Purpose

The Memphis Light, Gas and Water Division (MLGW), Memphis, Tennessee, is seeking a qualified firm (Consultant) to assist in developing an Integrated Resource Plan (IRP) which will incorporate a Transmission Analysis (TA) to evaluate the current MLGW-TVA "All-Requirements" Wholesale Power Agreement versus that of entering into the Wholesale Power Market to meet our customers' future needs for reliable electric energy at the least cost. The scope of work will incorporate current and future resource screening, development of scenario futures, and portfolio optimization analysis. MLGW anticipates the development of the IRP will contain significant stakeholder engagement that will include: MLGW's Board of Commissioners, MLGW's senior management, and MLGW's customer advocates. The results of the IRP will be presented to the MLGW Board of Commissioners (Board) and the Memphis City Council (City Council). Through this Request for Proposal ("RFP"), MLGW extends to your firm an invitation to submit a proposal in accordance with the requirements and conditions set forth in this document.

General Background of MLGW

i. **HISTORY |** Memphis Light, Gas, and Water has been in existence since 1939. Since its inception, MLGW has met the utility needs of Memphis and Shelby County residents by delivering reliable and affordable electricity, natural gas and water service.

ii. **LEADERSHIP |** Memphis Light, Gas and Water is governed by a Board of Commissioners consisting of five voting members who are nominated by the Mayor of the City of Memphis and elected by the Memphis City Council and two non-voting members nominated by the Mayor with the concurrence of the Mayors of other municipalities in the MLGW service territory. MLGW's President and CEO is appointed by the Mayor and approved by Memphis City Council.

iii. **TVA |** The Tennessee Valley Authority (TVA) has provided MLGW with wholesale electricity since 1939. MLGW is TVA's largest customer, representing about 10 percent of TVA's total load. MLGW buys natural gas from a variety of suppliers. Gas is transported by three pipeline companies – Texas Gas Transmission Corp., Trunkline Gas Co., and ANR Pipeline Co. Memphis receives its water from one of the largest artesian water systems in the world, the Memphis Sand and Fort Pillow aquifers.

iv. **MAJOR INDUSTRY |** Memphis is home to three Fortune 500 world headquarters – FedEx, International Paper, and AutoZone. In addition, Nike, Hilton, Coca-Cola and Medtronic have major offices or distribution facilities in Memphis.

v. **ECONOMIC DEVELOPMENT |** MLGW contributes to the area economic development efforts and works hand-in-hand with the Memphis Regional Chamber, encouraging businesses to locate to the area, while at the same time equipping businesses in the near future, creating thousands of new jobs.

vi. **CUSTOMERS |** MLGW is the nation's largest three-service municipal utility, serving more than 431,000 customers. Of the customer base, 85 percent represent residential customers and the remainder constitute commercial and industrial customers.

vii. **POPULATION GROWTH |** In Shelby County, population growth is expected to occur at 0.30% annual growth rate from 2018 to 2023. Currently, 968,319 people reside in Shelby County; of that, 662,038 live within the Memphis city limits.

viii. **MLGW INFRASTRUCTURE |** MLGW is a summer peaking system and is TVA's largest customer representing approximately 10 percent of TVA's total load. MLGW's loading reached 3,097 MW in the summer of 2018, but reached peak load levels of 3,533 MW in the summer of 2007. Currently, MLGW owns no generation in its footprint, nor ties to other generation or transmission entities. Power is received from TVA at four delivery points. Additionally, there are six transmission level switching stations within MLGW's electric system. MLGW owns and maintains approximately 68 miles of 115 kV and approximately 539 miles of 161 kV transmission lines with 65 substations stepping the voltage levels down to 23 kV and 12 kV. The Midcontinent Independent System Operator (MISO) lies adjacent to MLGW's western service territory.

