**APPROACH:** The GDS Team will organize and facilitate technical conferences to provide Commission Staff and other interested stakeholders with information about the underlying assumptions used to develop the IRP, the methodology to develop the IRP, supply-side and demand-side resources considered, the Company’s preferred IRP plan, and alternative scenarios examined by the Company. The following steps will be taken:
The GDS Team will work with Commission Staff to define topics that need to be covered at technical conferences including technical and policy issues. The Team will also discuss with staff which parties need to be invited. We recommend the following topics be considered based on our previous experience:

- Louisiana PSC IRP rules
- Process for developing IRP
- Methodology to be used to select a least-cost mix of supply side and demand side resources
- Overview of available supply side resources
- Overview of available demand side resources
- Presentation of base case IRP
- Sensitivity analyses

The GDS Team will develop a schedule for technical conferences, including meeting dates and the location of each meeting.

The GDS Team will develop a draft agenda for each technical conference for review by the staff.

GDS will work with the Commission Staff to assign responsibilities for development of technical policy presentations for each technical conference.

As requested by staff, we will make a presentation of results of the GDS review of the Company’s filing.

The GDS Team will prepare minutes for each technical conference.

**TASK 5 Assist with Cross Examination of Company Witnesses**

**APPROACH:** The GDS Team will assist the Staff in its cross examination of the Company’s witnesses in the hearing on the application for a DSM certificate. This would include analyzing supporting testimony and responses to RFI’s, and assisting the LPSC Staff attorney, as needed.

**TASK 6 Prepare and Submit Testimony**

**APPROACH:** The GDS Team will prepare and submit testimony (as deemed necessary by the Louisiana Public Service Commission staff) relating to the findings of the GDS Team analysis of the Company’s IRP filing. The GDS Team’s work will include review of the Company’s IRP materials and analysis pertaining to these issues, conducting discovery and technical conferences, and preparing and presenting testimony in the proceedings before the Commission on these matters.

**TASK 7 Respond to data requests**

**APPROACH:** The GDS Team will respond to data requests submitted by the Company and other interested parties.

**TASK 8 Assist with Cross Examination of Rebuttal Testimony**

**APPROACH:** The GDS Team will analyze the rebuttal testimony submitted by the Company on the Staff’s recommendations regarding the Company’s proposed IRP. The GDS Team also will assist with cross examination of the Company's rebuttal witnesses. The following steps will be taken:

1. The GDS Team will review rebuttal testimony filed by Entergy Louisiana and other parties.
2. We will identify key issues that need to be addressed.
3. The Team will discuss with Commission Staff the approach to key issues.
4. GDS will develop and file written testimony.
5. We will present oral witness testimony before the Commission.

**TASK 9 Assist with drafting Briefs, development of stipulation agreements, and responding to Appeals of Commission Decisions**

**APPROACH:** The GDS Team will assist the LPSC Staff attorney with preparation of the hearing briefs on the proposed IRP as needed. Upon request of the Staff, the GDS Team will also assist with the development of stipulation agreements and responding to appeals of Commission Decisions.
agreements. If necessary, the GDS Team also will provide technical assistance in the preparation of any motions to appeal the final decision of the Commission regarding the proposed IRP. The following steps will be taken:

[1] The Team will work with Commission Staff to identify the most important issues to be included in the Staff’s brief.

[2] The GDS Team will assist staff with addressing key technical and policy issues related to the IRP.

[3] GDS will be available to staff as needed for ad hoc tasks relating to the development of final briefs.
4. Ability to Meet Minimum Requirements

The GDS Team meets or exceeds all of the minimum requirements listed in the Commission’s RFP as well as those provided in the Commission’s General Order dated November 10, 2014. This section of our proposal describes how the GDS Team meets these minimum requirements.

(NO 1) The Commission’s IRP Rules

GDS has read the Commission’s IRP rules (titled “Integrated Resource Planning Rules for Electric Utilities in Louisiana”) and understands them. One web site where these rules can be located is Entergy at http://www.entergy-louisiana.com/content/irp/LPSC_General_Order_R30021.pdf.

(NO 2) The Commission’s Rules and Orders Pertaining to the RFP Process as it Relates to the Acquisition of Power Supply Resources, including but not limited to, the Commission’s Market Based Mechanisms Order and its 1983 General Order

GDS has read the Commission’s IRP rules and has reviewed the Commission’s General Order dated November 10, 2014.

(NO 3) Policies Related to Energy Efficiency and Distributed Generation and Their Applicability to Resource Planning

GDS has read the Commission’s IRP rules, has reviewed the Commission’s General Order dated November 10, 2014 and has reviewed subsequent Commission Orders describing Commission policies relating to energy efficiency and distributed generation and their applicability to resource planning.

(NO 4) Policies Related to Transmission and Their Applicability to Resource Planning

GDS has read the Commission’s IRP rules, has reviewed the Commission’s General Order dated November 10, 2014 and has reviewed subsequent Commission Orders describing Commission policies relating to transmission facilities and planning, and the applicability of these items to resource planning.

(NO 5) Principles Associated with Resource Acquisitions, including but not limited to, whether or not a Particular Resource Meets the Utility’s Need for Power and Whether the Considered Resources are Able to Meet those Needs

GDS has read the Commission’s IRP rules, has reviewed the Commission’s General Order dated November 10, 2014, and has reviewed pertinent Commission General Orders relating to integrated resource planning issued by the Commission since 2012.

(NO 6) Whether or not a Resource Will Provide Reliable Service at the Lowest Reasonable Cost

GDS understands that the Commission’s IRP Rules define “Integrated Resource Planning” (or IRP) as “a type of utility planning process that develops long-range resource plans by seeking the optimal combination of resources (including demand, supply-side, and possibly other options) to meet forecasted load requirements at the lowest reasonable total cost, subject to various objectives and constraints, including but not limited to reliability, planning, regulatory, environmental and operational requirements. At times, and with proper justification, a utility may select resource options that are not exclusively least cost, for example, if the utility is able to justify that such selection is consistent with reliability, planning, regulatory, environmental and operational objectives or constraints, and will reduce the risk of customers incurring higher costs under certain scenarios.”
Resource Planning Methods to Improve the Efficiency and Reliability of a Utility's Power Supply Operations and Whether the Utility is Making Use of any Such Methods

Because GDS is an engineering consulting firm, our firm has the electrical engineering and financial analysis expertise to assess the viability of resource planning methods and new technologies that can be used to improve the efficiency and reliability of a utility’s power supply operations. GDS is currently completing a study of such technologies for the state government of Minnesota for potential electric energy savings for the electric grid in that State. When this study is completed, GDS can share the results with the Louisiana Public Service Commission staff.

Public Interest Criteria for Approval and Monitoring of Electric Generating Facility Projects

GDS has read the Commission’s IRP rules and the General Order relating to the 2015 Entergy Louisiana RFP and is familiar with the Commission’s public interest criteria for approval and monitoring of electric generating facility projects.

Rules and Policies on Cost Recovery, including ELL’s Formula Rate Plan or Other Rate Plan in Place During the Course of the IRP

GDS has read and is familiar with the Commission’s rules and policies on cost recovery issues.

MISO Tariffs, Rules and Planning Processes, Generally

Due to GDS’ work for numerous government and utility clients affected by MISO tariffs, rules and planning processes, GDS engineers and analysts are very familiar with these items.

4.1.1 Demonstrated Experience Involving Public Utility Regulation, Other Regulatory Issues on Administrative & Judicial Levels, Presentation of Direct Testimony or Report & Recommendations, Assistance Developing Cross Examination of Adverse Witnesses and Analysis of Comments and Exceptions to Proposed Recommendations

GDS and Daymark have provided in the qualifications and experience section of this proposal detailed information on our experience with public utility regulation, analysis of IRP issues, development and presentation of expert witness testimony relating to IRP issues, and assisting with all types of regulatory support (identification of key issues, development of discovery, IRP modeling, drafting briefs, etc.). The GDS and Daymark staff assigned to this project for the Louisiana Public Service Commission have lengthy experience participating and testifying in cases involving public utility regulation, other regulatory issues on administrative and judicial levels, presentation of direct testimony, preparing detailed reports with findings and recommendations, assisting with the development of cross examination questions for adverse witnesses and analysis of comments and exceptions to proposed recommendations. See the resumes of Richard Spellman of GDS and Daniel Peaco of Daymark Energy Advisors (these resumes are located in the appendices of our proposal) for a complete list of testimony filed by these two Team members with state regulatory commissions.

4.1.2 Proven Experience Before Regulatory Agencies such as SEC, FERC, FCC and Other Similar Agencies

Listed below are examples of projects where Robert C. Smith, Vice President of GDS, has filed testimony on electric utility issues with FERC.

Federal Energy Regulatory Commission

- Gulf States Utilities Co., Docket No. ER84-568
- Gulf States Utilities Co., Docket No. ER85-355
- Carolina Power & Light Co., Docket No. EL91-28-000
- Delmarva Power & Light Co., Docket No. ER93-96-000
- East Texas Electric Cooperative, Inc., Docket No. ER95-1175-000
- Detroit Edison Co., Docket No. OA96-78-000
- East Texas Electric Cooperative, Inc., Docket No. ER96-485-000
- International Transmission Company, Docket No. ER00-3295-003
- Entergy Services, Inc., Docket No. ER07-956
4.2 **ESTIMATED TIMELINE**

Our estimated timeline for this project is provided on the following page as seen in TABLE 4-1.
<table>
<thead>
<tr>
<th>Description of Task</th>
<th>Months 1-2</th>
<th>Months 3-4</th>
<th>Months 5-6</th>
<th>Months 7-8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Review Application</td>
<td></td>
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<tr>
<td>2. Conduct Discovery</td>
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<tr>
<td>3. Evaluate Filing</td>
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<tr>
<td>4. Prepare Report on Findings</td>
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<tr>
<td>5. Assist with Cross of Applicant</td>
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<tr>
<td>6. Prepare and Submit Testimony</td>
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<tr>
<td>7. Analyze Rebuttal Testimony</td>
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<tr>
<td>8. Assist with Cross on Rebuttal</td>
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<tr>
<td>9. Assist with Briefs</td>
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<tr>
<td>10. Commission Decision</td>
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</tbody>
</table>
Key Personnel & Roles on the Project

The key personnel of the GDS Team are provided in TABLE 5-1. TABLE 5-1 identifies the Overall Project Manager and Lead contact who will be responsible for ensuring that the project is timely and of good quality. A brief description of the education, professional certifications and roles of each consultant assigned to the project are also presented in TABLE 5-1.

Biographies for each consultant are provided beginning in Section 5.1. Resumes for the GDS Team consultants are provided in APPENDIX A. Resumes describe relevant responsibilities from other projects that will help the bid evaluation team evaluate our qualifications and experience.

<table>
<thead>
<tr>
<th>Personnel &amp; Title</th>
<th>Education &amp; Certification(s)</th>
<th>Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDS ASSOCIATES, INC. {1850 Parkway Place Suite 800 Marietta, GA 30067}</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Richard Spellman</td>
<td>BA, MS CMVP</td>
<td>Overall Project Manager</td>
</tr>
<tr>
<td>John Hutts Principal</td>
<td>BA, MBA</td>
<td>Review of the Company’s electric peak load and energy forecast</td>
</tr>
<tr>
<td>John Chiles Principal</td>
<td>BA, MBA</td>
<td>Review of the Company’s electric peak load and energy forecast</td>
</tr>
<tr>
<td>Paul Wielgus Managing Director</td>
<td>BS, MS, MBA, JD Licensed in TX</td>
<td>Review of the Company’s fuel price forecast; Energy Risk Management</td>
</tr>
<tr>
<td>Brian Smith Senior Project Manager</td>
<td>BS, MA CEM, CMVP</td>
<td>Review of the Company’s IRP modeling process and all input assumptions for supply-side resources</td>
</tr>
<tr>
<td>Jeffrey Huber Senior Project Manager</td>
<td>BS, MA CEM, CMVP</td>
<td>Review of all input assumptions for used for the Company’s analysis of energy efficiency and demand response measures and programs</td>
</tr>
<tr>
<td>Josh Duckwall Project Manager</td>
<td>BS CEM, LEED AP, GC</td>
<td>Data collection and analysis</td>
</tr>
<tr>
<td>Warren Hirons Project Engineer</td>
<td>BSEE, BSES PE, CEM</td>
<td>Data collection and analysis</td>
</tr>
<tr>
<td>Melissa Young Engineer</td>
<td>BS EIT, EMIT</td>
<td>Data collection and analysis</td>
</tr>
<tr>
<td>BAYNHAM ENVIRONMENTAL {430 Hillary Street New Orleans, LA 70118}</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linda Baynham Principal Consultant</td>
<td>BA, MS, MBA</td>
<td>Development of Louisiana specific demand-side alternatives</td>
</tr>
<tr>
<td>BAYNHAM ENVIRONMENTAL {370 Main Street Suite 325, Worcester, MA 01608}</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Daniel Peaco Principal Consultant</td>
<td>BS, MS</td>
<td>Review of the Company’s IRP modeling process and all input assumptions for supply-side resources</td>
</tr>
</tbody>
</table>
5.1 Biographies of GDS Associates, Inc. Key Staff

Richard F. Spellman, CMVP, President

Mr. Spellman is the President of GDS and has over 41 years of integrated resource planning experience, including 25 years of project management experience for GDS clients. Mr. Spellman will serve as the overall Project Manager for this project. In 2016 he served as the Project Manager for GDS’ one-year project to conduct a thorough review and critique of the Georgia Power Company Integrated Resource Plan. He also provided IRP expert witness testimony on behalf of the Commission staff in this docket. He has worked on developing integrated resource plans for the East Texas Electric Cooperative, the City of Lafayette, Louisiana, Grand Island, Nebraska, Hoosier Energy, Central Maine Power Company, Big Rivers Electric Corporation, Consumers Energy, DTE Energy, and Ameren Missouri. He has provided regulatory support and expert witness testimony on IRP issues for numerous state public utility commissions. He served as the GDS Project Manager for the development of energy efficiency and demand response plans for Ameren Missouri, Boston Edison, Boston Gas, Brazos Electric Cooperative, British Columbia Hydro, Central Electric Power Cooperative (South Carolina), Central Maine Power Company, Consolidated Edison, Consumers Energy (Michigan), the District of Columbia Department of the Environment, DTE Energy (Michigan), East Texas Electric Cooperative, the Efficiency Maine Trust, Green Mountain Power, Hoosier Energy, KeySpan Energy Delivery, Maryland Energy Administration, North Carolina Electric Membership Cooperative, PowerSouth, Public Service of New Mexico, Questar Gas, Cooperative Energy (formerly South Mississippi Electric Power Association), Union Gas, Wisconsin Public Service and the State of Virginia. Examples of clients for whom he has developed detailed DSM Action Plans include Central Maine Power Company, Consolidated Edison of New York, the Efficiency Maine Trust, KeySpan Energy Delivery and Wisconsin Focus on Energy. Before joining GDS in 1993, Mr. Spellman was the Manager of Marketing and Product Development at Central Maine Power Company. He has also served as the chairman of the New England Power Pool DSM Planning Committee in 1991 and 1992. He served on the Board of Directors of the Association of Energy Services Professionals from 2005 to 2010. Mr. Spellman has a BA degree with distinction in Math/Economics from Dartmouth College (graduated cum laude and with distinction) and an MBA from the Thomas College Graduate School of Business. He is also a graduate of the University of Michigan Graduate School of Business Administration Management II Program and the Electric Council of New England Skills of Utility Management Program. Mr. Spellman received his Certified Measurement and Verification Professional Certification from the Association of Energy Engineers in 2013, and he Certification was renewed in 2016 after meeting continuing education requirements.

John Hutts, Principal

Mr. Hutts is a Principal of GDS and has been a member of the firm since its inception in 1986. He has 30+ years of consulting experience and specializes in statistics and quantitative analysis. Specific applications include load forecasting, load research, probability and simulation analysis, billing analysis, sample design, customer surveys and customer profiling. Technical skill areas of expertise include sampling, econometric modeling, end-use modeling, neural networks, and data mining. Mr. Hutts has participated in the multiple projects involving the development of, or review and evaluation of load forecasts, DSM studies, and IRPs.

