

## Electric Integrated Resource and Master Plan Scope of Work

### Part I – Integrated Resource Plan

1. Conduct a load forecast of at least 5 years, but preferably 10 years or more to determine the electric energy and capacity requirements of the City of Columbia as a whole. Develop a model for which the City of Columbia may run scenarios based on values of different variables. Include the model as a deliverable.
2. Review current generation import contracts. Indicate those contracts that will need to be renewed and resources that may be approaching end of life. Evaluate the status of the contracts and address the options available to the City of Columbia regarding these contracts. Evaluate the marketability of the contracts.
3. Review the local generation. Examine the viability of maintaining ongoing operation of existing generation and compare to building new local generation or increasing portfolio of import contracts. Examine the costs and benefits of converting a retired local generation unit from coal fired boiler to biomass fired boiler. Examine the cost and benefits to convert gas turbine units to combined cycle units. Evaluate the potential for expanded use of private and public distributed generation to contribute to the capacity requirements of the City of Columbia.
4. Develop a resource utilization plan. Identify the utilization of resources and types of units selected to meet future needs and other factors of interest to permit an understanding of the potential future resource needs. In the plan identify strategies that would meet or exceed the minimum renewable energy requirements established by the City of Columbia. Existing goal is for 15% renewables at present; 25% renewables by 2023; 30% by 2029; and potentially 100% renewables at some future date within the next 40 years. Take into account results of the City of Columbia's Climate Action and Adaptation Plan currently in progress.
5. Conduct sensitivity studies. Recommend sensitivities to be examined. Include load growth, cost, reliability and resiliency, renewable expectations, and adoption of new technologies such as electric vehicle charging and increased customer solar utilization as mandatory sensitivities.
6. Review current demand reduction programs with regard to participation, participation potential, costs and results of the programs. Determine the appropriateness of existing demand reduction programs and make recommendations regarding the continuation of these programs. Determine the impact to existing programs due to current and future state and federal efficiency standards. Recommend any new programs or technologies that would increase the effectiveness of demand side programs.

7. Examine the effectiveness and appropriateness of distributed generation such as, but not limited to, neighborhood solar arrays, battery banks, and industrial customer generation as a means to curtail capacity requirements.

## Part II – Master Plan

1. Determine the capacity requirements of the CWL service territory. Conduct a spatial load forecast to determine the localized capacity requirements for various locations within the City of Columbia distribution service area. Take into account potential growth, redevelopment, and energy efficiency improvements, private solar generation, other private distributed generation, and proliferation of new technologies such as electric vehicle charging stations when conducting the load forecast.
2. Review existing CWL standards for system reliability. Make recommendations to modify the City of Columbia electric engineering standards by taking into account economic viability, customer satisfaction, and best practices of the electric utility industry. Determine the risks associated with the standards. Document the standards in such a manner that they can be implemented as an official City of Columbia policy. Recommend a process in which standards are reviewed and updated. Document the NERC function types for which the City of Columbia is registered. Evaluate the appropriateness of each of these registrations.
3. Make recommendations regarding the expansion of the City of Columbia transmission system. Recommendations must take into account established NERC standards, requirements of the MISO ISO and established or modified CWL standards for system reliability. Evaluate CWL's location as a MISO member bordering SPP territory and determine how that affects transmission requirements. Address the needs of the transmission level interconnections with the University of Missouri and City of Fulton when making the recommendations.
4. Make recommendations regarding the expansion of the City of Columbia distribution system. Recommendations must take into account existing or modified standards for system reliability. Take into account the localized growth of the system to determine recommendations regarding how to provide adequate capacity for that growth. Determine the appropriateness of using battery storage, utility provided solar, or other distributed generation as options for serving local capacity needs.
5. Review the forecasted capital needs established by CWL and determine if they are in keeping with the recommendations established. Identify projects that may be unnecessary. Identify projects that might be considered to meet established recommendations. Determine the prioritization of these projects.
6. Review the costs and benefits of adaptation of AMI metering or other "smart-grid" technologies.

### Part III – Cost of Service Plan

1. Perform a cost-of-service analysis. Review and evaluate the rate structure and recurring fees associated with the electric utility. Make recommendations for changes to the rate structure. Identify and evaluate alternate rate structure strategies, such as time of use and demand charges that the City might consider.
2. Provide Excel based cost of service analysis model. Model should be able to be used by City staff to run scenarios to determine results based on several variables. Provide training on use. Methodology used for key model drivers should be explained and easily replicated.
3. Identify costs associated with expansion of and connection to the electric system. Make recommendations on how to identify those costs. Make recommendations such that required capital growth is funded by the forces driving that growth.
4. Evaluate Revenue at Risk. Highlight the risks to revenue and make recommendations on how CWL might mitigate the risks to revenue. Potential risks could include lower than anticipated usage and proliferation of solar. Evaluate how the City of Columbia's solar incentives affect this revenue at risk.
5. Identify a comprehensive list of the real costs that are borne by the City of Columbia's electric utility. Demonstrate how those costs are recovered in the electric utility's customer bill. For instance identify the cost to of maintaining and providing power to street lighting in the City of Columbia and figure the cost per rate payer to provide that service. Identify the costs associated with incentive programs, cost of renewables, distribution, and other potential hidden costs. Provide a cost breakdown that shows how much the electric utility customer pays for each.
6. Identify the effect of renewable targets on rates. Note that renewable energy sources should not cost more than 3% of all other energy costs. Develop a method of determining the cost of each resource based on current and potential energy contracts. Make a recommendation on whether a 3% maximum cost of renewables over other sources is achievable given the potential renewable targets of the City of Columbia.
7. Identify and evaluate other potential income sources, such as pole attachment fees. Identify and evaluate other potential revenue sources that could be provided by the City of Columbia such as electric vehicle charging stations.

## Additional Typical RFP Items

### Responsibilities of the Contractor

1. Provide weekly progress updates which include updated schedule, tasks worked on and completed in the previous week, and tasks scheduled for the following week. Information required from the City of Columbia, issues that may affect schedule, and risks that may affect successful completion of one or more parts of the project should also be identified.
2. Provide a final report containing results from all tasks identified in the Scope of Work. For engineering work, this report shall be stamped and certified by a Professional Engineer.
3. Attend several in person meetings with the Integrated Resource and Master Plan Task Force. The Task Force meets every fourth Thursday in the evening at 6 P.M. The purpose of these meetings will be to update the Task Force members on the progress of the project, answer questions, and address potential scope changes that may be necessary as information is gathered.
4. Attend two City Council meetings. The first meeting will be held to present initial report, answer questions, and solicit feedback. The second meeting will be to present the final report and answer questions.
5. Appoint a single point of contact for interaction with the City of Columbia.

### Responsibilities of the City of Columbia

1. Provide any data, previous reports, assessments, studies, or other material that has been collected.
2. Provide detailed feedback on all work products.
3. Provide a single point of contact for interaction with the contractor.

### Other Items

1. Restate the Scope of Work and identify the process in which the task will be completed.
2. Provide a milestone list and proposed schedule of completion of tasks.
3. Identify the key personnel that will be involved in the project and their role.

4. Identify other utilities of similar size for which the contractor has performed a project of similar scope that the City of Columbia may contact to reference the quality of the work performed.