Non-Appropriation Clause

MLGW is a governmental entity, and the Contract's validity is based upon the availability of public funding under MLGW's authority. In the event that public funds are unavailable and not appropriated for the performance of MLGW's obligations under this Contract, this Contract shall automatically expire without penalty to MLGW after written notice to the Consultant of the unavailability and non-appropriation of public funds. MLGW shall promptly pay the Consultant at the contracted rate for all amounts due for the work provided prior to the effective date of termination. It is expressly agreed that MLGW shall not activate this non-appropriation provision for MLGW's convenience or to circumvent the requirements of this Contract, but only as an emergency fiscal measure.

Scope of Work

The Consultant will be expected to evaluate MLGW's existing and future load requirements and propose supply and transmission deliverability scenarios to meet these in a reliable and cost-effective manner. The Consultant selected for this project will, at the discretion of the MLGW Board of Commissioners and in consultation with MLGW Staff, be asked to perform the following tasks:

Tasks

1. Develop a stochastic-based, 20-year demand (MW) and energy (GWh) forecast based off historical load data as well as demographic and econometric data provided by MLGW.
2. Provide current performance expectations for available generating technologies to be used in the supply options (capital costs, heat rates, fixed and variable maintenance costs, wind and solar profiles, etc.). Consultant shall provide "planning grade"[1] estimates for all supply options. In addition, work with MLGW to develop cost and impact estimates of existing energy efficiency and

[1] Planning Grade refers to the RTO practice of providing costs estimates with an accuracy of +/- 20%.

demand-side programs and potential for additional and/or expanded energy efficiency and demand-side programs.

3. Provide sensitivity and probabilistic analyses around key unknown input variables such as load, natural gas prices, cost of capital and potential carbon taxation for each supply option.
4. Provide a 20-year Present Value of Revenue Requirements ("PVRRs") for the cost of each supply option (including sensitivity and probabilistic analyses) to serve MLGW's load and assist MLGW in evaluation of cost and risk for each supply option. MLGW anticipates the use of one or more production simulation (optimization) models to provide the PVRR for each supply option. The cost analysis should include all costs associated with each option such as electric transmission additions and upgrades (including those needed to accommodate additional generator short-circuit capability, generator interconnection and substation needs, electric balancing needs and natural gas pipeline requirements).
5. Work with MLGW to develop a "scorecard" approach to rank each supply option. Criterion items may include, but are not limited to: total revenue requirements, carbon emissions, exposure to market, or annual outlay of capital.
6. Provide a nodal, economic transmission analysis on the preferred supply option(s) to determine impacts to MLGW of a security-constrained economic dispatch. Deliverables should include, as appropriate, generator revenues and production costs, MLGW load costs, and any discussion surrounding operations and load costs.
7. Provide an analysis for the cost and risk for any supply option in which MLGW would act as its own Balancing Authority (BA) or Local Balancing Authority (LBA). Currently, MLGW is registered with NERC as a Transmission Owner (TO), Transmission Operator (TOP), and Transmission Planner (TP).
8. Provide a **transmission analysis** for the cost and risk for any supply option which may require new electric and/or gas transmission investments. MLGW will supply its transmission model(s) and work with the vendor to conduct cost evaluations for any proposed transmission upgrades.
9. Provide system impact studies down to the 161 kV bus. The results are to be supplied to MLGW in a raw data format compatible with PowerWorld Retriever Version 19. Consultant shall provide "planning grade" estimates for all identified transmission upgrades.
10. Provide an assessment of MLGW's current staffing, skillset, SCADA upgrades and facilities with recommended changes based on Industry Best Practices required to meet increased responsibilities associated with, where applicable, operating a BA or an LBA, MISO Market Participant, Generator Operator (GOP) functions. Consultant shall provide "planning grade" estimates for this Task.
11. Work with MLGW to develop final supply options. Any supply options that includes TVA, shall assume TVA will not be a partial requirement supplier. Each supply option should discuss specific transmission needs with solutions and BA needs with solutions. Examples of these supply options would include:
    a) A **Business-As-Usual Option** (BAU). A base case of MLGW's current supply which is a full-requirements contract with TVA for comparison purposes with other supply options

b) A **Self-Build Option**. Select and screen various resource self-build options with input from MLGW on the various types of generation resource mix based on combined cycle, combustion turbine, renewable generation technologies, demand-side and energy efficiency, and other known available capacity and energy alternatives. This should include joint ownership or Power Purchase Agreements ("PPAs") tied to units outside the MLGW system. These self-build options should consider the advantages, disadvantages, and risks of MLGW owned versus other known capacity and energy alternatives, and exclude the construction of a coal-fired generating plant.
c) A **MLGW-MISO Option**. Select and screen the option of purchasing all energy and capacity from MISO.
d) A **COMBINATION Option**. Consultant, with MLGW input, shall select and screen any combination of b) and c) above to maximize cost savings to MLGW over the study period.