In the electric utility industry, Mr. Hutts has provided load forecasting services for utilities in Alabama, Alaska, Arkansas, Georgia, Illinois, Indiana, Kentucky, Louisiana, Mississippi, Missouri, North Carolina, Ohio, South Carolina, Texas, Virginia, Nova Scotia, British Columbia, and New Brunswick. The load forecasting systems developed or managed by Mr. Hutts include day-ahead hourly forecasts, 12-24 month forecasts, and 15-20 year forecasts. He has conducted consumer surveys for utilities in Alabama, Georgia, Ohio, South Carolina, and Texas. Mr. Hutts has also provided forecast evaluation services for various state agencies and related regulatory entities. Mr. Hutts has provided testimony before public service commissions in Georgia, Oklahoma, Michigan, and Texas regarding load forecast, load research, weather normalization, and revenue requirements issues. He has also conducted load forecasting and customer survey training classes.

In addition to his work in the utility industry, Mr. Hutts has provided consulting and research assistance to clients in the banking, retail, commercial real estate, hotel, manufacturing, recreation, professional sports, college athletics,
and education industries. Mr. Hutts holds an MBA from Georgia State University and a Bachelor of Business Administration from the University of Texas at Austin with a concentration in statistics.

John Chiles, Principal ● Mr. Chiles has over 23 years of electric utility and consulting experience. He has worked in several sectors of the energy industry, including cooperatives, municipals, investor-owned utilities, and merchant energy companies. Included in this experience is generation and transmission planning, RFP bid evaluation, market design analysis, transmission access issues, locational marginal pricing, regulatory litigation, control area operations and next-day transmission trading. He was responsible for managing the daily transmission portfolio for the two largest merchant power plants in the United States, and coordinated a generator-only control area in the WECC region. He has represented multiple companies at Regional Transmission Organizations and has provided technical guidance on issues before state commissions and the FERC such as generator operating limits, generator imbalance protocols, RTO transmission issues, transmission facility need determination and transmission access.

Specifically, Mr. Chiles has consulted with utilities, government agencies, and industrial clients in the following areas:

- Served as Stakeholder Representative for clients within Entergy, the Midcontinent Independent System Operator (MISO) and the Southwest Power Pool (SPP) on matters related to transmission expansion planning and market design
- Assisted multiple clients during the Entergy integration into MISO, including conversion of transmission rights, valuation of generation assets, and Day 2 market preparation
- Provided generation interconnection support services for renewable and fossil-fuel based facilities, including siting analysis, technical study support, client representation with Transmission Providers, and negotiation of Interconnection Agreements
- Filed expert witness testimony at FERC and State jurisdictions regarding transmission facility need determination, transmission loss calculations, integrated resource planning and Regional Transmission Organization (RTO) integration activities
- Conducted NERC mock audits on Transmission Planning (TPL), Facility Rating (FAC), and Modeling (MOD) Standards for numerous municipal and cooperative organizations
- Supported generation procurement Request for Proposals (RFPs) through providing technical and strategic support on transmission issues

Mr. Chiles holds a Bachelor of Science in Engineering from the University of South Florida.

Paul Wielgus, Managing Director ● Mr. Wielgus is a Managing Director with GDS. Mr. Wielgus has over 30 years of commercial and regulatory experience in the energy markets with emphasis on energy transaction contracting, energy risk management and hedging, project development and management, regulatory due diligence, structuring, M&A, and expert testimony. This experience includes industrial end use, power generation projects with regulated utility and IPP operations, wholesale markets, and energy consulting for entities actively involved in the energy markets. Mr. Wielgus led the development and closure of over 2,000 MWs of power projects and had the full responsibility for the development, permitting, approval, contracting, transmission and fuel interconnects, BoP, construction, and start-up. Mr. Wielgus provided expert testimony in the areas of power assets, fuels, energy risk management and hedging, energy pricing, rates, and integrated resource planning (IRP), and related matters. Before joining GDS, Mr. Wielgus held senior commercial management positions with the utility affiliates of AEP and Entergy, and with NRG. Mr. Wielgus has a B.S. in Economics, an M.S. in Mineral and Energy Resources, an MBA, and a JD. He is a licensed attorney in Texas.
Brian Smith, Senior Project Manager • Mr. Smith has 33 years of experience in the electric utility industry. Prior to joining GDS, he worked in planning roles at two municipal utility organizations. He has utilized utility planning software systems for his entire career, beginning with zonal PROMOD modeling for JEA. Mr. Smith has modeled the production and financial operations of utilities across the United States. This modeling experience includes, in addition to the use of industry standard software systems, the development of detailed spreadsheet-based models. His project experience at GDS has focused on analysis of alternative generating resource options, projections of market prices, and projections of wholesale supplier rates. He has testified before several state commissions on issues related to expansion planning and cost recovery. Specific software systems he has used include Ventyx’s Strategist, PROMOD, and MarketPower packages. Mr. Smith earned a BS Degree in Industrial Engineering from Georgia Tech.

Jeffrey Huber, CEM, CMVP, Senior Project Manager • Mr. Huber is a Project Manager at GDS and is responsible for project management of energy efficiency and demand response potential studies and market research projects for GDS clients. He has completed over 30 DSM potential studies, including electric and natural gas studies in Michigan, Vermont, and Maine. He also led the completion of the Pennsylvania Residential Baseline study in 2011-12 and conducted similar studies in Mississippi, Maine, and Indiana (Hoosier Energy). Jeffrey also provides technical support to GDS clients on energy efficiency program design and implementation projects, benefit/cost analyses for energy efficiency programs, and other market research studies. Jeffrey is experienced in conducting statistical analyses (frequency distributions, cross tabulations, multivariate analyses) and he is proficient in MS Office (Word, Excel, PowerPoint). Jeffrey has a BA degree (2001) from the University of Florida and a MA degree (2004) in Anthropology with a minor in Statistics from the University of Tennessee.

Josh Duckwall, CEM, LEED AP, GC, Project Manager • Mr. Duckwall specializes in residential, commercial, and industrial energy efficiency. He is a licensed residential and commercial general contractor, and a former Home Energy Rating System (HERS) trainer with more than 14 years of experience managing energy efficiency programs and projects. Mr. Duckwall assists the energy efficiency and renewable energy department at GDS by driving projects focused on statewide efficiency and incentive programs, as well as servicing large clients looking to uncover the viability of current and future DSM programs. Some of his recent projects include an ongoing impact and process evaluation for Jacksonville Electric Authority, TRM measure development for Maine and Minnesota, and industrial incentive program design in Canada. Mr. Duckwall joined GDS in November 2013 and is based in the Marietta, Georgia, office. Prior to joining GDS, he spent many years managing new and existing home energy certifications for Southface Energy Institute before joining up with a group to provide LEED certifications for commercial and industrial customers, and most recently served as a project manager for a commercial and industrial design-build firm in Atlanta focused on energy efficient measures. Mr. Duckwall performed ASHRAE-level audits for all types of commercial and industrial facilities and then served as an on-site project manager for installation for clients, including Alcoa, Army and Air Force Exchange Service, and MillerCoors. Mr. Duckwall holds a Bachelor’s Degree from the University of Georgia.

Warren Hirons, P.E., CEM, Project Engineer • Mr. Hirons has assisted with the development of energy efficiency potential studies and benefit/cost analysis of energy efficiency and demand response measures and programs. Mr. Hirons has developed designs and plans as well as economic feasibility studies for energy efficiency and demand response programs. He is experienced in conducting residential and commercial energy audits and assisted with the analysis of energy data for these sites. Mr. Hirons has managed energy efficiency projects and has provided impact and process evaluations of energy efficiency and demand response programs. Mr. Hirons has a Bachelor’s degree in Environmental Engineering from North Carolina State University and a BS Degree in Environmental Economics and Management from the University of Georgia.
Melissa Young, EIT, EMIT, Engineer  
Ms. Young is a graduate from the Georgia Institute of Technology in Atlanta, Georgia and received her BS in Mechanical Engineering in May 2015. She worked as an Engineering Assistant / cooperative student in the Energy Efficiency / Renewable Energy Department at GDS since 2012, and has worked two years full-time since she graduated. Ms. Young has completed demand response potential studies for Consumers Energy, DTE Energy, Lansing, Michigan Board of Water and Light, and Ameren Missouri. Melissa has further developed the GDS Demand Response Model (DR Model) to assist in the completion of these potential studies. The DR Model assesses the benefit-cost analysis, while also evaluating the total demand savings potential in each territory. In addition to demand response potential studies, Ms. Young has completed renewable energy potential studies for Efficiency Maine Trust, the District of Columbia Department of Energy, and Ameren Missouri during her time at GDS. She has worked on an energy efficiency study for the Pennsylvania Public Utilities Commission and assisted colleagues with various other energy efficiency studies. Ms. Young is currently working on a demand response potential study for Austin Energy. She has been responsible for using engineering algorithms and models to calculate energy and demand savings and technical potential data on various demand response, energy efficiency and renewable energy programs.

5.2 BIOGRAPHIES OF BAYNHAM ENVIRONMENTAL, LLC KEY STAFF
Linda Baynham, Owner  
Ms. Baynham brings experience in both the utility industry and the public and non-profit sectors to all projects that Baynham Environmental manages. Her corporate experience includes working on energy efficiency, demand response, green power and climate change programs for Entergy Corporation, a 4-state, 2.6 million customer utility based in New Orleans. Baynham Environmental’s expertise is rounded out through her work with nationally recognized organizations including the Rocky Mountain Institute plus her work in the public sector at the Environmental Protection Agency’s Energy Star Programs, the Louisiana Governor’s Office, and the New Orleans City Council’s and Entergy New Orleans Energy Smart energy efficiency programs. Ms. Baynham is also a Certified Energy Manager and has worked on energy audits of City of New Orleans buildings and New Orleans public schools.

5.3 BIOGRAPHIES OF DAYMARK ENERGY ADVISORS, LLC KEY STAFF
Daniel E. Peaco, Principal Consultant  
Dan has 35 years of experience performing policy and planning analysis and advising decision-makers in the electric industry. He is frequently sought out as an expert witness and as an advisor to senior utility managers and public policy officials. His principal practice areas include integrated resource planning, transmission and non-transmission alternatives, generation asset valuation, and strategic planning. He served as president of Daymark from 2002 to 2015 and as chairman since 2002. Before joining Daymark, he held management and planning positions in power supply planning at Central Maine Power, CMP International Consultants, Pacific Gas & Electric and the Massachusetts Energy Facilities Siting Council. Dan holds an M.S. in Engineering Sciences, Resource Systems, and Policy Design from the Thayer School of Engineering at Dartmouth College and a B.S. in Civil Engineering, Water Resource Systems, from the Massachusetts Institute of Technology.

TABLE 5-2 below provides more detailed information on the roles and responsibilities of each Team member.
<table>
<thead>
<tr>
<th>Task</th>
<th>Task Description</th>
<th>GDS Team Lead(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B.</strong></td>
<td>Assess the reasonableness of the existing and proposed supply-side and demand-side generation mix and technologies and verify the validity and accuracy of the Company's screening and selection of existing and proposed generation.</td>
<td>Supply-side: Brian Smith (review characteristics of generation resources, overall analytical due diligence), Dan Peaco (review of renewable resource assumptions and methodology), Demand-side: Dick Spellman, Jeffrey Huber, Linda Baynham</td>
</tr>
<tr>
<td><strong>C.</strong></td>
<td>Assess the validity of the long-term load forecast and if appropriate, propose alternative long-term load forecast.</td>
<td>John Hutts</td>
</tr>
<tr>
<td><strong>D.</strong></td>
<td>Review and analyze proposed retirements for reasonableness and conduct independent Unit Retirement Analysis and assess any related impacts on depreciation rates and determine if stranded costs would result from unit retirements. Includes decertification issues. (This task is very related to Task E, the assessment of the Company's environmental compliance strategy, and to the GDS Team proposed additional scenarios relating to environmental compliance. Task C will mainly cover the economic evaluation of the Company’s planned unit retirements.)</td>
<td>Brian Smith, Dan Peaco</td>
</tr>
<tr>
<td><strong>E.</strong></td>
<td>Review and assess reasonableness of bulk transmission system additions, retirements and alternatives such as distributed generation and propose alternatives to transmission additions where appropriate. (We note that the Company’s wind resource study shows a limit on the transfer capability on the transmission system for wind power generated out-of-state. Our team will take this issue into consideration. We will also examine the impacts of FERC Order 1000 on Southern Company transmission planning.)</td>
<td>John Chiles, Dan Peaco</td>
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<tr>
<td><strong>F.</strong></td>
<td>Review and assess feasibility of the environmental compliance strategy and compliance with current (Clean Air Act) and prospective Federal and State environmental regulations.</td>
<td>Brian Smith, Dan Peaco</td>
</tr>
<tr>
<td><strong>G.</strong></td>
<td>Review and assess issues including but not limited to (1) studies regarding the impact to the grid by adding variable generation resources such as solar and wind facilities, (2) the value of solar energy, (3) any Company proposed self-build renewable pilots.</td>
<td>Brian Smith, Dan Peaco</td>
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<tr>
<td><strong>H.</strong></td>
<td>Conduct analysis for reasonableness of all fuel price forecasts and provide alternative forecasts if appropriate.</td>
<td>Paul Wielgus</td>
</tr>
<tr>
<td><strong>I.</strong></td>
<td>Review cost and revenue requirement impacts of proposed IRP. (This review by our Team will include a review and assessment of the uncertainty surrounding the costs, rate impacts and inter-temporal equity of key supply-side and demand-side resources.)</td>
<td>Brian Smith, Dan Peaco</td>
</tr>
</tbody>
</table>

### 5.4 GDS Project Management Practices

The GDS Project Manager, Richard Spellman, will make use of appropriate total quality management tools, such as monthly timelines, monthly work schedules, budget variance reports, and "percent work task completed" reports to increase the efficiency and effectiveness of project management.
All subcontractor supervisory personnel will come under the direction of the GDS Project Manager, Richard Spellman. Work to be performed by the subcontractors will be monitored carefully to ensure that deliverables are completed on time, within scope and budget. GDS has the ultimate authority and responsibility for the successful performance of all support services to be provided. It will hold its subcontractors accountable for meeting the same high-quality professional standards that it expects of in-house employees.

The following section presents the project management practices that GDS will employ for management of this project.

[1] Our Project Manager, Richard Spellman, will serve as the individual responsible for managing and assigning overall work assignments and project activities and he will serve as the principal point of contact for all communications with our Project Team. Mr. Spellman will direct and coordinate work assignments for all Team members.

[2] Richard Spellman will communicate with the designated Commission Contract Manager on a regular basis as to the progress of the work, the results to date, and any problems encountered. Mr. Spellman will set up regular weekly or bi-weekly teleconferences with the Commission project manager to discuss task order assignments, status of task order deliverables and Commission comments on such deliverables.

[3] Our Team will provide Commission staff with drafts of all major deliverables for review, comment, and approval.

[4] Any project files or information will be securely transferred and held with a high degree of security to protect against any IT threats. The process by which our Team should transfer information (i.e. SharePoint or FTP) will be at the discretion of Commission and will be fully supported by the GDS IT Department.

[5] Our Team will seek prior approval before undertaking any significant planning or development tasks. During the course of the IRP review, our team will seek ways to continuously improve our work and communications with Commission staff.

[6] At the beginning of the project, the key personnel of our project team will attend the kick-off meeting with Commission staff to review the objectives of the contract and initial work assignments. Mr. Spellman will communicate regularly by in-person meetings, phone and e-mail with the Commission Contract Manager throughout this project.

[7] Our team’s key personnel will hold internal project staff meetings on a regular basis to discuss work assignments and status, and any changes in the work plan, schedule, or individual assignments that may be necessary. These key personnel will report any delays or unforeseen difficulties to the GDS and Commission project managers as soon as they develop.

[8] GDS requires that its employees and subcontractors keep an accurate, daily log of all hours worked on this project and descriptions of the work performed each day. Invoices will provide a detailed summary on the hours billed, for the appropriate period, by all Team members.

