

Unitized Interconnection Cost Data (Reference RFP Section 3.11 and Appendix B, page B-29)

The per unit cost figures below are intended to be used to provide an estimated cost for Section B of the Interconnection Cost Information section of the Response Package (page B-29, Appendix B of the RFP). These cost figures include the interconnecting substation, communications, and transmission or distribution lines to connect the substation to the existing HECO system.

The Bidder should identify the components assumed for their project and the quantity assumed for each. Each section below provides notes on the assumptions for each of the unit cost estimates. If a bidder's project requirements are different than what is assumed in the notes, the bidder should identify each difference and provide an estimated additional cost or savings resulting from those different requirements.

Transmission & Distribution Lines

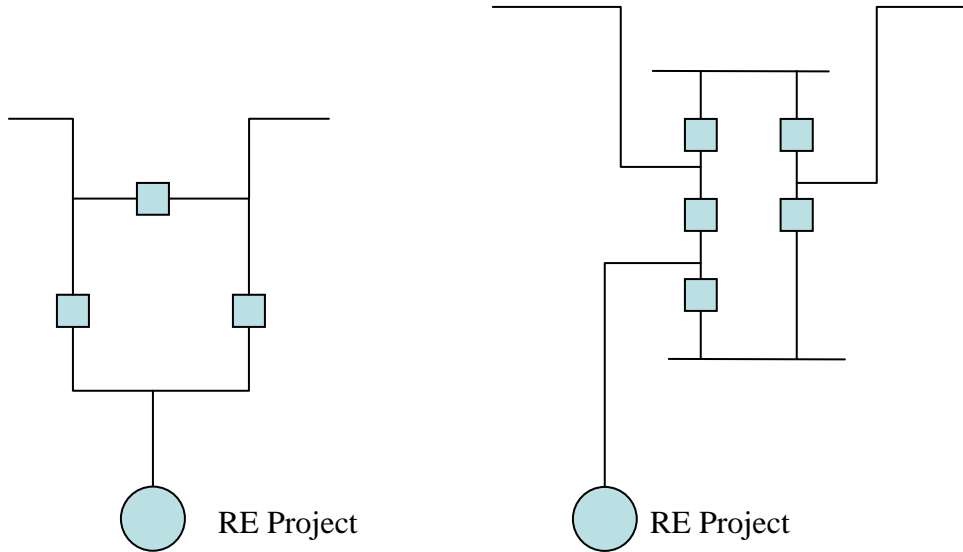
Component	Description	Cost per mile
1	New 138kV Overhead line (accessible 500' spans)	\$3,122,000
2	New 46kV Overhead line (accessible 250' spans)	\$685,000
3	New 12kV Overhead line (accessible 150' spans)	\$809,000
4	New 138kV Overhead line (inaccessible 500' spans)	\$3,902,000
5	New 46kV Overhead line (inaccessible 250' spans)	\$856,000
6	New 12kV Overhead line (inaccessible 250' spans)	\$736,000
7	138kV overbuild on existing 46kV line (accessible 500' spans)	\$3,619,000
8	46kV overbuild on existing 12kV line (accessible 250' spans)	\$1,992,000
9	138kV overbuild on existing 46kV line (inaccessible 500' spans)	\$4,524,000
10	46kV overbuild on existing 12kV line (inaccessible 250' spans)	\$2,490,000

Notes:

1. Easement and/or land costs are NOT included with these estimates
2. EA/EIS cost are NOT included with these estimates.
3. Components 7 and 9 - Overbuilding a 138kV line on existing 46kV pole line assumes the removal of the existing 46kV poles.
4. Components 8 and 10 - Overbuilding a 46kV line on existing 12kV pole line assumes the removal of some of the existing 12kV poles.
5. Components 4, 5, 6, 9 and 10 includes 25% Contingency for inaccessible or mountainous areas.
6. All estimates are escalated to 2009 costs.
7. All estimates are single respective circuits (i.e single 46kV ckt or single 138kV ckt with single 46kV ckt underbuild).
8. Components 1, 4, 7 and 9 assume steel pole construction.
9. Components 2, 3, 5, 6, 8 and 10 assume wood pole construction.
10. Components 7 and 9 - Extending the 46kV sized easement to a 138kV sized Easement is NOT included with these estimates
11. Components 8 and 10 - assumes the 12kV sized easement is acceptable for a 46kV line.

Substation

138kV Substation

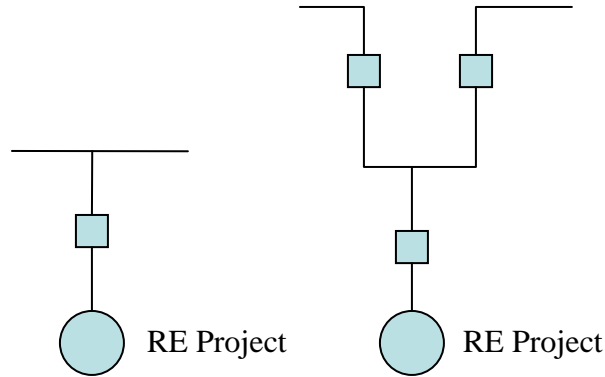


Component	Description	Cost
1	3 – 138kV circuit breaker substation	\$7,278,000
2	5 – 138kV circuit breaker substation	\$8,200,000

Notes:

1. Substation land that is received has been graded per HECO's CSA requirements. No costs for excavation and fill are included in the estimates.
2. Costs are in 2009 dollars.
3. Estimate does not contain any of the following costs: Telecom; Relay Coordination Study; Project Management
4. Substation relay protection requirements have not been identified, so costs are based upon typical line protection relaying requirements.
5. Control house and SCADA are included in cost estimates.

46kV Substation



Component	Description	Cost
1	1 - 46kV circuit breaker substation	\$1,033,000
2	3 - 46kV circuit breaker substation	\$1,600,000

Notes:

1. Substation land that is received has been graded per HECO's CSA requirements. No costs for excavation and fill are included in the estimates.
2. Cost are based upon a 12/2009 service date.
3. Estimate does not contain any of the following costs: Telecom; Relay Coordination Study; Project Management
4. Substation relay protection requirements have not been identified, so costs are based upon typical 46kV circuit breaker relaying requirements
5. No control house is needed and protective relays will be housed in an outdoor relay cabinet
6. SCADA requirements are included in the estimate

Telecommunications

1. Point-to-point microwave: \$718,000 with the following assumptions:
 - a. There is line-of-sight between the communications endpoints
 - b. Frequencies are available.
 - c. There are existing structures/buildings and available space on either end to house the radio equipment.
 - d. Telecommunications grounding standards are up-to-date at both sites.
 - e. -48VDC power is available.
 - f. This estimate does not include any special permit/approval that is required site-specific.
 - g. Space is available to locate antenna towers/structures at both ends.
 - h. Interconnection to HECO's existing communications is not included.

2. Fiber with overbuild and new construction: \$205,000 per mile with the following assumptions:
 - a. The poles are in good condition and do not need replacing.
 - b. The poles are not overloaded.
 - c. The poles and the attachments are in accordance with NESC 2002 and no work is required to upgrade the poles to current standards.

3. Telephone: \$82,000 with the following assumptions:
 - a. Telephone communications is normally used for SCADA (Supervisory Control and Data Acquisition) applications.
 - b. Depending on the interconnection to the electrical grid, telephone lines may be used for some protective relaying functions.