12. Provide an estimated schedule, including milestones, associated with construction of the identified generation and transmission additions associated with each supply option.

Deliverables

1. Provide pre-screened viable supply options. Consultant may provide a high-level screening analysis to eliminate supply options before placing them into the supply option analysis. The Consultant will provide a narrative description of the advantages and disadvantages of each screened alternative.
2. Provide for up to four (4) Consultant-organized and led stakeholder engagement sessions in Memphis.
3. Provide presentations for Staff, MLGW's Board, and City Council summarizing IRP process, results, and recommended course of action.
4. Provide a report that incorporates all of the Tasks to Staff, MLGW's Board and the City Council. This report should include an executive summary, full details and verbiage of supply options and transmission analysis, and conclusions/recommendations.
5. Provide all data / analysis (Excel based) used to complete Tasks and report to Staff.

In addition to providing analysis, evaluations, and recommendations for the issues listed above:

a) Assistance to Staff in the preparation, review, and analysis of discovery requests and responses.
b) Organizing and managing, with assistance from Staff, the stakeholder engagement process.
c) Participation in MLGW Board and City Council meetings regarding this study.
d) Provide progress reports to Staff and MLGW Board on prescribed schedule.

Standard Schedule

RFP Issue Date	**April 3, 2019**
Intent to Bid due (via email)	**April 11, 2019**
Questions due from Bidders	**April 18, 2019**
Responses from MLGW forwarded (via email)	**April 25, 2019**
RFP Responses Due (hard copy only)	**May 17, 2019**
Contract Management Review/Supplier Diversity Review Completed	**May 24, 2019**
Score Proposal Completed	**May 31, 2019**
Short List Presentation Meetings Held	**June 3-14, 2019**
Notice of Intent to Award	**June 17, 2019**
Projected Date of Board Approval	**July 3, 2019**
Projected Date of City Council Approval	**July 8, 2019**
Award Date	**July 9, 2019**
Project Kick-Off Meeting	**July 15, 2019**
Stakeholder Engagement	**August – September, 2019**
Progress Report	**November 8, 2019**
Progress Report	**January 17, 2020**
Progress Report	**March 27, 2020**
Draft IRP Due	**April 15, 2020**
Final IRP Due to MLGW	**June 1, 2020**

Preferred Schedule

RFP Issue Date	**April 3, 2019**
Intent to Bid due (via email)	**April 11, 2019**
Questions due from Bidders	**April 18, 2019**
Responses from MLGW forwarded (via email)	**April 25, 2019**
RFP Responses Due (hard copy only)	**May 17, 2019**
Contract Management Review/Supplier Diversity Review Completed	**May 24, 2019**
Score Proposal Completed	**May 31, 2019**
Short List Presentation Meetings Held	**June 3-14, 2019**
Notice of Intent to Award	**June 17, 2019**
Projected Date of Board Approval	**July 3, 2019**
Projected Date of City Council Approval	**July 8, 2019**
Award Date	**July 9, 2019**
Project Kick-Off Meeting	**July 15, 2019**
Stakeholder Engagement	**July – August, 2019**
Progress Report	**September 6, 2019**
Progress Report	**October 18, 2019**
Draft IRP Due	**November 8, 2019**
Final IRP Due to MLGW	**December 13, 2019**

Confidentiality

Each proposer agrees to maintain all confidential information to which it has access, until such time it is instructed otherwise by MLGW. A Proposal must remain confidential until the effective date of any contract

resulting from this RFP. A Proposer's disclosure or distribution of proposals with any person or entity other than MLGW will be grounds for disqualification. Each proposer will be required to complete and submit a Non-Disclosure Agreement along with their proposal.