[9] All deliverables will be subject to internal team quality review, editing and proofreading before being submitted to Commission. Mr. Spellman will be responsible for ensuring the quality of all project reports and memos. We will prepare a quality assurance plan at the beginning of the project to ensure that all analyses, reports, data requests, and expert witness testimony are thoroughly reviewed and proofread before they are submitted to the Commission.

[10] The project manager will work very closely with the Commission Contract Manager to arrange meetings and public workshops that are planned in task order work plans.

[11] All project presentations will be made by key project team members, and any audio-visual aids and other presentation materials will be made available to the Commission Contract Manager for review and comment before presentation.
Our team will make it a high priority to respond to the needs of Commission staff as rapidly as possible. Each key project team member will be briefed on techniques to use during the project to increase the "customer satisfaction" of the Commission staff (such as returning phone call and e-mail requests promptly and submitting required reports on time). Team members will be assigned a level of work hours to the major project tasks based upon their area of expertise and the total number of work hours estimated to be required for each major Task. These individuals have committed to be available to work these hours.

5.4.1 Communication Plan

The GDS Team will be responsible for maintaining regular and direct communication with the Commission Contract Manager and Commission staff using a schedule and method approved by the Commission. The following tasks, at a minimum, will be used to maintain regular communication with the Contract Manager and Commission Staff.

[1] Attending and facilitating regular meetings or teleconferences between the Commission and the key members of the GDS Team, including initiation meeting(s), as well as regular and ad-hoc project meetings.

[2] Utilization of the real-time Excel-based project management and tracking system described above.

[3] Minutes and action items will be taken at team staff meetings and at all major meetings or teleconferences of the Project Team, and at meetings between the GDS Project Team and Commission staff. Any work assignments or action items distributed at such meetings will be highlighted in meeting minutes. Project Team members and appropriate Commission staff will receive copies of these minutes.

[4] Documenting all findings and recommendations in memos and/or brief written reports for the Commission's records at the completion of each task order. GDS will also provide Commission Staff with its interim recommendations and findings via the regular weekly and monthly reporting process.

[5] The project manager will provide written monthly project status reports to the Commission Contract Manager, summarizing project status by activity and identifying any difficulties or delays, and recommending corrective action, as needed.

5.4.2 Financial Management

The GDS Team includes individuals with significant knowledge and directly relevant experience to ensure effective development, implementation and maintenance of the necessary budgeting, invoicing, expenditure approval, payroll, and financial accounting systems. Responsibilities in this area will include: review, approval, and tracking of budgets, invoices and payments to subcontractors. All financial and accounting records will be maintained in accordance with generally accepted accounting standards. Information and documentation will be provided as required for independent audits that may be performed by Commission or other Louisiana state government agencies.

Detailed documentation and invoices will be prepared and submitted to the Commission for review (consistent with specific terms of our contract) in order to receive payment. All invoicing data along with proper supporting documentation will be retained and made readily available to the Commission Contract Manager upon request.

The GDS Business Office, managed by Dan Heller, GDS Vice President and Chief Financial Officer, will be instrumental in the efficient and timely accounting of operations. GDS will prepare and submit invoices to the Commission monthly, ensuring that our subcontractor is promptly paid for their services and that the invoices and financial reports meet the Commission’s requirements.
5.4.3 Contract Management
GDS will be responsible for monitoring our contract with the Commission for compliance with the terms and conditions of the contract from the date of contract issuance through the completion and acceptance of the services, including final payment.

GDS will ensure that our Team operates fully within the Commission’s requirements for project management. GDS has well-established corporate-wide accounting and project management mechanisms already in place to support financial and performance accountability. The GDS Business Office will maintain official contract files.

5.4.4 Subcontract Management
The subcontractor’s supervisory personnel will come under the aegis of the GDS Project Manager. Work to be performed by the subcontractor will be assigned and monitored carefully to ensure that task order deliverables are completed on time, within scope and within budget. GDS has the ultimate authority and responsibility for the successful performance of all technical support services to be provided. It will hold its subcontractor accountable for meeting the same high-quality professional standards that it expects of in-house employees.

GDS will negotiate and sign all subcontract agreements with the subcontractors. In addition to flow down of all articles from the contract with the Commission to our subcontractor, we will add GDS-specific articles in subcontracts including:
- Identification of subcontractor-designated contacts
- Identification of key subcontractor personnel
- Subcontractor reporting requirements
- Specific lines of communication between the subcontract and GDS

The subcontractor’s designated representatives will manage and coordinate all progress reviews and progress reporting and will be responsible for preparing the progress reports required for the project. The subcontractors will provide a key staff person, thus ensuring a senior experienced individual to serve as subcontractor task manager and full integration of the project team.

The development and implementation of internal project plans that document work assignments for subcontractor’s staff will facilitate coordination of the subcontractors. All necessary steps for accomplishing work, meeting contract specifications (including quality and reporting requirements), and reaching prescribed milestone dates for the delivery of task order services will be defined in the work plans developed for each new task order. We have already prepared a style manual that will provide a standard format for GDS Team reports, studies, program plans, etc.

5.4.5 Problem Escalation Procedure
Should complications with work under the Contract arise, they will be escalated immediately in order to resolve any issues in a timely manner. If problems with the work of our Team arise, the Commission’s Contract Manager should contact Richard Spellman, President of GDS and the Overall Project Manager, via email, dick.spellman@gdsassociates.com or by phone, 770-425-8100. Mr. Spellman and the Contract Manager will work together to develop and agree upon a plan of action to resolve the problem to the satisfaction of both the Commission and GDS. GDS will work with the Commission Contract Manager at the beginning of the contract to modify this procedure, if necessary, to meet the needs of Commission.
Fees & Costs

TABLE 6-1 on the next page provides the GDS Team cost proposal.
## TABLE 6-1 GDS TEAM COST PROPOSAL TO THE LOUISIANA PUBLIC SERVICE COMMISSION FOR IRP REVIEW TECHNICAL SUPPORT SERVICES

<table>
<thead>
<tr>
<th>TASK</th>
<th>TASK DESCRIPTION EXAMPLES</th>
<th>Dick Spellman</th>
<th>Daniel Peaco</th>
<th>John Hutts</th>
<th>John Chiles</th>
<th>Paul Wielegus</th>
<th>Brian Smith</th>
<th>Jeffrey Huber</th>
<th>Warren Bayham</th>
<th>Melissa Young</th>
<th>Total Labor Hours By Task</th>
<th>Total Labor Costs By Task</th>
<th>Non-Labor Costs (Travel, phone, photocopying, postage, Total Costs by Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Assess the reasonableness of the existing and proposed supply-side and demand-side generation mix and technologies and verify the validity and accuracy of the Company's screening and selection of existing and proposed generation.</td>
<td>40 15 0 0 0 15 20 9 8 107</td>
<td>$24,734</td>
<td>$1,349</td>
<td>$26,083</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>Assess the validity of the long term load forecast and if appropriate, propose alternative long term load forecast.</td>
<td>0 0 30 0 0 0 0 0 0 30</td>
<td>$6,375</td>
<td>$348</td>
<td>$6,723</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Review and analyze proposed unit retirements for reasonableness and if requested, conduct independent Unit Retirement Analysis and assess any related impacts on depreciation rates and determine if stranded costs would result from unit retirements.</td>
<td>0 0 0 0 0 15 0 0 0 15</td>
<td>$3,086</td>
<td>$168</td>
<td>$3,254</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>4</td>
<td>Review and assess reasonableness of bulk transmission system additions, retirements and alternatives such as distributed generation and propose alternatives to transmission additions where appropriate.</td>
<td>0 0 0 20 0 0 0 0 0 20</td>
<td>$4,465</td>
<td>$244</td>
<td>$4,709</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>5</td>
<td>Review and assess feasibility of the environmental compliance strategy and compliance with current and prospective Federal and State environmental regulations.</td>
<td>8 0 0 0 0 0 15 0 0 23</td>
<td>$5,446</td>
<td>$297</td>
<td>$5,743</td>
<td></td>
<td></td>
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<tr>
<td>6</td>
<td>Review and assess issues including but not limited to (1) studies regarding the impact to the grid of adding variable generation resources such as solar and wind facilities, (2) the value of solar energy, (3) any Company proposed self-build renewable pilots.</td>
<td>0 15 0 0 0 0 0 0 0 15</td>
<td>$5,250</td>
<td>$286</td>
<td>$5,536</td>
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<tr>
<td>7</td>
<td>Conduct analysis for reasonableness of all fuel price forecasts and provide alternative forecasts if appropriate.</td>
<td>0 0 0 0 0 20 0 0 0 20</td>
<td>$4,202</td>
<td>$229</td>
<td>$4,432</td>
<td></td>
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<tr>
<td>8</td>
<td>Review cost and revenue requirement impacts of proposed IRP.</td>
<td>0 0 0 0 0 7 0 0 0 7</td>
<td>$1,440</td>
<td>$79</td>
<td>$1,519</td>
<td></td>
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</tbody>
</table>

**Total Consultant Hours:** 48 30 30 20 20 52 20 9 8 237

**2018 Hourly Rate:**
- Dick Spellman: $295
- Daniel Peaco: $350
- John Hutts: $213
- John Chiles: $223
- Paul Wielegus: $210
- Brian Smith: $206
- Jeffrey Huber: $169
- Warren Bayham: $140
- Melissa Young: $0

**Total Costs:**
- $14,160 $10,500 $6,375 $4,465 $4,202 $10,699 $3,379 $1,219.70 $0 -- $55,000 $58,000
Conflicts of Interest

GDS is not aware of any real or perceived conflicts of interest that our Team has relating to performing the scope of work described in the Commission’s RFP for this project.
APPENDIX A • Resumes of Key Personnel
EDUCATION ●
Management II Program, University of Michigan, Graduate School of Business, 1987
M.S. in Business Science, Thomas College, 1980
Amos Tuck Graduate School of Business, 1974-75
B.A., Math/Economics, Dartmouth College, 1974 (graduated with distinction)

PROFESSIONAL REGISTRATIONS & CERTIFICATIONS ●
Certified Measurement and Verification Professional (CMVP)

PROFESSIONAL MEMBERSHIPS ●
Association of Energy Service Professionals (AESP), Board of Directors of AESP – 2005 to 2010
Association of Energy Services Professionals (AESP) Member, 1993 to present
Association of Energy Engineers member, 2013 to present

PROFESSIONAL EXPERIENCE ●
Mr. Spellman is the President of GDS Associates, Inc. and the Chair of the GDS Board of Directors. He has over 40 years of energy industry experience. He has managed natural gas and electric energy efficiency, demand response, integrated resource planning and renewable energy consulting projects in such states as Alabama, Arkansas, California, Connecticut, Florida, Georgia, Hawaii, Indiana, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Hampshire, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Carolina, Texas, Utah, Vermont, Virginia and Wisconsin for GDS clients as well as in Canadian provinces (Nova Scotia, Ontario, British Columbia). He obtained AEE’s Certified Measurement and Verification Professional (CMVP) designation in 2012.

Mr. Spellman has completed impact, process and market effects evaluations for utilities, public benefits organizations and government clients. From 2009 to 2017 he served as the Project Manager for the Statewide Evaluator team for the Commonwealth of Pennsylvania for the Pennsylvania Public Utilities Commission PUC. He has also served in project management positions for energy efficiency and demand response implementation projects for electric utility clients, Wisconsin Focus on Energy and Efficiency Maine. From 1999 to December 2002, Mr. Spellman served as the Program Manager for the Wisconsin Focus on Energy Commercial and Industrial pilot energy efficiency programs (Systems Benefit Charge funded) implemented in a 23-county area in Northeast Wisconsin, and he served as the Deputy Project Director for the $60 million Wisconsin Focus on Energy Business Program from March of 2001 until June of 2003. He also served as the Deputy Program Manager for the Efficiency Maine Small Business Program from 2003 through 2007. He has served as the Chair of the Policy Topic Committee of the Association of Energy Services Professionals (AESP) and he served as a member of the Board of Directors of AESP from 2005 to 2010.

Prior to joining GDS in 1993, he was employed at Central Maine Power Company (CMP) for sixteen years. He managed CMP’s $26 million portfolio of energy efficiency programs. He also worked on CMP’s market transformation program efforts with appliance and building standards, energy efficient lighting and motors, new construction and renewable energy programs. He worked on national market transformation programs such as the Super Efficient Refrigerator Program, and the EPA’s Green Lights and Energy Star Programs.
Finally, Mr. Spellman has a solid track record testifying for clients before state regulatory Commissions and legislative committees on energy issues. He was also the chairperson of the New England Power Pool DSM Planning Committee for several years, and worked on a wide range of regional DSM and renewable energy projects in New England during his sixteen years at CMP.

His education includes a BA degree with distinction in Math/Economics from Dartmouth College (graduated cum laude) and a Masters in Business from Thomas College Graduate School of Business. He is a graduate of the University of Michigan Graduate School of Business Administration Management II Program (1987), and the Electric Council of New England Skills of Utility Management Program (1986). In 1974 Mr. Spellman was awarded a research grant by the Richard King Mellon Foundation to study how colleges and universities in the Northeast were responding to the 1973-1974 U.S. energy crisis.

**Specific Experience Includes**

**GDS Associates, Inc., 1993 to Present**

*President*

At GDS, Mr. Spellman has directed and completed numerous management consulting, IRP, renewable energy, DSM planning, implementation and evaluation, market research, load research and market planning assignments for the firm’s clients, which include electric and natural gas utilities, municipal utilities, electric cooperatives, government agencies, and large commercial and industrial organizations.

Listed below are examples (not an exhaustive list) of specific EM&V projects completed by Mr. Spellman at GDS (1993 to present). Further descriptions of these projects are provided in the qualifications and experience section of this proposal.

4. Impact evaluation of Multi-Family Energy Efficiency Program for Austin Energy (Texas), 2013
5. Evaluation of Austin Energy Weatherization Assistance Program, 2013
7. Technical and regulatory support for evaluation, measurement and verification, setting energy efficiency savings goals – support for the Florida Public Service Commission, 2008 to 2009
8. Evaluation technical support to the Staff of the North Carolina Utilities Commission, 2008 to present
9. Evaluation technical support to the Staff of the Georgia Public Service Commission, 2007 to present
12. Impact evaluation of Massachusetts Energy Star Homes Program, 2005
15. Program evaluation support for the New York State Energy Research and Development Authority, 2001 to 2003

Listed below are examples of consulting projects completed by Mr. Spellman relating to energy efficiency technical, economic and achievable potential studies:

1. **PENNSYLVANIA PUBLIC UTILITY COMMISSION, BUREAU OF CONSERVATION, ECONOMICS AND ENERGY PLANNING** – In 2014 and 2015, GDS prepared a new, detailed report with findings on the technical, economic, achievable and program potential for electric energy efficiency measures and programs in the State of Pennsylvania. The final report was completed in February 2015. The final report presented updated technical, economic, and achievable potentials of Energy Efficiency measures for the Commonwealth of Pennsylvania for the period 2016-2025.

2. **PENNSYLVANIA PUBLIC UTILITY COMMISSION, BUREAU OF CONSERVATION, ECONOMICS AND ENERGY PLANNING** – In September 2011 GDS was retained by the Pennsylvania PUC to prepare a detailed report with findings on the technical, economic, achievable and program potential for electric energy efficiency measures and programs in the State of Pennsylvania. The final report was completed on May 10, 2012. The final report

3. **VERMONT DEPARTMENT OF PUBLIC SERVICE** – GDS was retained by the Vermont Department of Public Service to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency and conservation resources in the State of Vermont. GDS collected and analyzed extensive information on over 100 energy efficiency and conservation measures, developed supply curves to show the achievable potential and completed a final report in May 2011. The GDS Team also examined the amount of energy efficiency savings that could be achieved given different budget scenarios for Efficiency Vermont. The GDS Team also conducted an analysis of the electric rate and electric bill impacts from these various budget scenarios.

4. **POWERSOUTH** – GDS was retained by PowerSouth to conduct an assessment of the cost effective achievable potential for several electric energy efficiency and demand response measures in the PowerSouth service area. GDS collected and analyzed extensive information on selected energy efficiency measures and demand response measures, developed supply curves to show the achievable potential and completed a report by July 1, 2011.

