

### Executive Summary

This proposed project addresses XYZ Gas Company's need to respond more effectively to the changes in its natural gas distribution system to make optimal gas purchase decisions. The proposal describes the development of a software system that XYZ Gas employees can use to test the changes in the system and evaluate their impact. Additionally, the proposal outlines a gas purchase model that XYZ Gas Company can utilize to make consistent and optimal gas purchase decisions. The scope of the project will be limited to XYZ Gas Company's distribution system and its purchase process and not those of its suppliers.

After analyzing the problem and the company needs, the project team chose computer simulation as the methodology for modeling and testing the gas distribution system and linear programming as the methodology for modeling optimal gas purchase decisions. Assuming the data necessary for the project will be available in a timely manner from XYZ Gas, it is proposed that the project can be completed within a period of six months by three full-time project staff members experienced in simulation, optimization, and project management.

A detailed list of the project tasks, their estimated duration, and a complete critical path analysis are included in this proposal. The analysis includes a discussion of how the project could be completed on time by accelerating certain tasks in case unanticipated project delays occur. The proposal also includes the project responsibility matrix and organizational structure. The project will require a contact person at XYZ Gas Company for day-to-day interaction and a budget of \$75,000, which includes staff salaries and benefits, travel expenses, and other project related expenses, such as telecommunication, supplies, or any overhead costs.

The project deliverables will include a simulation model of the company's distribution system, an optimization model for purchase decisions, and a detailed report on how XYZ Gas can use these models effectively to improve its operations. During the project period, the team will prepare and submit every two weeks interim progress reports. At the time of the project completion, XYZ Gas employees will be trained to use the models to make day-to-day decisions. It is anticipated that the proposed project, when successfully completed, will help XYZ Gas to make optimal gas purchase decisions, adjust to the changes in its gas distribution system, and train new employees more quickly and consistently on the decision making process.