

GAS CURTAILMENT RISK STUDY

COST PROPOSAL

The Electric Reliability Council of Texas

19 AUGUST 2011



BLACK & VEATCH
Building a **world** of difference.®

Cost Proposal

Cost not included in respondents pricing proposal to ERCOT are the sole responsibility of the respondent.

Estimated Number
of Hrs to Complete

Total Cost

PHASE I: Deliverables - Analyze Risks

Deliverable 1 - Review Natural Gas Interruptions	76	\$17,500
Deliverable 2: Survey Pipeline Limitations	116	\$27,020
Deliverable 3: Review Limitation Scenarios	236	\$54,320
Deliverable 4: Comprehensive Final Report	92	\$22,060

SUBTOTAL: \$120,900

TRAVEL & DATA
ACQUISITION: \$3,500

TOTAL FIXED COST: \$124,400

PHASE II: OPTIONAL SERVICES

Estimated Number of Hrs to
Complete

Total Cost

Creation of Hydraulic Model of Gas Pipeline	110	\$25,970
Integration of Hydraulic Natural Gas Model with Electrical Model	54	\$12,070
Define and Analyze Scenarios	66	\$15,090
Calculate Risks with Detailed Model	66	\$15,090
Analyze Sufficiency	88	\$20,410
Preparation of Final Reports	124	\$30,280

SUBTOTAL: \$118,910

TRAVEL & DATA ACQUISITION: \$9,500

HYDRAULIC MODEL LICENSE & ASSOCIATED COSTS: \$100,600

TOTAL OPTIONAL COSTS: \$229,010

Assumptions

The work plan and schedule proposed above by Black & Veatch assumes availability and timeliness of information and feedback from ERCOT. The key assumptions are as follows:

■ Data and Information

- ERCOT will provide background data on the following topics no later than one week after project kick-off:
 - Characteristics of gas-fired power generation facilities, including locations, generation capacities and maximum hourly gas consumption plus confirmation about any dual-fuel capabilities
 - Inventory of electrically-powered gas-compression equipment, and other gas-related equipment, at gas-fired power generation facilities
 - Output results, and accompanying written explanations, from ERCOT's latest electric forecast model
 - ERCOT Monthly Operations Reports which might be archived online (i.e., not available from the ERCOT website)
- ERCOT will support and endorse special data requests to the Railroad Commission of Texas as prepared by Black & Veatch
- ERCOT will support and endorse special data requests to individual generation facilities, with regard to their natural gas use and infrastructure, as prepared by Black & Veatch

■ Schedule and Response

- ERCOT will provide feedback on draft work products and draft reports within two weeks of receipt
- ERCOT will provide in writing any change requests (scope or schedule) and will review with Black & Veatch before changes are accepted or implemented by Black & Veatch
- ERCOT is agreeable to conducting most regular or routine meetings through webinars or teleconferences with travel by Black & Veatch being reserved only for major milestones

■ Cost estimate – Phase 1

- Based on modeling the finite list of scenarios listed in the proposal with an additional one or two scenarios as needed
- In order to maintain cost effectiveness for ERCOT, Black & Veatch's proposal offers to provide periodic intermediate reviews to ERCOT through conference calls or meetings in Houston. We are happy to provide these reviews in Taylor or Austin at ERCOT's request with

incremental travel-related expenses and fees for applicable professional hours.

- Can be refined at Kick-off meeting to adjust if Scope, Schedule and Work Products change.

■ Cost estimate – Phase 2

- The cost proposal is based on the work plan submitted. We recognize that ERCOT may elect to modify scope based on results from Phase 1. If ERCOT elects to do so, Black & Veatch will update our work plan and cost proposal to reflect modified needs.
- Based on modeling 3 scenarios until each model calibrates.
- Can be refined at Kick-off meeting to adjust if Scope, Schedule and Work Products change.