5. **MARYLAND NATURAL GAS POTENTIAL STUDY** – In the spring of 2011, the Maryland Energy Administration (MEA) identified the need to determine the potential for natural gas energy efficiency savings in Maryland, and to identify the types of natural gas energy efficiency programs and measures that could save the most natural gas and be the most cost effective for the State of Maryland. The need for this analysis was initially created by the Maryland Energy Efficiency Act of 2008, which requires a study of the feasibility of setting energy savings targets in 2015 and 2020 for natural gas companies. MEA contracted with GDS in June of 2011 to conduct this natural gas energy efficiency potential study for the State of Maryland. As part of the project, GDS conducted analysis and prepared a technical-economic-achievable-program potential study documenting a base estimate of natural gas energy efficiency potential to determine the feasibility of setting energy savings targets in 2015 and 2020 for natural gas companies in Maryland. GDS presented alternative scenarios in low and high cases in terms of market potential and determined what likely can be achieved for market penetration in 2015 and 2020. This included information regarding required programs or market approaches addressing technologies, threshold incentive levels (by market or segment) pricing strategies, trade ally involvement and communications efforts. An implementation plan was also developed that recommended programs for 2015 and provided detailed recommendations on “best practice” strategies, program designs, requisite budgets, incentives and expected market penetration. GDS completed this study in November 2011.

6. **CONSOLIDATED EDISON OF NEW YORK** – Consolidated Edison Company of New York retained GDS to prepare an assessment of the natural gas energy efficiency potential in its service area and to develop a portfolio of natural gas energy efficiency programs. GDS developed this Gas Efficiency Plan for Con Ed, and the Plan was filed with the New York Public Service Commission in March 2009. The program plans included detailed benefit/cost calculations using the Total Resource Cost test. The plan also included a detailed plan for evaluation of each individual program, including details on the scope and method of measurement and verification activities pursuant to the Commission’s rules and regulations.

7. **DISTRICT OF COLUMBIA ENERGY OFFICE** – In September 2007, GDS and Ed Meyers Consulting completed a detailed assessment of energy use in the District of Columbia, and developed findings and recommendations for cost effective electric and natural gas energy efficiency programs for the District. The report included detailed information on residential energy measures recommend for consideration in the upcoming Comprehensive Energy Plan IV for DC (CEP-IV) as well as energy efficiency programs and measures for DC Government facilities. The report found that the effectiveness of the District’s programs can be increased working with the Metropolitan Washington Council of Governments (MWCOG) to leverage resources with federal agencies and coordinate policies and programs throughout the region to produce mutually targeted results. Such regional cooperation also reduces administrative costs per program unit delivered, as costs are amortized over more clients served. One particularly promising opportunity may involve regional government purchasing of energy efficiency products, where each governmental unit would gain from regional quantity discounts. The report determined the successful energy conservation programs can yield about 6,000 new jobs in the District of Columbia over a fifteen year period. DC’s job creation totals in energy efficiency can be boosted for DC residents through First Source Employment Agreements and LSDBE requirements, when businesses receive tangible benefits from the DC government (for example, low-interest loans or down payment assistance).
8. NEW HAMPSHIRE PUBLIC UTILITIES COMMISSION - In 2008, GDS in partnership with RLW Analytics, Research Into Action and RKM Research and Communications was retained by the New Hampshire Public Utilities Commission to conduct a thorough assessment of the potential for electric and natural gas energy efficiency in the state of New Hampshire. To support the energy efficient potential analysis, the GDS Team conducted residential and small commercial telephone surveys and large C&I site visits. The data collected will help determine key study inputs such as equipment saturations and baseline efficiency levels. The GDS Team has identified hundreds of electric and natural gas energy efficiency measures which are being analyzed to identify cost-effective measures. Estimates of the technical, economic and achievable electric and natural gas savings potential over the next ten years and the cost necessary to achieve these savings will then be developed.

9. HOOSIER ENERGY - GDS was retained by Hoosier Energy to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency and demand response measures in service area of Hoosier Energy in southern Indiana. GDS collected and analyzed extensive information on over 200 energy efficiency measures and 25 demand response measures, developed supply curves to show the achievable potential and completed a report by December 2008.

10. BRAZOS ELECTRIC COOPERATIVE - GDS was retained by Brazos Electric Cooperative to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency and demand response measures in the service area of this large electric cooperative in Eastern Texas. GDS collected and analyzed extensive information on over 200 energy efficiency measures and 25 demand response measures, developed supply curves to show the achievable potential and completed a draft report by September 2008.

11. ARKANSAS ELECTRIC COOPERATIVE CORPORATION - GDS was retained by Arkansas Electric Cooperative Corporation to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency and demand response measures in the service area of this large electric cooperative in Arkansas. GDS collected and analyzed extensive information on over 200 energy efficiency measures and 25 demand response measures, developed supply curves to show the achievable potential and completed a draft report by September 2008.

12. CENTRAL MAINE POWER COMPANY (CMP) - As a subcontractor to La Capra Associates, GDS was retained by CMP to conduct an assessment of the potential for cost-effective electric energy efficiency and demand response as an alternative to transmission system expansion in 5 sub-areas of the CMP service area. GDS collected and analyzed extensive information on over 100 energy efficiency and conservation measures, developed supply curves to show the achievable potential and is in the process of developing a draft findings report.

13. BONNEVILLE POWER ADMINISTRATION (BPA) - GDS was retained by BPA to conduct an assessment of their Non-Wires Solutions initiative development process and the current state of the initiative. The BPA Non Wires Solutions Program assesses the feasibility of energy efficiency and demand response programs as an alternative to building new electric transmission lines in the BPA service area. GDS reviewed program materials and reports, designed an interview guide and conducted in-depth, interviews with key BPA staff. Our analysis identified program strengths, weaknesses and potential improvements in key program areas including design, implementation, planning, cost impact & allocation and resources. A final report was delivered on June 8, 2007.

14. READING MUNICIPAL LIGHT DEPARTMENT (READING, MASSACHUSETTS) - GDS was retained by the RMLD to assess the technical, economic, and market potential for reducing (avoiding) electricity use and peak demand, and reducing fossil-fueled electricity use and peak demand, in RMLD’s service territory by implementing a wide range of end-use efficiency measures and renewable energy resource technologies. GDS collected and analyzed extensive information on over 100 energy efficiency, conservation and demand-response measures and renewable energy technologies, developed supply curves to show the achievable potential and is in the process of developing a draft report.

15. CONCORD MUNICIPAL LIGHT DEPARTMENT, CONCORD, MASSACHUSETTS – GDS completed a detailed study for the potential for energy efficiency and renewable energy technologies for the Concord Municipal Light Department (CMLD). GDS’s specific responsibilities for this project include identification and analysis of demand-side alternatives, including distributed generation and other demand response technologies (i.e., direct load control).
16. **NORTH CAROLINA ELECTRIC MEMBERSHIP CORPORATION (NCEMC)** - GDS was retained by the NCEMC to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency and conservation resources in service area of the North Carolina Electric Membership Corporation (NCEMC). GDS collected and analyzed extensive information on over 200 energy efficiency and conservation measures, developed supply curves to show the achievable potential and completed a final report in 2007.

17. **CENTRAL ELECTRIC POWER COOPERATIVE INC. (CEPCI)** - GDS was retained by the CEPCI to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency, conservation and demand response resources in the service area of CEPCI. GDS collected and analyzed extensive information on over 200 energy efficiency and conservation measures, developed supply curves to show the achievable potential and completed a final report in August 2007.

18. **MAINE** – GDS recently completed a technical potential study for high efficiency residential lighting equipment for the Efficiency Maine Residential Lighting Program. GDS conducted this study for the Maine Public Utilities Commission.

19. **NORTH CAROLINA PUBLIC UTILITIES COMMISSION** -GDS was retained by the North Carolina PUC to conduct an assessment of the cost effective achievable potential for electric energy efficiency and conservation resources in the State of North Carolina. GDS collected and analyzed extensive information on over 100 energy efficiency and conservation measures, developed supply curves to show the achievable potential and completed a final report in December 2006.

20. **VERMONT DEPARTMENT OF PUBLIC SERVICE** - GDS was retained by the Vermont Department of Public Service to conduct a thorough assessment of the cost effective achievable potential for electric energy efficiency and conservation resources in the State of Vermont. GDS collected and analyzed extensive information on over 100 energy efficiency and conservation measures, developed supply curves to show the achievable potential and completed a final report in January 2007. GDS also conducted market research with energy services providers in Vermont to collect information on baseline levels of energy efficiency in the State.

21. **BIG RIVERS ELECTRIC CORPORATION, 2005 ENERGY EFFICIENCY TECHNICAL POTENTIAL STUDY – KENTUCKY** - During 2005, GDS completed a study of the technical and maximum achievable cost effective economic potential of energy efficiency measures and programs for the service area of the Big Rivers Electric Corporation, a large Generation and Transmission electric utility in Ohio. This technical and economic potential study was completed as part of the comprehensive analysis of supply-side and demand-side options for the latest BREC Integrated Resource Plan filing with the Kentucky Public Service Commission.

22. **PUBLIC SERVICE OF NEW MEXICO** – GDS completed this natural gas DSM technical and achievable potential study in May 2005. This study presents estimates of the maximum achievable cost-effective potential for natural gas Demand-Side Management (DSM) opportunities in the service area of Public Service of New Mexico. The main output of this study is a concise, fully documented report on the opportunities for achievable, cost effective natural gas energy efficiency programs in New Mexico.

23. **UTAH ENERGY OFFICE AND QUESTAR GAS COMPANY** – GDS completed this natural gas DSM technical and achievable potential study in June 2004. This study presents estimates of the maximum achievable cost-effective potential for natural gas Demand-Side Management (DSM) opportunities in the State of Utah. The main output of this study is a concise, fully documented report on the opportunities for achievable, cost effective natural gas energy efficiency programs in Utah. This study assessed the impacts that gas DSM measures and programs can have on natural gas use, assesses the economic costs and benefits of DSM programs, and assesses the revenue impacts to Questar Gas Company. The final report also includes an assessment of the environmental impacts of the achievable DSM options identified in this study.

24. **ENERGY EFFICIENCY POTENTIAL IN GEORGIA – STUDY FOR THE ALLIANCE TO SAVE ENERGY** – GDS completed this study for the Alliance to Save Energy in July 2004. This study provides estimates of the maximum achievable cost effective potential in the State of Georgia for several “top-ranked” energy efficiency programs. In addition, GDS presented expert witness testimony on behalf of the ASE before the Georgia Public Service Commission that covered the following issues:
   - The potential net present value dollar savings to ratepayers in Georgia due to the implementation of cost effective energy efficiency programs.
   - The cost effectiveness of these energy efficiency programs.
25. **ENERGY EFFICIENCY POTENTIAL IN FLORIDA, STUDY FOR THE ALLIANCE TO SAVE ENERGY AND THE SOUTHERN ALLIANCE FOR CLEAN ENERGY** – GDS completed this study for the Alliance to Save Energy in July 2004. This study provides estimates of the maximum achievable cost effective potential in the State of Florida for several “top-ranked” energy efficiency programs.

26. **CONNECTICUT ENERGY CONSERVATION MANAGEMENT BOARD** – In March 2003, GDS was retained by the Connecticut Energy Conservation Management Board to conduct a thorough assessment of the cost effective maximum achievable technical potential for energy efficiency and conservation resources in the State of Connecticut and two sub-regions of the State. GDS collected and analyzed extensive information on over 250 energy efficiency and conservation, and developed supply curves to show the maximum achievable potential. GDS completed the final report in June 2004.

27. **ALLIANT ENERGY CORPORATE SERVICES** - As an update to an assessment of potential customer-sited/distributed generation technology applications in all categories (residential, small/large commercial, industrial, and agricultural) conducted by GDS in 2001, Alliant requested that modeling assumptions be reviewed and revised, as necessary. In addition, the Distributed/Onsite Generation Screening (DOGS) tool was reviewed by MN Department of Commerce as part of a filing in 2001 and they requested expansion of applicable technologies and fuels, including: bio-diesel and methane from landfills and digesters to fuel reciprocating engines; methanol, ethanol, gasoline, and methane for electricity production from fuel cells. The revised model results will be used to estimate the market potential for distributed/onsite generation within Alliant's Minnesota service territories.

28. **MASSACHUSETTS GASNETWORKS** – In January of 2004, GDS was hired by GasNetworks (a network of several natural gas utilities in Massachusetts) to develop benefit/cost analyses and energy savings potential estimates for GasNetworks’ regional market transformation and demand-side management programs. Benefit/cost ratios and energy savings potential estimates were developed for several regional gas energy efficiency programs using a spreadsheet model, and similar data were developed for each program for each service area for each natural gas utility participating in this study.

29. **NORTHERN UTILITIES (GAS COMPANY)** – In 2002 GDS was hired by Northern Utilities to prepare benefit/cost analyses and energy savings potential estimates of a portfolio of energy efficiency programs proposed for implementation in their New Hampshire service area. This project was completed during September 2002 and a final report was filed with the New Hampshire PUC. A workshop was conducted at the NH Public Utilities Commission early in 2003 to review cost-effectiveness methodologies and key model input/output requirements.

30. **KEYSPAN ENERGY DELIVERY (GAS COMPANY)** – In 2002 GDS was hired by KeySpan Energy Delivery – New Hampshire to prepare benefit/cost analyses and energy savings potential estimates of ten energy natural gas energy efficiency programs proposed for implementation in the KeySpan New Hampshire service area. This project was completed during September 2002 and a final report was filed with the New Hampshire PUC that month.

31. **BIG RIVERS ELECTRIC CORPORATION, 2002 ENERGY EFFICIENCY TECHNICAL POTENTIAL STUDY, KENTUCKY** - During 2002, GDS completed a study of the technical and economic potential of energy efficiency and load management measures and programs for the service area of the Big Rivers Electric Corporation, a large Generation and Transmission electric utility in Ohio. This technical and economic potential study was completed as part of the comprehensive analysis of supply-side and demand-side options for the latest BREC Integrated Resource Plan filing with the Kentucky Public Service Commission.

32. **CITY OF GRAND ISLAND, NEBRASKA, MUNICIPAL UTILITY, ENERGY EFFICIENCY TECHNICAL POTENTIAL STUDY** - GDS completed a study of the technical and economic potential for energy efficiency and load management measures and programs for the service area of this large municipal electric utility in Nebraska. This technical and economic potential study was completed as part of the comprehensive analysis of supply-side and...
demand-side options for an Integrated Resource Plan for this utility.

33. CITY OF LAFAYETTE, LOUISIANA, MUNICIPAL UTILITY – ENERGY EFFICIENCY TECHNICAL POTENTIAL STUDY - GDS completed a study of the technical and economic potential for energy efficiency and load management measures and programs for the service area of this large municipal electric utility in Louisiana. This technical and economic potential study was completed as part of the comprehensive analysis of supply-side and demand-side options for an Integrated Resource Plan for this utility.

34. NEW YORK STATE ENERGY RESEARCH AND DEVELOPMENT AUTHORITY (NYSERDA), ENERGY $MART™ PROGRAM EVALUATION SERVICES – In the fall of 1999, GDS was retained by NYSERDA to be the prime evaluation contractor for the New York Energy $mart™ program. During the years 2000, 2001, 2002, and 2003, GDS has been responsible for providing energy efficiency program and measure data collection, analysis, and report writing services to NYSERDA in support of their overall evaluation and market assessment efforts, and to determine actual savings of the programs. To date, GDS team evaluation activities have included development of a Gap Analysis for the purpose of setting priorities and allocating evaluation resources to the various New York Energy $mart™ project areas; and numerous evaluation activities leading to development of a draft and final Program Evaluation Status report which provided the New York Public Service Commission with sufficient information to determine the future of SBC-funded public benefits programs beyond its initial three-year transition period which ended July, 2001.