Method of Selection

MLGW reserves the right, without qualification to:

1. Select any proposal as a basis for written or oral discussion with any or all of the firms, when such action is considered to be in the best interest of MLGW;
2. Reject any or all proposals which are deemed not in the best interest of MLGW;
3. Award in whole or in part; and
4. Exercise discretion and apply MLGW's judgment with respect to any proposals submitted.

If after attempting to obtain competitive proposals for material or services and only one (1) bid, proposal or offer is received and that bid, proposal or offer does not exactly meet MLGW's specifications or budgetary limits, the Procurement and Contracts Management staff shall have the authority to negotiate with the Contractor to secure an acceptable bid, proposal or offer.

MLGW may select proposals, based on initial proposals received without discussion or after limited discussions or negotiations. Contractors are therefore advised to submit their initial proposal on the most favorable terms possible. **MLGW is subject to the Tennessee Public Records Act. As such, the Contractor's proposal may be examined by the public after the proposal has been evaluated by MLGW and an award recommendation has been received in the Contracts Management Department.** Any protest must be filed in writing with the Manager of Procurement and Contracts by 5:00 PM CST/CDT within five (5) business days of the Notification of the Intent to Award Letter or non-award incident. Protest may also be submitted electronically on company letter head to the Manager of Procurement and Contracts by 5:00 PM CST/CDT at cdavis@mlgw.org. For a copy of the MLGW Procurement Complaints and Appeals Process visit www.mlgw.com/protest or call (901) 528-4381.

Bidder Requirements

1. Provide a list of client references from previously completed IRP projects and an appropriate contact person.
2. Describe prior load forecasting analyses performed for other electric utilities.
3. Describe prior portfolio optimization analyses, including the stakeholder engagement process, performed for other electric utilities.
4. Provide a description of the model(s) to be used for the load forecasting analysis.
5. Provide a description of the model(s) to be used for the portfolio optimization analysis.
6. Provide a list of the proposed project team members and their qualifications.
7. Provide a single point of contact responsible for answering any questions about the proposal.

Proposal Evaluation Criteria

Proposals will be evaluated according to the following criteria.

A. Fee Structure, Adherence to Schedule and Cost of Deliverables (30 percent)
   - For example, Fixed Price, Time and Materials, Not to Exceed, and cost of optional analysis and experience with delivering projects of this scope/size within budget and on schedule for other electric utilities. Respondents that commit to utilizing the Preferred Schedule will be awarded a higher score.

B. Experience and quality of past IRPs and TAs (30 percent)
   - Clarity and robustness of analysis, presentation of results, and conclusions/next steps and experience with completing IRPs for other electric utilities.

C. Experience and qualifications for market price forecasting, generation and transmission cost estimation, and modeling experience (10 percent)
   - Types of projects (off-the-shelf energy and capacity price forecasts, asset valuations, retirement conversions analysis, etc.), types of clients (investor owned utilities, cooperatives, independent power producers, investment banks, etc.), and markets (regions of the US, Canada, Mexico, and international).

D. Experience and qualifications for managing stakeholder engagement processes associated with IRPs including public input (15 percent)

E. Experience and qualifications of personnel assigned to this project (15 percent)
   - Including availability and dedicated amount of time for assigned personnel.

Addendum

Replies will be issued to all Respondents of Record by Addenda and will form a basis for the RFP and Contract. Neither MLGW nor any of MLGW's representatives will be responsible for oral clarification. **Questions must be received by MLGW on the date listed in the Schedule of Events.** No addenda will be issued less than three (3) working days before proposals are due, unless an unforeseen circumstance has occurred in which MLGW will issue the addendum accordingly at its discretion. The undersigned, as Respondent, acknowledges the receipt of the following addenda:

Addendum No: _____ Dated: _____

Addendum No: _____ Dated: _____

Addendum No: _____ Dated: _____