35. DISTRIBUTED GENERATION TECHNICAL POTENTIAL ASSESSMENT FOR MINNESOTA AND IOWA – During the fall of 2001, GDS assessed the technical potential of customer-sited distributed generation technology applications for Alliant, a major investor owned utility located in the MidWest. The analysis covered the residential, small/large commercial, industrial, and agricultural sectors. GDS developed a Distributed/Onsite Generation Screening spreadsheet model to determine the cost-effectiveness of various distributed generation options; used the model to assess the potential for various customer groups and then scaled results using customer profiles. Model results were also used to estimate the technical potential for distributed/onsite generation within Alliant's Minnesota and Iowa service territories.

36. RENEWABLE ELECTRIC ENERGY AND PEAK DEMAND SAVINGS METHODOLOGY REVIEWS, WIND POWER AND PHOTOVOLTAICS PROGRAMS: GDS performed detailed reviews of NYSERDA's methodologies for estimating electric energy savings and peak demand reduction benefits associated with NYSERDA's Wind Power Research & Development Program and two Photovoltaic (PV) programs. These Savings Methodology reviews entailed three-components: 1) a review of the current method used by NYSERDA for estimating savings (including algorithms and inherent assumptions), 2) a review of the methods and assumptions used by other utilities and program administrators for estimating savings from similar programs being implemented elsewhere in the country, and 3) a presentation of key findings and recommendations.

37. EVALUATION SERVICES FOR COMMERCIAL/INDUSTRIAL PROGRAM AREAS AND TECHNICAL ASSISTANCE REVIEWING ENGINEERING ANALYSES, EFFICIENCY VERMONT – GDS is the lead contractor in a team that has been hired to assist the VT DPS in evaluating a statewide portfolio of energy efficiency programs targeted to the Commercial and Industrial market sectors. The GDS team is also providing technical engineering and review assistance, on an "on-call" basis, to the administrator of Vermont's energy efficiency programs.

38. DEVELOPMENT AND IMPLEMENTATION OF FIVE-YEAR ENERGY EFFICIENCY PLAN, BOSTON EDISON – GDS was retained by Boston Edison to assist BECo staff with the development of program designs, evaluation plans, technical potential estimates and budgets for the Company’s Five Year Energy Efficiency Plan. For this project GDS performed energy efficiency technology screenings to identify potentially viable measures for utility funding/support, and developed the program designs for a number of new initiatives, including over a dozen new market transformation programs. GDS also conducted cost effectiveness screening for all of the new DSM initiatives included in the plan.

39. ENERGY EFFICIENCY TECHNICAL AND MARKET POTENTIAL ANALYSIS – This report presented the results of a technical and market potential study for energy efficiency options for the East Texas Electric Cooperative, Inc. (ETEC). The purpose of this report was to review energy efficiency options that comply with the Public Utility Commission of Texas (PUCT) orders issued in Northeast Texas Electric Cooperative (NTEC), Sam Rayburn Electric Cooperative (SRG&T) and Tex-La Electric Cooperative of Texas (Tex-La) rate cases. This study presented cost effectiveness findings and recommendations on energy efficiency options and programs for ETEC and its member generation and transmission electric cooperatives (NTEC, SRG&T, and Tex-La). In this
study, GDS evaluated the cost effectiveness of over 90 energy efficiency options and found many of them to be cost effective according to the Total Resource Cost Test.

40. **TECHNICAL AND MARKET POTENTIAL ANALYSIS FOR LOAD MANAGEMENT AND ENERGY EFFICIENCY OPTIONS:**
GDS was retained to update energy efficiency and load management technical and market potential analyses completed in the mid 1990’s time period, and to develop recommendations relating to cost effective DSM programs for electric cooperatives in East Texas. This study identified energy efficiency and load management (DSM) options that were viable based on economic tests presented in the California Standard Practice Manual for Economic Analysis of Demand-Side Management Programs. DSM options that had a Total Resource Cost test benefit/cost ratio greater than 1.3 and a positive net present value for the participant were ones that were recommended by GDS for further program development.

**Central Maine Power Company, August 1990 to May 1993**

*Manager of Marketing Services/Marketing and Product Development*

From 8/90 to 8/92 - Responsible for managing the design and implementation of CMP’s residential, commercial, and industrial demand-side management programs. Also responsible for corporate market research, five-year DSM implementation plans, testifying on DSM topics before regulatory agencies, and for participating in integrated resource planning activities. Accountable for managing a $26 million DSM budget and a staff of 50 persons. Served on a three-person lead team from 1989 to 1992 to develop CMP’s first integrated resource plan. During 1991 traveled to Czechoslovakia and Poland to provide consulting to foreign utilities on DSM issues.

From 8/92 to 5/93, responsible for identifying and developing marketing strategies for products and services which would improve the competitiveness of CMP’s customers, increase the efficiency of energy use, increase CMP’s profitability, and which would reduce the rate of growth of electricity prices for all customers. Directly responsible for the design of renewable energy and demand-side management programs, integrated resource planning, research on new technologies, and managing marketing and product development staff. Also provided consulting services to utilities in New Zealand, Australia, and Bulgaria relating to DSM program design and implementation.

**Central Maine Power Company, June 1986 to August 1990**

*Director of Market Research and Forecasting*

Responsible for managing twenty-five professional employees. Duties included supervising DSM program impact and process evaluation activities, short and long range load forecast development, local area energy and peak load forecasts, market and load research, economic forecasting, and developing and updating DSM assumptions for use in the Company’s long range planning models. Also participated in the development of the first Power Partners RFP, and in the evaluation and selection of proposals submitted in response to this RFP.

**Central Maine Power Company, May 1985 to May 1986**

*Corporate Economist*

Responsible for monitoring and forecasting energy and economic trends in the CMP service area and in the New England Region. Duties included development of corporate short-term kWh sales and revenue forecasts, market research studies, and CMP’s energy management strategy. Instrumental in promoting the use of state-of-the-art PC-based computer models for integrated resource planning (UPLAN). Authored a second report on CMP’s DSM strategy in April 1986. Also responsible for supervising several analysts.

**Central Maine Power Company, May 1977 to May 1985**

*Staff Economist*


(5/78 to 12/80) In May of 1978, selected to join a new group, the Corporate Financial Model Staff, to develop a new corporate financial model for CMP. Had major responsibility for development of a revenue forecasting model, and assisted with development of models to produce income statement, balance sheet, and sources and uses of funds forecasts. In addition to corporate model development, responsibilities included short-term forecasting and market research.

(12/80 to 5/85) In December of 1980, moved to CMP’s Research Department for five years. Responsible for all corporate market research, short-term kWh sales and revenue forecasts, economic analyses and forecasts, and

OTHER SELECTED PROFESSIONAL ACTIVITIES

- Member of Technical Advisory Group (TAG) for the U.S. Department of Energy Uniform Methods Project (UMP), 2011 to present.
- Board of Directors, Association of Energy Services Professionals (AESP), 2005 to 2010
- Member of the Association of Energy Service Professionals (1993 to Present), Vice Chairman of the Policy Committee (1995-1996), Chair of Policy Committee (1997 and 1998)
- Member of the NEPOOL Demand-Side Management Task Force (1986-1988).
- Alternate to the NEPOOL Governor's Liaison Committee (1986-1988).
- Past member of the International Association of Energy Economists.

PUBLICATIONS


13. Spellman, Richard F., Van Wie, David A., Peaco, Daniel E., Lawrence, and Dennis R., Optimizing Demand-Side and Supply Resources Using Linear Programming


DIRECT TESTIMONY OF RICHARD F. SPELLMAN •


5. On Behalf of Central Maine Power Company, Before the State of Maine Public Utilities Commission, Docket No. 89-68, filed October 24, 1989. Subject Matter: Review and explain the basis for the short-term kWh sales forecast on which CMP’s Attrition Study is based.


Commission orders relating to SRG&Ts DSM activities.


26. On behalf of the Public Staff of the North Carolina Utilities Commission, Before the North Carolina Public Service Commission, Docket No. E-7, Sub 831, June 26, 2008, Subject Matter: The purposes of this testimony were the following: (1) to determine whether the SAVE-A-WATT (SAW) approach was in the public interest of the ratepayers of Duke Energy Carolinas, LLC (Duke or the Company); (2) to determine whether the SAW program administrator costs per lifetime kWh saved were reasonable and whether projected utility margins for energy efficiency and demand response resources under the proposed SAVE-A-WATT approach were reasonably based; (3) to determine whether the SAW approach would achieve the maximum achievable cost-effective potential for kilowatt-hour (kWh) and kilowatt (kW) savings in the Company’s service area in North Carolina.; (4) to determine whether any additional cost-effective energy efficiency and demand response programs should be included in the Company’s Energy Efficiency Plan; (5) to determine whether an alternative to SAW exists that provides superior electricity and dollar savings to the Company’s ratepayers at a much
lower cost to them.

27. On behalf of Communities Against Regional Interconnect, Before the State of New York Public Service Commission, Case No. 06-T-0650, Filed January 9, 2009, Subject Matter: The purpose of this testimony were the following: to present the achievable, cost effective non-route alternatives to construction of the New York Regional Interconnect (NYRI) project and to demonstrate that with the implementation of the proposed non-route alternatives there is no real need for the NYRI project.

28. On behalf of Connecticut Natural Gas Corporation, Before the State of Connecticut Department of Public Utility Control, Docket No. 08-12-06, Filed January 16, 2009, Subject Matter: The purposes of this testimony were the following: (1) describe how the new Connecticut Natural Gas (CNG) energy efficiency programs will strengthen the partnership with customers through expanded communication and outreach, consistent with the state’s policy encouraging energy efficiency; (2) present an overview of existing CNG energy efficiency programs; (3) present information on best practice natural gas energy efficiency programs in other States; (4) describe CNG’s proposal to expand energy efficiency program offerings; (5) provide a summary of proposed budgets, energy savings and cost effectiveness of proposed program offerings; (6) describe staffing needs to support the proposed programs; (7) present information on the impact of proposed programs on natural gas use per customer; (8) describe the regulatory mechanism for recovery of program costs.

29. On behalf of the Southern Connecticut Gas Company, Before the State of Connecticut Department of Public Utility Control, Docket No. 08-08-17, Filed January 20, 2009, Subject Matter: The purposes of this testimony were the following: (1) describe how the new Southern Connecticut Gas Company (SCG) energy efficiency programs will strengthen the partnership with customers through expanded communication and outreach, consistent with the state’s policy encouraging energy efficiency; (2) present an overview of existing SCG energy efficiency programs; (3) present information on best practice natural gas energy efficiency programs in other States; (4) describe SCG’s proposal to expand energy efficiency program offerings; (5) provide a summary of proposed budgets, energy savings and cost effectiveness of proposed program offerings; (6) describe staffing needs to support the proposed programs; (7) present information on the impact of proposed programs on natural gas use per customer; (8) describe the regulatory mechanism for recovery of program costs.


32. On Behalf of Steel Dynamics, Inc., Before the Indiana Utility Regulatory Commission, Docket No 44310, filed June 2013. Subject Matter: The purpose of this testimony was to address why the Commission should approve a structured self-direct demand side management program for large customers served by jurisdictional electric utilities and such a program should be structured.

33. On Behalf of the Arkansas Attorney General, Before the Arkansas Public Service Commission, Docket Nos. 07-075-TF, 07-076-TF, 07-077-TF, 07-078-TF, 07-081-TF, 07-0082-TF, 07-085-TF. Subject Matter: IN THE MATTER OF THE REQUEST FOR APPROVAL OF ITS QUICK START ENERGY EFFICIENCY PROGRAMS AND THE TARIFF RELATED TO THE PROGRAMS OF UTILITIES IN ARKANSAS, filed on May 2, 2014. The purpose of this testimony was to provide detailed recommendations on how seven electric and natural gas utilities in Arkansas could address flaws in the evaluation, measurement and verification procedures used to determine accurate program kWh and kW savings, the need for these utilities to follow-up and implement detailed recommendations made in program evaluations and to discuss necessary steps to address non cost effective programs.
34. On Behalf of the Arkansas Attorney General, Before the Arkansas Public Service Commission, Docket Nos. 07-075-TF, 07-076-TF, 07-077-TF, 07-078-TF, 07-081-TF, 07-0082-TF, 07-085-TF. Subject Matter: IN THE MATTER OF THE REQUEST FOR APPROVAL OF ITS QUICK START ENERGY EFFICIENCY PROGRAMS AND THE TARIFF RELATED TO THE PROGRAMS OF UTILITIES IN ARKANSAS, filed on May 8, 2015. The purpose of this testimony was to provide detailed recommendations on how seven electric and natural gas utilities in Arkansas could improve the efficiency and cost effectiveness of proposed DSM programs based on EM&V results achieved to date and based on recommendations made by the independent third party evaluations and the Independent Evaluation Monitor (IEM).

35. On Behalf of the Public Interest Advocacy Staff of the Georgia Public Service Commission, Docket No. 40161, filed May 6, 2016. Subject Matter: Reviewed the Company’s IRP testimony and exhibits, IRP plan and data responses filed in this IRP proceeding. The developed, submitted and presented testimony with recommendations relating to the Company’s treatment of DSM resources in the IRP process, the proposed portfolio of DSM programs included in the IRP and presented the Commission’s current policy on treating DSM resources as a priority resource in the IRP process of a utility.

36. On Behalf of the Public Interest Advocacy Staff of the Georgia Public Service Commission, Docket No. 40162, filed May 6, 2016. Subject Matter: Reviewed the Company’s testimony, DSM plan and data responses filed in this DSM proceeding. Then filed and presented testimony with recommendations relating to DSM cost recovery and financial incentives for the Company’s shareholders for successful implementation of energy efficiency programs.


EDUCATION ●
Master of Business Administration, Georgia State University, 1990, Concentration: Finance and Decision Sciences
Bachelor of Business Administration, The University of Texas at Austin, 1978, Concentration: Statistics and Operations Research

PROFESSIONAL MEMBERSHIPS ●
American Statistical Association (ASA)

PROFESSIONAL EXPERIENCE ●
GDS Associates, Inc., 1986-Present
Principal
GDS principal whose responsibilities include the direction of statistical services provided by GDS and supervision of supporting project staff. Areas of expertise include long-term and short-term forecasting, sample design, consumer surveys, load research, weather normalization, database management, and decision support systems.

Responsibilities included participation and project management of projects focusing on statistical applications, including load forecasts and consumer surveys.

Specific Project Experience Includes
LOAD FORECASTING
- Designed, implemented and currently manages load forecasting systems for fourteen electric utilities in Texas. Forecasting systems provide long-term (15 year) and short-term (12-month) forecasts for resource and financial planning and are supported by a network of econometric and end-use models. Consumer attitude and appliance saturation surveys are conducted every three years. Outputs of the system include load forecast reports, consumer surveys, oral/written testimony when required, and documentation to regulatory agencies.
- Developed load forecasts for electric utility systems in Alabama, Alaska, Georgia, Kentucky, Illinois, Indiana, Mississippi, North Carolina, Ohio, South Carolina, Texas, and Virginia. Methodologies included econometric modeling, neural networks, end-use modeling, trending, and delphi techniques.
- Located load forecasting process audits for electric utilities in the Canadian provinces of Nova Scotia, New Brunswick, and British Columbia.
- Designed day-ahead load forecasting systems for electric utilities in Kentucky, Texas, and Louisiana. The forecasting systems automatically update historical and forecasted weather data and generate hourly load projections for up to 168 hours. Forecasting models were based on neural network systems and transferred to the clients’ computer systems.
- Filed testimony before state regulatory commissions regarding load forecasting issues in rate case and integrated resource plan filings.

STATISTICAL SERVICES
- Filed testimony before state regulatory commissions regarding weather normalization analysis in rate cases.
- Developed a probabilistic modeling system for an electric cooperative in Texas to simulate market conditions with respect to fuel charges incurred under a power supply contract. The system was developed using Crystal Ball software, incorporates Monte Carlo simulation techniques, and provides information used for natural gas price hedging analysis. The system provides the means of analyzing the uncertainty associated with monthly fuel expense due to natural gas price volatility.
- Conducted load research for utilities in Texas. Projects involved sample design, sample selection, analysis of data, development of relationship between class NCP and kWh sales, and development of customer class demand estimates. Results provided input for cost of service and rate design studies.
RESEARCH/CONSUMER SURVEYS

- Managed residential consumer survey projects for utilities in Texas, South Carolina, and Alabama. Projects included questionnaire design, sample design, data cleaning, data tabulation, analysis of results, and report preparation. Developed applications software to select stratified random sample (Dalenius/Hodges and optimum allocation), produce mailing labels, tabulate responses, and calculate confidence bands by stratum and by total sample. Software was developed using the Statistical Analysis System (SAS) software package.

- Managed all phases of a survey completed for Holy Cross Energy to investigate consumer awareness, attitudes, and opinions regarding power supply options, particularly renewable resource options. The survey was conducted by mail and produced results at the 95 percent confidence level with a sampling error of just over ±5 percent.

- Managed various projects and consulting services provided to an Atlanta, Georgia based marketing services firm conducting research in the retail industry. Primary areas of service included sample design, sample selection, benchmarking of results, and various unique analyses. Specific services provided include: definition of consumer market trade areas, development of survey questionnaires, implementation of data processing procedures, development of sampling methodology, interpretation of survey results, development of total portfolio benchmarks, and preparation of final survey reports. Developed a process for merging economic/demographic data (sources: U.S. Census and Bureau of Economic Analysis) with survey data. Developed models used to estimate average consumer expenditure in response to influential characteristics, including: area of residence, average household income, age, and gender. Managed development of comprehensive database and series of industry benchmarks.

- Managed consulting services provided to a Washington, D.C. based marketing research firm. Primary areas of service focused on project management, statistical issues and analytical expertise regarding employee satisfaction surveys conducted for a major international hotel chain. Managed processes regarding data tabulation, interpretation of results, and reporting. Produced trend reports for surveys conducted over time. Reports and other deliverables were provided electronically via pdf files.

- Managed market research services provided to a Marietta, Georgia based research firm. Provided sampling and analytical expertise for research conducted in the commercial development, banking, and retail industries. Provided consumer survey services to a Marietta, Georgia based consulting firm for a series of surveys administered to banking customers at branches located throughout the north Georgia area. Provided cross-tabulations of survey results, developed local demographic and economic profiles of households located in the branch areas, and created indexes as a means of comparing banking customers to the general population.

TRAINING & SEMINARS CONDUCTED

1. Load Forecasting Techniques: Georgia Public Service Commission Staff
2. Econometric Modeling using SAS: Public Service Authority of South Carolina

FILED TESTIMONY

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EDUCATION ●
Bachelor of Science in Engineering, University of South Florida, 1993

PROFESSIONAL MEMBERSHIPS ●
IEEE, Power Engineering Society

PROFESSIONAL EXPERIENCE ●
Mr. Chiles has over 23 years of electric utility and consulting experience. He provides regulatory and strategic support for generation and transmission cooperatives, municipal electric systems, independent generation developers, industrial consumers and state commissions regarding regional transmission organization energy markets, open access transmission issues, transmission planning and need certification, generation siting and interconnection, NERC compliance support and training, and stakeholder representation in RTO stakeholder forums. Mr. Chiles has filed testimony at the Federal Energy Regulatory Commission (FERC) and at several State regulatory commissions.

GDS Associates, Inc., September 2005 to Present
Principal, Transmission Services
As a Principal at GDS, Mr. Chiles consults with utilities, government agencies, and industrial clients in the following areas:
- Served as Stakeholder Representative for clients within Entergy, the Midcontinent Independent System Operator (MISO) and the Southwest Power Pool (SPP) on matters related to transmission expansion planning and market design
- Assisted multiple clients during the Entergy integration into MISO, including conversion of transmission rights, valuation of generation assets, and Day 2 market preparation
- Provided generation interconnection support services for renewable and fossil-fuel based facilities, including siting analysis, technical study support, client representation with Transmission Providers, and negotiation of Interconnection Agreements
- Filed expert witness testimony at FERC and State jurisdictions regarding transmission facility need determination, transmission loss calculations, integrated resource planning and Regional Transmission Organization (RTO) integration activities
- Conducted NERC mock audits on Transmission Planning (TPL), Facility Rating (FAC), and Modeling (MOD) Standards for numerous municipal and cooperative organizations
- Supported generation procurement Request for Proposals (RFPs) through providing technical and strategic support on transmission issues

Manager
- Monitored and provided corrective action on NERC compliance
- Served as Southwest Reserve Sharing Group and WECC Operating Committee representative
- Developed generation optimization process to achieve optimal dispatch of 2,200 MW plant to meet NERC criteria
- Optimized daily transmission positions for 4,400 MW asset portfolio ($3MM/month)
- Determined transmission deliverability (ATC, Generator Operating Limit) to support balance of month and originated transactions
- Provided regulatory support on issues at FERC and state levels
- Assisted in development of and modifications to ERCOT protocols
- Determined how changes in regional markets impacted profitability of asset portfolio
- Represented company at FERC, SeTrans and State jurisdictions
- Developed and Presented of 5- and 10-Year expansion plans
- Representative on GridFlorida Flowgate Working Group
- LMP analysis for TECO Assets

**North Carolina Electric Membership Corporation, Raleigh, NC, 1994 –1999**

**Project Engineer**
- Impacts of FERC Order 888 and 889 on member systems; reviewed and analyzed wholesale provider transmission expansion plans
- Transmission-Dependent Utility representative on SERC ATC Working Group
- OASIS site testing
- Consulting support to PA Cooperative group for PA Retail Access Program
- Expansion plan development for Duke Energy, Carolina Power & Light, Dominion Virginia Power
- RFP bid evaluation
- Evaluation of Structured Transactions for external sales

**AREAS OF EXPERTISE**

**Regional Transmission Organization Operations and Policy Support**
- Market Integration Support for new entrants in California Independent System Operator (CAISO), SPP and MISO
- Market Analysis of Nodal Price Data
- Technical Support on RTO Settlements Issues

**Energy Market Design**
- Nodal Market Development (ERCOT)
- Resource Adequacy Market Development (PJM)
- Energy Imbalance Market Development (SPP, WECC)

**Open Access Transmission Issues**
- Loss Study Review and Support
- Deliverability Analysis for Generation Assets
- Negotiation of Agreements for Transmission Service

**Transmission System Modeling and Planning**
- Power Flow Analysis
- Short Circuit Analysis
- Need Certification Technical Studies
- Review of Impact of Transmission Expansion Plans on Load and Generation

**Production Cost Modeling and Simulation**
- PROMOD Studies for Generation Margin Determination and Load Cost Analysis
- Assessment of Economic Transmission Projects
- Financial Transmission Rights Evaluation

**Generation Interconnection Process Evaluation and Support**
- Power Flow-Based Site Selection Analysis
- Technical Support for Review of Transmission Provider Studies
- Negotiation of Interconnection Service Agreements

**NERC Compliance Activities**
- TPL Assessments
- Development of Policies, Guidelines and Procedures
- Mock Audits and Gap Analysis
- Subject Matter Expert Training for TPL, FAC, and MOD Standards

**Regulatory, Strategic and Stakeholder Support**
- Stakeholder Representation at MISO, SPP, and ERCOT
- Technical and Regulatory Support for Clients at FERC and State Jurisdictions
EXPERT WITNESS TESTIMONY

FEDERAL ENERGY REGULATORY COMMISSION (FERC)

PJM Interconnection, LLC, American Transmission Systems, Inc., Docket No. ER12-2399-003

Southwestern Electric Cooperative, Inc., et al., Docket Nos. EL15-72, et al., Panel Member for Technical Conference

ARKANSAS PUBLIC SERVICE COMMISSION (APSC)

In the Matter of a Show Cause Order Directed to Entergy Arkansas, Inc. Regarding Its Continued Membership in the Current Entergy System Agreement, or Any Successor Agreement Thereto, and Regarding the Future Operation and Control of Its Transmission Assets, Docket No. 10-011-U

GEORGIA PUBLIC SERVICE COMMISSION (GPSC)

In the Matter of: Georgia Power Company’s 2010 Integrated Resource Plan, Docket No. 31081


MISSISSIPPI PUBLIC SERVICE COMMISSION (MPSC)


PUBLIC UTILITY COMMISSION OF TEXAS (PUCT)

Entergy Gulf States, Inc.’s Transition to Competition Plan, PUC Docket No. 33687

Application of Sharyland Utilities, L.P. to Approve Study and Plan Pursuant to the Commission’s Order in Docket No. 37990 Concerning the Movement of Sharyland’s Stanton and Colorado City Divisions from the Southwest Power Pool to ERCOT, PUC Docket No. 39070


COMMONWEALTH OF VIRGINIA STATE CORPORATION COMMISSION DIVISION OF ENERGY (VSCC)

Virginia Electric and Power Company for Approval and Certification of Electric Facilities for the Surry-Skiffes Creek 500 kV Transmission Line, Skiffes Creek-Wheaton 230 kV Transmission Line, and Skiffes Creek 500 kV-230 kV-115 kV Switching Station, Case No. PUE-2012-00029

EDUCATION ●
Doctor of Jurisprudence, 1996, licensed in Texas, South Texas College of Law, Houston, Texas
MBA, 1985, graduated with Honors, presented thesis on electric utility marketing to the IAEE North American Conference. Lamar University, Beaumont, Texas
MS, College of Mineral and Energy Resources, 1979, awarded Federal Mining Fellowship. Thesis analyzed long haul fuel transportation pricing and structures. West Virginia University, Morgantown, West Virginia
BS, Economics, 1977, energy economics concentration. West Virginia University, Morgantown, West Virginia

EXECUTIVE PROFILE ●
As Senior Executive in the energy industry was engaged in the development and implementation of strategic business plans focused on obtaining commercial commitments to plan for and achieve project closings. Directed the start-up of multiple business units for top-tier industry players. Provided the commercial experience required to formulate the direction needed for the planning origination, approval, and closure of large transactions and capital projects. This senior level commercial experience includes M&A, asset management, and funding initiatives. Currently utilizing business development and asset experience to provide energy advisory and planning services to multiple clients. Skill set experiences include:
- Developed and implemented commercial plans for business units
- Recruited, formed, mentored, and led commercial teams to implement the plans
- Facilitated plan approval with senior managements and Boards of Directors
- Leveraged industry network to advance business units’ goals and objectives
- Formed stakeholder relationships to help champion project initiatives and outreach
- Negotiated successful commercial resolutions to overcome project setbacks
- Provided seasoned judgment to successfully move forward beyond critical path points
- Originated and closed large capital projects and long term structured transactions
- Managed operating assets and associated budgets
- Maneuvered successfully through the required regulatory processes

PROFESSIONAL EXPERIENCE ●
GDS Associates, Inc., Atlanta, Georgia, 2008 - Present
Managing Director
Report to Vice President. Practice areas include energy project development and management, asset evaluation, fuels, power supply and pricing, utility rates, system planning, due diligence, and energy and risk management.
- Led development of $200 million greenfield renewable project from feasibility, through Board approval, funding, construction, and into start-up
- Negotiated full suite of OEM performance based arrangements, fixed price turnkey EPC contract, balance of plant equipment and installation contracts, lender approved long term fuel contract, site purchase arrangement, power interconnects, water supply contracts, and agencies’ approvals including permitting settlement
- Negotiated fast track settlement for project owner with the project’s generation OEM
- Provided natural gas delivery and supply market feasibility analysis of adding natural gas for co-firing and full firing of operating power project
- Secured natural gas interconnects, transport, and supply contracts for two greenfield projects
- Led transition and sourcing for two projects away from legacy interruptible natural gas arrangement to separate long term firm direct supply contracts
- Arranged multi-party natural gas deliveries and billings thru plant’s single revenue meter
- Led LDC out of captive natural gas agency supply arrangement to new direct long term arrangement with major producer
- Negotiated additional long term firm fixed price transport for existing power plant
- Served as state agency monitor of one of the largest utility natural gas hedging book
- Served as state agency monitor for natural gas planning and contracting of large utility’s plant conversions to natural gas
- Served as state agency natural gas expert in a large utility’s IRP process
- Natural gas and project structuring expert team member in proposed public private partnership CHP project
- Provided fatal flaw analysis of converting waste to energy plant to natural gas
- Provided expert witness services for natural gas industrial customer in contractual dispute with serving pipeline
- Provided expert witness services in petroleum products pipeline dispute

**NRG Energy, New Roads, Louisiana, 2006-2008**  
*Vice President – Development*

Reported to Regional President. Developed and implemented project development and marketing plans for two large generating plants.
- Led regional project development team with focus on Louisiana
- Acquired multi-fuel signed permit for an estimated $100 million repowering project
- Received project contingent offtake BoD approvals and included equity arrangements and long term offtake arrangements to support funding of repowering project
- Team member in OEM vendor sourcing and contract negotiations, EPC sourcing and contract negotiations, and fuel sourcing initiatives
- High school mentor program participant

**GDS Associates, Inc., Atlanta, Georgia, 2002-2006**  
*Managing Director*

Reported to founding partner. Developed and implemented a comprehensive energy asset risk management service targeted for cooperatives and municipals. Practice areas included energy assets and fuel and supply.
- Provided analysis and assessment of clients’ plant capacity options and valuations including risk management,
- Provided long term fuel and energy procurement advisory services including contract negotiations,
- Replaced consultant to secure pipeline interconnect, pipeline lateral installation, and long term firm supply arrangement for project under construction,
- Provided expert witness testimony in utility rate proceedings in various states with emphasis on natural gas, plant valuations, fuel strategy, planning, and risk management, and
- Conducted management audit of large utility on behalf of state utility commission with emphasis on affiliate transactions to support affiliate’s credit and funding.

**Entergy Wholesale Operations, Houston, Texas, 1999-2002**  
*Senior Vice President - Business Development*

Reported to COO. Selected to head up newly created and expanded Business Management function responsible for the P&L and operations of a $1.5 billion asset fleet.
- Reorganized 50 staff member organization which included a redesigned structure, re-staffing to upgrade talent, and new group and individual responsibilities and accountabilities
- Initiated a new management strategy for the asset team by adding the plants’ commercial responsibilities to existing operational responsibilities achieving alignment of P&L and operational goals
- Led development and implementation of comprehensive corporate model to value, report and analyze business unit results, and formulated risk management policies and procedures

**Senior Vice President - Business Development**

Developed and implemented a strategic business plan for the start-up of a regional asset development program targeted at the Gulf Coast market.
- Recruited and hired senior commercial development professionals to staff the development teams and implement plan
- Directed teams that managed an on-going deal flow of 10 to 12 major projects in various stages of active development
- Led teams that closed three diverse, world scale power projects in a two-year period, two of which included joint venture partners, one fast tracked
- Projects completed included originating multiple natural gas interconnects, laterals, and transportation arrangements and off balance sheet funding
- Company rep in all state PUC regulatory approval processes required for projects
Collaborated effectively with company’s trading joint venture to assist in projects’ energy risk management activities
- Led commercial and operations efforts of company’s thermal division
- Company campus MBA recruiting rep

**American Electric Power (AEP)**, Columbus, Ohio and Houston, Texas, 1997-1999

*Vice President - Project Development - North America*

Reported to Executive Vice President. Developed and implemented a strategic business plan for the North American market.
- Recruited and hired commercial development professionals to staff the development team and implement plan
- Relocated and opened Houston, TX business development office, led Toronto, Canada office, collaborated with corporate office
- Member of team that led and closed company’s first acquisition of a large natural gas pipeline asset in Louisiana
- Member of acquired natural gas asset’s Board of Directors and responsible for asset budget, operations, and expansions
- Developed acquired asset’s first year operating and capital budget
- Exceeded the natural gas asset’s acquisition proforma operating results during first year of ownership
- Led team that developed company’s first domestic natural gas fired cogeneration project (project off of acquired pipeline)
- Member of unregulated business development team for AEP’s acquisition of CSW pre-announcement
- Company campus MBA recruiting rep


*Director*

Reported to Vice President. Developed and implemented a wide range of commercial business strategies focused on growth opportunities.
- Recruited and hired commercial professionals to staff teams,
- Led the long-term contract origination team responsible for marketing and selling to some of the company’s largest electric utility natural gas customers,
- Closed multiple structured transactions,
- Led business development team in the approval, start-up, and recruiting of coal supply trading business unit,
- Member of LRC Pipeline acquisition and integration team,
- Member of Portland General Electric acquisition and integration team,
- Led start-up of electric drive natural gas pipeline compressor services business unit,
- Led company’s state utility commissions’ regulatory affairs efforts including NARUC,
- Started-up and led company’s marketing services function,
- Company campus MBA recruiting rep, and
- Junior Achievement volunteer at city high school.

**PepsiCo (Frito-Lay)**, Plano, Texas, 1987-1991

*Manager*

Reported to Senior Director. Developed and implemented the initial national business plan that transitioned the company’s 40+ manufacturing facilities from regulated utility service to the then emerging unregulated direct purchase energy market including cogeneration.
- Leveraged purchasing power through consolidated contracting with targeted group of major energy producers to replace one-off regulated purchases from utilities,
- Negotiated all supply contracts, including pre-NYMEX fixed prices, and pipeline and LDC transport contracts,
- Developed initial transport tariffs with some LDCs to implement transport to plant from pipeline,
- Lobbied state PUCs to drive initiation and implementation of LDCs’ transport service,
- Facilitated, with senior management and plant personnel, the approval to fund numerous individual capital projects to support direct purchase program,
- Drove and implemented LDC bypass when necessary or as leverage in negotiating transport rates,
- Responsible for development, including performance and variance, of annual corporate fuel price budget,
- Trained in and implemented company’s Future State business planning process, and
- Company campus MBA recruiting rep.

Continuous record of prior professional experience provided upon request, 1979-1987
EDUCATION ●
Bachelor of Industrial Engineering
Georgia Institute of Technology, 1981

PROFESSIONAL CERTIFICATIONS ●
Professional Engineer (PE) certification in Florida

EXPERIENCE ●
Mr. Smith has over thirty (30) years’ experience in electric utility planning including time spent as a staff member of municipal utility planning departments prior to his association with GDS as a power supply and system simulation consultant. He has been responsible for the development and analysis of integrated resource plans and for computer simulation of utility production operations and financial operations. Particular emphasis has been on economic feasibility studies of alternative power supply resources and projections of wholesale supplier rates based on cost of service as well as market forecasts. Mr. Smith has also been involved in the auditing of incremental energy cost billing calculations for retail customers.

GDS Associates, Inc., 1987 to Present
As Senior Project Manager in GDS’ Rates and Regulatory department, responsibilities include data research, database preparation, and computer simulation of investor-owned and cooperative utility systems using integrated planning software (including resource expansion optimization). He is also responsible for projecting regional market prices that are used for project justification.

Mr. Smith has modeled the production systems and construction programs of investor-owned and cooperative utilities using either industry standard planning software or detailed spreadsheet models. Industry standard planning software utilized for project work includes Strategist, PROMOD, and MarketPower.

Municipal Electric Authority of Georgia, Atlanta, Georgia, 1985 to 1987
As Generation Planning Engineer, was responsible for production costing simulation, using PROMOD, for operations budgeting. Was a member of team responsible for customizing and installing PROSCREEN II (now Strategist) system. Participated in joint planning activities with other regional utilities.

Jacksonville Electric Authority, Jacksonville, Florida, 1981 to 1985
As Generation Planning Engineer, was responsible for production costing simulation, using PROMOD, for budgeting purposes and analysis of alternative power resources. Participated in development of PC based corporate financial model. As Load Research Engineer, was responsible for sample design, coordination of data collection equipment installation and removal, and statistical analysis of electric consumption data. Analysis contributed to cost of service studies and energy management program evaluation.
Specific Project Experience Includes:

East Texas Electric Cooperative, Inc. – Participated in preparation of Request for Proposals for power supply resources. Coordinated communications with potential RFP respondents and conducted evaluation of submitted proposals.

Produced periodic projections of wholesale rates of investor-owned utility power suppliers using Strategist. Conducted economic feasibility analysis of load transfers from one electric reliability council to another. Prepared loan application for construction financing requirements.

Kansas Electric Power Cooperative, Inc. – Modeled production and financial systems to support financial forecast. Assisted in preparation of RFPs for power supply, evaluated responses to RFPs, participated in regulatory review and approval process. Evaluated impacts on members associated with reductions in sales.

North Carolina Electric Membership Corporation - Member of project team assembled to evaluate alternative uses of power resources. Responsibilities included data research, database preparation and computer simulation of investor-owned utilities, as well as cooperative utility system, using a customized PROSCREEN II integrated planning system.

Participated in audit of energy bills from wholesale supplier.

Blue Ridge Power Agency - Projected wholesale rates of investor-owned power supplier.


Seminole Electric Cooperative, Inc. - Participated in review of coop's planning procedures and modeling methods.

Department of Public Utilities, Wallingford, CT - Modeled utility system in order to evaluate power supply alternatives. Analyzed financial impacts of each alternative in order to rank options on basis of economics.


4-County Electric Power Association - Evaluated proposals received in response to 4-County Request for Proposals. Analyzed impacts of switching power suppliers on other customers of current supplier.

Lafayette, Louisiana Utilities System - Modeled the production and financial operations of the utility system. Designed and implemented models to analyze resource options at bus-bar and on an integrated basis. Participated in preparation of Integrated Resource Plan.

South Mississippi Electric Power Association - Developed spreadsheet screening models for analysis of power supply options received in response to Request for Proposals.

Air Liquide America Co. - Modeled generating resources and load requirements of the Electric Reliability Council of Texas. Developed power market clearing prices and dispatch forecast.
Tenaska Power Co. - Modeled generating resources and load requirements of the Electric Reliability Council of Texas. Developed power market clearing prices and dispatch forecast.

State of Hawaii - Modeled investor owned utility systems. Analyzed potential impacts of market power. Analyzed feasibility of various levels of renewable generation technology.

Alabama Electric Cooperative, Inc. - Modeled investor owned utility system. Developed projections of retail customer class rates. Reviewed AEC staff analysis of bids received in response to solicitation for power.

Northeast Texas Electric Cooperative, Inc. - Developed screening model for analysis of power supply options received in response to Request for Proposals. Modeled utility system using Strategist for detailed integrated system analysis.

Nucor Corporation - Audited incremental energy billing calculations and procedures of electric service provider. Reviewed and recreated hourly billing records for a multi-year service period. Prepared forecasts of expected electric service curtailments under contract provisions for service interruptions.

GST Steel Corporation – Calculated power cost over charges due to outage of power supplier generating resource.


Central Electric Power Corporation – Conducted simulation of power supply contracts to determine impacts on members.

Corn Belt Power Cooperative – Compared cost of continued asset ownership to purchased power contract.

Citizens Utility Board of Wisconsin – Calculated impacts to ratepayers associated with sale of investor-owned generating asset.

Kiewit Mining Group, Inc. – Produced forecasts of ERCOT market prices to support asset fuel pricing analysis.

American Municipal Power – Ohio, Inc. – Produced production simulation of all PJM entities to support analysis of market restructuring.

Co-Owners of Arkansas Coal Projects – Produced evaluation of impacts associated with interruptions in fuel supply.

Old Dominion Electric Cooperative – Developed triennial Market Power Screen analytics included in FERC filings.

PRIOR TESTIMONY OFFERED

Public Service Commission of the State of Missouri, Case No. EC-99-553, GST Steel Company vs. Kansas City Power & Light Company Relating to Overcharges to GST Resulting from Generating Station Explosion, November 1999

Georgia Public Service Commission, Docket No. 13305-U and Docket No. 13306-U, In the Matter of...


EDUCATION ●

MA in Anthropology, Minor in Statistics, University of Tennessee, 2004
BA in Criminology & Anthropology, University of Florida, 2001

PROFESSIONAL CERTIFICATIONS & QUALIFICATIONS ●

Mr. Huber is a Certified Energy Manager (CEM), Certified Measurement & Verification Professional (CMVP) and Building Energy Simulation Analyst (BESA). He is experienced in conducting statistical analyses (frequency distributions, cross tabulations, regression, and multivariate analyses) and he is proficient in MS Office. Mr. Huber is also familiar with the REM/Rate, BEopt, and Wright Soft building modeling software.

EXPERIENCE ●

GDS Associates, Inc., Marietta, Georgia, October 2005 to Present

Senior Project Manager

Mr. Huber performs project management and conducts quantitative and qualitative data analysis for a broad range of projects, including DSM potentials assessment, program planning, cost-effectiveness, and market research. He is also experienced in the areas of codes and standards, technical reference manuals (TRM), evaluation, and measurement and verification (M&V).

PROJECT MANAGEMENT

Mr. Huber has effectively managed several projects of varying scope and duration. These include:

Vermont Dept. of Public Service: Managed a team to assess the potential for energy efficiency throughout the state of Vermont. This included managing frequent internal and external communication to ensure tasks were completed efficiently and in accordance with Department’s regulatory schedule.

SMEPA and PA Residential Baseline Studies: Managed a team to conduct on-site surveys in Mississippi and Pennsylvania to assess the saturation of baseline and efficient equipment in the residential sector. This included overview of scheduling, data collection, quality control, data input, and analysis.

PA Statewide Evaluator HERS Persistence Study: Managed the impact evaluation and analysis of behavioral savings persistence of two PA utility residential home energy report (HER) behavioral programs.

GDS Benefit/Cost Screening Tool Update: Managed the internal update of the GDS Benefit/Cost Screening Tool that included several feature enhancements, calculation revisions, and methodology review.

DSM POTENTIALS ASSESSMENT

Mr. Huber has managed assessments of electric and natural gas DSM potential across all customer sectors. He has contributed to more than 20 potential studies electric and natural gas utilities across the country. His recent work includes the following studies:

Vermont Department of Public Service: electric and natural gas service territories (2017); DTE Energy: electric and natural gas service territory (2016); Consumers Energy: electric service territory (2016); Ameren Missouri: electric service territory (2016); Efficiency Maine Trust: electric and natural gas service territories (2015 and 2014);

Pennsylvania PUC: electric service territories of seven electric distribution companies (2015).
Mr. Huber has also had the lead responsibility for completing residential and/or low-income sector energy efficiency potential studies for utilities in Alabama, Arkansas, District of Columbia, Indiana, Kentucky, Maryland, North Carolina, and South Carolina. This involves overseeing and coordinating all project activities, including data collection, measure characterization, modeling, and developing estimates of technical, economic, and achievable potential.

COST-EFFECTIVENESS ANALYSIS
Mr. Huber has assessed the cost-effectiveness of many DSM resources for a wide variety of clients. This includes assessment of measures, programs, and DSM portfolios for the planning, reporting, and evaluation purposes. He assisted in the re-design of GDS Benefit-Cost Screening model, as well as many other Excel-based calculators for specialized analysis.

PROGRAM PLANNING AND DESIGN
Much of the analysis Mr. Huber performs feeds directly into utility planning efforts. This includes information on DSM resource costs, savings, and potential program participants. In addition to the work noted above, Mr. Huber has assisted utilities in developing estimates of program potential and DSM program portfolio plans. This included drafting recommended program designs, assisting product managers determine appropriate measures and rebate levels, performing cost-effectiveness analysis, and working utility program managers.

He has also provided quality assurance, technical support, and/or developed measures for technical reference manuals (TRMs) for Maine and Pennsylvania, and provided deemed measure savings databases for electric cooperatives in Indiana, Kentucky, and North Carolina.

PROGRAM EVALUATION
Mr. Huber has worked on multiple evaluations and/or evaluation reviews of utilities’ energy efficiency programs. He has conducted impact evaluations of low-income weatherization programs and behavioral programs and has conducted evaluation oversight of residential and commercial programs in Pennsylvania, North Carolina, and Georgia. Mr. Huber has also developed focus group interview guides for Efficiency Maine to assess successful practices, market barriers, and identify program recommendations.

MARKET RESEARCH
Mr. Huber has developed on-site survey instruments and conducted on-site assessments for residential sector baseline studies in several states, including Maine, Indiana, Pennsylvania and Mississippi. This also included data cleansing, data analysis, and drafting the final market assessment reports. He is currently working on a low-income energy use study in Maine to assess key differences in low-income energy use compared to all households in Maine. In addition, Mr. Huber has also previously conducted willingness to participate (WTP) market research to determine the impact of incentives on market adoption rates.
EDUCATION
B.S.A in Biological Science, University of Georgia, 2002

PROFESSIONAL REGISTRATIONS
Certified Energy Manager (CEM), LEED Accredited Professional (LEED AP), EPA Universal Refrigerant, Licensed Residential and Commercial General Contractor (GC)

EXPERIENCE
Experienced energy professional with more than 14 years of effective leadership in all aspects of sustainability management, energy efficiency, and project oversight.
- Extensive program management experience, energy efficiency and sustainability focused.
- Strategic planning and end-to-end project management, bringing environmental and operational sustainability to Fortune 500 clients from numerous industries.
- Industry expert with articles published in several leading building science publications.
- Comprehensive skill set providing the flexibility to engage in crucial aspects of a client’s needs, including:

  | Energy Modeling & Reporting | Cost/Benefit Analysis | Building Automation |
  | Product Validation          | M&V (IPMVP)           | Energy Code Consulting |
  | Staff Management            | Utility Incentives    | Thermodynamics       |
  | ASHRAE Level Audits         | Design-Build Projects | Stage-gate Engineering |

GDS Associates, Inc., 2013-Present
Project Manager for Energy Efficiency Department
- Serves as project manager in the energy efficiency and renewables department, providing leadership to large evaluation and cost-benefit focused contracts.
- Special focus on measure design and analysis, renewable integration, and program evaluation.

E4E Solutions, Atlanta, GA, 2010 – 2013
Senior Project Manager
- Managed design-build energy and water projects for commercial and industrial clients ranging from $10k to $5M.
- Conducted energy and water audits on numerous building types to gauge client use of HVAC, water, refrigeration, lighting, and building automation with a focus on implementing turnkey projects.
- Served as the property owner’s representative on multiple projects, advising the design team on energy efficiency and sustainability in new construction and retrofit applications.
- Procured significant financial incentives from a broad range of large utility programs, ranging from prescriptive rebates to highly customized submittals averaging $250k-$300k per project.
- Increased company visibility, brand identity, and client interest through development and launch of the company website, marketing literature, and case studies.
- Managed support of senior and junior engineering staff needed to service demanding project requirements.

H2 Ecodesign, Atlanta, GA, 2008 – 2010
Senior Project Manager
- Managed LEED certification initiatives for commercial and industrial customers while directing operations of the firm’s independent consultant network.
- Served as a full-service consultant for domestic and international clients seeking to incorporate sustainability into their building projects.
Delivered high-impact presentations to clients that effectively outlined the measures needed to satisfy LEED requirements for the targeted goal, addressing concerns by multiple stakeholders.

Managed the junior support staff, adjusting the auxiliary support for each project based on client priorities and project needs.

Designed, implemented, and deployed a project collaboration and management software platform via Microsoft SharePoint, which served as a company standard across other departments.


*Operations Manager*

- Managed multiple energy efficiency and sustainable building programs, including EarthCraft House, ENERGY STAR, and Jackson EMC’s RightChoice Program, providing comfort and energy guarantees.
- Served as the primary decision maker and risk mitigation manager for comfort and energy use policies with a client base of over 800 properties and 400 builders, overseeing a staff of 12 technicians and analysts.
- Led instructional training throughout Georgia and Alabama on energy efficiency, advanced construction, energy certification programs, HERS ratings, IECC energy code, and ENERGY STAR.
- Designed and implemented a company-wide project tracking database via Ruby on Rails (SQL type) that allows real-time carbon and energy savings data to be queried instantaneously.
- Trained in the energy modeling and design programs REMRate, ComCheck, and eQUEST, as well as experienced in AutoCAD; obtained EPA Universal certification.
- Served on the Georgia Energy Code task force as commissioned by the Department of Community Affairs, promoting energy efficiency within the Georgia energy code legislation.
- Acted as a liaison to the Home Builders Association, Jackson EMC, Georgia Power, Georgia Department of Community Affairs, and other partners to provide coordination of critical Southface initiatives and program standards.
EDUCATION ●
Murdoch University, coursework in Renewable Energy
B.S. Environmental Engineering, N.C. State University, May 2009
B.S.E.S. Environmental Economics & Management, University of Georgia, May 2006

PROFESSIONAL MEMBERSHIPS ●
Association of Energy Engineers, Association of Energy Services Professionals

PROFESSIONAL CERTIFICATIONS ●
Licensed Professional Engineer (PE) in the state of Georgia
Certified Energy Manager (CEM)

EXPERIENCE ●
Mr. Hirons has more than 7 years of experience as a consultant in the fields of energy and engineering. He joined GDS in early 2012, and works out of the Marietta, GA office. While at GDS he has worked on projects focusing on several different facets of energy efficiency. He has worked on energy efficiency potential studies for clients in Pennsylvania, Maine, Maryland, North Carolina, Washington D.C., Michigan, Vermont, Missouri and Kentucky. He has provided consulting services to the North Carolina Utilities Commission (NCUC), serving as the lead consultant reviewing the evaluation, measurement and verification (EM&V) reports submitted by the electricity utilities to the NCUC as part of their application for cost recovery in various electricity rate case proceedings. He has submitted testimony and helped prepare affidavits and data requests on behalf of the NCUC in these proceedings. He has also served on a team of advisors to help the Office of Consumer Counsel (CT) represent the state’s utility customers in energy efficiency proceedings. He has provided analysis to clients in North Carolina, Connecticut, and Missouri regarding proposed utility performance incentive mechanisms. He has provided analysis of utility DSM plans in several states including Missouri and North Carolina. He has performed research into best practices for providing DSM programs and developed evaluation plans for a utility in Canada. He has also served as a consultant in natural gas rate case proceedings for municipalities in Texas. Mr. Hirons previously worked as an engineer for more than 2 years at Brown and Caldwell, an environmental consulting company, out of the Virginia Beach office. This role focused on conducting an investigation of the sanitary sewer infrastructure of the City of Virginia Beach.

Specific Experience Includes:
GDS Associates, Inc., Marietta, GA
Project Engineer
In his current role with GDS, Mr. Hirons performs the following tasks as they relate to performing potential studies and advising clients in EM&V related matters:
- Collects data on the costs, savings, useful lives and saturation of energy efficiency and demand response measures.
- Estimates energy efficiency and demand response potential in various regions of North America.
- Conducts benefit/cost analysis of energy efficiency and demand response measures and programs.
- Conducts statistical analysis of data.
- Conducts economic feasibility studies of energy efficiency and demand response measures and programs.
- Develops and reviews engineering estimates of energy savings for energy efficiency and demand response measures and programs.
- Reviews utility EM&V reports and prepares data requests in an effort to require the utilities show sufficient evidence of reported savings in cost recovery proceedings.
- Drafts recommendations for clients to use in affidavits and testimony in cost recovery proceedings in order to help make cost-effective improvements to EM&V efforts
- Reviews EM&V plans for future programs to advise clients on the adequacy of the plans
- Manages several projects and serves as primary contact with one of his clients

Brown and Caldwell, Virginia Beach, VA  
*Engineer II – Business Consulting Practice*

Mr. Hirons worked with multiple contractors and the City of Virginia Beach Department of Public Utilities (DPU) to complete an investigation of the City’s sanitary sewer infrastructure. The job required supervising contractor fieldwork activities, analyzing fieldwork data, compiling data and generating condition assessment reports. He also worked on a project to re-write the City’s DPU design standards manual, and led an investigation into the stormwater infrastructure serving a portion of the Ft. Eustis military base in Newport News, VA.

Southern Energy Management, Morrisville, NC  
*Building Science Plan Review Analyst*

Mr. Hirons worked on residential energy savings efforts by helping builders construct homes that earned Energy Star certification. His duties included conducting plan reviews by analyzing construction design drawings and entering the results of the analysis along with builder supplied specifications into the REM/Rate software program to estimate the energy efficiency of new homes. Mr. Hirons consulted with builders to help them make decisions regarding cost effective upgrades in energy efficiency.

United States Department of Agriculture-Agricultural Research Service, Raleigh, NC  
*Biological Science Aide*

Mr. Hirons provided support to the plant physiologist in charge of completing tasks associated with conducting air quality experiments designed to investigate the effects of carbon dioxide and ozone on crop yield.
EDUCATION ●
BS, Mechanical Engineering, Georgia Institute of Technology, Atlanta, Georgia, 2015

PROFESSIONAL CERTIFICATIONS & QUALIFICATIONS ●
- Engineer in Training (EIT) in Georgia
- Energy Manager in Training
- Association of Energy Services Professionals (AESP)

EXPERIENCE ●
Engineer
Ms. Young started at GDS as a coop student in 2012 and began full-time employment in 2015 after she graduated from Georgia Institute of Technology. Some of her responsibilities have included:
- Responsible for using tables and models to generate savings data on various energy efficiency and demand response programs.
- Responsible for research and reporting of energy efficiency and demand response programs.
- Responsible for assisting company executives with various projects and reports.
- Evaluated demand response potential for utility in Missouri. Analyzed demand response programs, including direct load control and rate programs.
- Worked on Demand Response Potential Studies for three utilities in Michigan. Analyzed demand response programs, including direct load control and rate programs. Traveled to Michigan to present results to utilities and Michigan Public Service Commission.
- Worked on Distributed Generation Potential Study for Efficiency Maine. Calculated technical and economic potential energy for renewable energy and CHP technologies, using several types of “clean” fuels. Analyzed cost-effectiveness of same technologies.
- Worked on Statewide Evaluator Residential Potential Study for the state of Pennsylvania. Calculated energy efficiency saturation figures for each utility by extracting data from individual surveys and analyzing those numbers to calculate statistics for individual measure saturations.

SKILLS ●
- Microsoft Office Suite- Excel, Word, PowerPoint, Publisher, Access
- SolidWorks
- Autodesk Inventor
- AutoCAD
- MATLAB
EDUCATION ●
- Master of Business Administration, Finance, A. B. Freeman School of Business, Tulane University, December 2002
- Bachelor of Arts, Physics, The Colorado College, May 1989

PROFESSIONAL CERTIFICATIONS ●
Leadership in Energy and Environmental Design (LEED) Certified
HERS (Home Energy Rating System Rater) and RESNET (Residential Energy Services Network) Certifications

PROFESSIONAL EXPERIENCE ●
Baynham Environmental, LLC, November 2007-present
Owner
- Owner of environmental consulting firm specializing in energy & environmental strategy. Projects for:
  - Entergy New Orleans / CLEAResult: Program Consultant for Energy Smart energy efficiency programs.
    - Managing multi-family direct install program; Implemented at 10,000 units in Orleans parish since 2013.
    - Overseeing $500,000+ contract with Energy Wise Alliance for outreach and schools program.
  - Entergy New Orleans / CLEAResult: New Orleans Quick Start energy efficiency programs.
  - Pew Center for Global Climate Change / Entergy Corporation: “Make an Impact” Website review and update.
  - Entergy Corporation: Utility energy efficiency, demand response and green power program development.
- Adjunct professor in the Tulane University Freeman School of Business M.B.A. program.
- Former board member of Women’s Energy Network for South Louisiana.
- LEED, HERS and RESNET certifications.

Energy Efficiency Coordinator, Marketing & Sales, April 2004 – October 2007
- Responsible for designing, coordinating and implementing energy efficiency programs for 2.5 million customer base.
- Worked on special projects including green power, Energy Star programs and demand response/time-of-use rates.

Corporate Environmental Manager, July 2003 – April 2004
- Responsible for internal corporate environmental compliance through new Corporate Safety & Environment Office.

- Responsible for environmental management for a four-state, 700-person transmission system.
- Strategic Planning Associate, Finance Department, December 1999 – March 2001
- Worked on team to implement $25 M Environmental Initiatives Fund and greenhouse gas emissions cap commitment.
- Modeled financial effects of utility deregulation on Entergy system with Strategic Planning team.

AWARD: Received Fossil Operations Entergy Corporate Award for development of Environmental Strategy.
**Governor’s Office of Coastal Activities,** Baton Rouge, Louisiana, 1998-1999

*Appointee*

Assisted state and federal agencies in delegation of $40 million annually to coastal restoration projects in Louisiana.

**SELECTED ADDITIONAL EXPERIENCE ●**


Served as *Regional Liaison* in coordinating national Energy Star marketing activities


*Researcher* on Central and Eastern European energy efficient technologies


*Intern* on climate change and transportation issues for Clinton Administration

**Rocky Mountain Institute,** Snowmass, CO, 1991 – 1993

*Research Associate* at internationally renowned energy efficiency think tank
Daniel E. Peaco
Principal Consultant

SUMMARY

Daniel Peaco is a Principal Consultant, Chairman, and Past-President at Daymark Energy Advisors, a leading provider of integrated policy, planning and strategic decision support services to the North American electric and natural gas industries.

Mr. Peaco has 35 years of experience in the electric industry, both as a utility planning practitioner and, for the past 20 years, as a consultant to the industry. His consulting practice has included engagements relating to strategic planning, competitive electric markets, integrated resource planning evaluation of generation asset investments, renewable energy policy, transmission planning, competitive procurement and power contracts, and industry restructuring.

Prior to joining Daymark Energy Advisors, he held management and planning positions in power supply planning at Central Maine Power, CMP International Consultants, Pacific Gas & Electric, and the Massachusetts Energy Facilities Siting Council. He holds degrees from M.I.T. and Dartmouth College.

EMPLOYMENT HISTORY

Daymark Energy Advisors, Inc. Boston, MA
- Chairman Aug 2015-current
- President 2002-July 2015
- Managing Director 1996-2002

Central Maine Power Company Augusta, ME
- Manager, Industrial Marketing and Economic Development 1995-96
- Principal, CMP International Consultants 1993-95
- Director, Power Supply Planning 1987-93
- Power Supply Planning Analyst 1986-87

Pacific Gas & Electric Company San Francisco, CA
- Power Supply Planning, Hydropower Planning, Cogeneration Contracts 1981-86

Massachusetts Energy Facilities Siting Council Boston, MA
- Planning Engineer 1978-79

EDUCATION

Thayer School of Engineering, Dartmouth College Hanover, NH

Massachusetts Institute of Technology Cambridge, MA
- B.S. in Civil Engineering, Water Resource Systems 1977
PUBLICATIONS, PRESENTATIONS & CONFERENCES


The Opportunities and Risks for Developing Energy Infrastructure in New England (2017-2022); presentation provided at the Inaugural Pierce Atwood Energy Infrastructure Symposium, October 20, 2017.

Natural Gas in Power Generation; presentation provided at the 5th Annual Natural Gas Conference Natural Gas: Powering Maine’s Future, September 28, 2017.


MCPC Project Benefits; Quantitative and Qualitative Benefits, Confidential Report prepared for Central Maine Power regarding the benefits of the Maine Clean Power Connection, a 345 kV transmission expansion accompanied by 1100 MW of wind energy project development offered in the Massachusetts RFP for Clean Energy Resources, July 27, 2017. Lead Consultant and Principal Author.


MREI Project Benefits; Direct, Indirect, Qualitative and Other Benefits, prepared for Central Maine Power Company and Emera Maine regarding the benefits of the Maine Renewable Energy Initiative, a 345 kV transmission expansion accompanied by 1200 MW of wind energy project development. January 28, 2016. Lead Consultant and Principal Author.

MCPC Project Benefits; Direct, Indirect, Qualitative and Other Benefits, prepared for Central Maine Power Company regarding the benefits of the Maine Clean Power Connection, a 345 kV transmission expansion accompanied by nearly 600 MW of wind energy project development. January 28, 2016. Lead Consultant and Principal Author.
Independent Valuation Opinion for the Bellows Falls Station in the Town of Rockingham, VT, prepared for the TransCanada Hydro regarding the value of a 49 MW hydropower asset. July 2013 (Updated April 2015). Lead Consultant and Principal Author.


Regarding Tri-State G&T’s Cost to Serve Its Nebraska Loads and the Nebraska Power Supply Issues Group Loads, prepared for the Nebraska Power Supply Issues Group, two public power districts and two member-owned electric utilities in Western Nebraska. December 2012. Lead Consultant and Principal Author.

Independent Valuation Opinion for the Vernon Station in the Town of Hinsdale, NH, prepared for the TransCanada Hydro regarding the value of a 32 MW hydropower asset. November 2012. Lead Consultant and Principal Author.

Independent Valuation Opinion for the Comerford and McIndoes Stations in the Town of Monroe, NH, prepared for the TransCanada Hydro regarding the value of 179 MW hydropower assets. November 2012. Lead Consultant and Principal Author.

Independent Opinion Regarding the Market Value of Brassua Hydro LP Assets, prepared for the Owners of Brassua Dam regarding the value of a 4 MW hydropower asset. November 2012. Lead Consultant and Principal Author.

Independent Opinion Regarding Amortization Reserve of Brassua Hydro LP, prepared for the Owners of Brassua Dam regarding the amortization reserve value of a 4 MW hydropower asset. November 2012. Lead Consultant and Principal Author.


**Resume of Daniel E. Peaco**


Retail Choice Study: Issues and Options for Electric Generation Service, the Belmont Electricity Supply Study Committee, Belmont, Massachusetts. June 2, 2004. Lead Consultant and Principal Author.

California Energy Markets: The State’s Position Has Improved, Due to Efforts by the Department of Water Resources and Other Factors, but Cost Issues and Legal Challenges Continue, California Bureau of State Audits, April 2, 2003. Lead Consultant and a Principal Author.


Preliminary Market Value Assessment of PP&L Maine Hydroelectric Plants, August 2001. Proprietary report prepared for American Rivers, the Atlantic Salmon Federation, the Natural Resources Council of Maine, the Penobscot Indian Nation, and Trout Unlimited. Principal Author.


### EXPERT TESTIMONY

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Docket No. SB-98-1  
R. I. Hope Energy, L. P.  
Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new, merchant power facility.

Oral Testimony  November 4, 1998  
Pre-filed Testimony  October 30, 1998

Massachusetts Energy Facilities Siting Council  
Docket No. EFSB-91-101A  
Cabot Power Corp.  
Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new, merchant power facility.

Oral Testimony  May 27, 1998  
Pre-filed Testimony  August 15, 1997

Massachusetts Energy Facilities Siting Council  
Docket No. EFSB-97-2  
ANP Blackstone Energy  
Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new, merchant power facility.

Oral Testimony  April 6, 1998  
Pre-filed Testimony  January 23, 1998

Massachusetts Energy Facilities Siting Council  
Docket No. EFSB-97-1  
ANP Bellingham  
Testimony regarding economic, reliability and environmental need for power in the Massachusetts and New England power markets regarding the need for new, merchant power facility.

Oral Testimony  February 3, 1998  
January 28, 1998

Rhode Island Energy Facilities Siting Board  
Docket No. SB-97-1  
Tiverton Power Associates LP  
Testimony regarding economic, reliability and environmental need for power in the Rhode Island and New England power markets regarding the need for new, merchant power facility.

Oral Testimony  October 15, 1997  
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Maine Public Utilities Commission  
Docket No. 92-102  
Central Maine Power  
Testimony regarding CMP’s avoided cost methods and practices pertaining to the prudence of power purchase contract decisions with regard to contract awards and contract management.

Oral Testimony  July 1993  
Deposition Testimony  February 25, 1993  
March 1, 1993  
Pre-filed Rebuttal Testimony  June 7, 1993  
Pre-filed Testimony  June 15, 1992

Maine Public Utilities Commission  
Docket No. 92-315  
Central Maine Power  
Testimony regarding CMP’s avoided cost methods and practices pertaining to the setting of long-term avoided costs, CMP’s Energy Resource Plan, and the relationship of marginal costs of generation to embedded costs.

Supplemental Pre-filed Testimony  April 20, 1993  
Pre-filed Testimony  February 17, 1993
Maine Public Utilities Commission
Docket No. 87-261
Docket No. 88-111

Central Maine Power

Testimony regarding CMP’s avoided cost methods and practices pertaining to the setting of long-term avoided costs, CMP’s Energy Resource Plan, and the proposal for a 900 MW power Contract with Hydro Quebec.

Oral Testimony          Summer 1988
Pre-filed Testimony      October 31, 1987
GDS
PROPOSAL
LOUISIANA PUBLIC SERVICE COMMISSION
2017 Integrated Resource Plan Docket no. I-34694

December 7, 2017

GDS Associates, Inc.
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