



***FCS-2011-001 Shared Facility Study
for
Transmission Facilities***

***Mullergren – Circle – Reno 345kV Transmission Line
(WERE)***

SPP Tariff Studies

(#FCS-2011-001)

July 2012

Summary

Westar Energy (WERE) provided Facility Studies at the request of the Southwest Power Pool (SPP) for generation interconnection requests included in FCS-2011-001 Facilities Clustered Study. The requests for generation interconnection were placed with SPP in accordance with SPP's Open Access Transmission Tariff which covers new generation interconnections on the SPP transmission system.

Pursuant to the tariff, WERE was requested to provide costs for required network upgrades to satisfy the Facility Study Agreement executed by the requesting customer and SPP. The specific network upgrade is the addition of a 345kV transmission line from Mullergren to Circle to Reno.

Generation Interconnection Customers

The generation interconnection requests covered in this document are as follows:

GEN-2010-029
GEN-2011-008
GEN-2011-016
GEN-2011-017
GEN-2011-023

These interconnection customers are included in the DISIS-2011-001 Impact Study which identified the required network upgrades for each customer in order to interconnect to the transmission system.

Shared Interconnection Upgrade Facilities Costs

The cost to add the 345kV transmission line from Mullergren to Circle to Reno is \$53,828,328. The Interconnection Customers' total shared upgrade costs are broken down as follows for each project:

Project	Shared Upgrade Cost
GEN-2010-029	\$15,418,762.48
GEN-2011-008	\$15,988,614.98
GEN-2011-016	\$6,852,783.32
GEN-2011-017	\$7,600,507.42
GEN-2011-023	\$7,967,659.80

This cost allocation is subject to change for restudies conducted by the Transmission Provider in response to the higher queued customers or other customers in the DISIS-2011-001 Impact Study that withdraw their interconnection request or suspend, terminate, or request unexecuted filings of their GIAs.



**Generation Interconnection Facilities
Restudy**

For

**Generation Interconnection Cluster
Study DISIS-2011-001**

Update

June 4, 2012

Introduction

A report providing Facility Study grade estimates and lead times necessary for Westar Energy (WR) projects identified in Generation Interconnection Cluster Study DISIS-2011-001 was submitted to the Southwest Power Pool (SPP) on November 23, 2011. It was put together by WR at the request of the SPP. A new 345 kV transmission line from the Reno Substation to an interconnection with Sunflower Electric was one of the projects listed in this report. The report assumed this would be a single-circuit transmission line that would traverse Reno, Ellsworth, and Barton Counties in Kansas, ultimately terminating at Sunflower Electric's Mullergren (Great Bend Station 230) Substation. SPP notified WR through email on 3/7/2012 that their original letter identifying WR projects identified in DISIS-2011-001 did not specify that the Reno-Mullergren 345 kV line was to be double circuit. This report updates the original single-circuit Reno-Mullergren 345 kV cost estimates to double-circuit cost estimates.

Construct Reno-Mullergren 345 kV

Reno 345 kV Substation Work:

Work at Reno 345 kV Substation in support of Reno-Mullergren 345 kV requires the conversion of the existing 345 kV ring bus at Reno to a breaker and a half bus design. The estimated cost includes purchasing six (6) new 345 kV 3000 Amp breakers, ten (10) new 345kV 3000 Amp disconnect switches, five (5) 345 kV PTs, six (6) 345 kV CCVTs, numerous three phase and single phase bus supports, and line reactors. It also includes the cost of installing new cable conduits and setting all of the bus, jumpers, and switches.

\$11,201,605

345 kV Transmission Line Work:

The 345kV transmission line will extend from Reno substation to an interconnection with Sunflower Electric. A preferred route will be determined once the project has been approved. WR's portion of the 345 kV line addition shall be constructed and maintained by WR (unless specified different at a later time). The estimated length of the transmission line from Reno to the Sunflower Electric Interconnection is twenty-four (24) miles. The estimated cost is for one hundred and sixty-three (163) H-Frame steel tangent structures, one (1) single-pole steel dead end, ten (10) three-pole steel dead ends, ten (10) three-pole steel running angles, twenty-four (24) miles of double-circuit, bundled 3-1590 kcmil ACSR conductor, and twenty-four (24) miles of 64 mm OPGW and 3/8 EHS.

\$42,626,723

The total cost estimate for the Stand Alone Network Upgrades (345 kV Substation Work at Reno and 345 kV Transmission Line Work) is:

\$11,201,605 345 kV Substation Work at Reno

\$42,626,723 345 kV Transmission Line Work

\$53,828,328

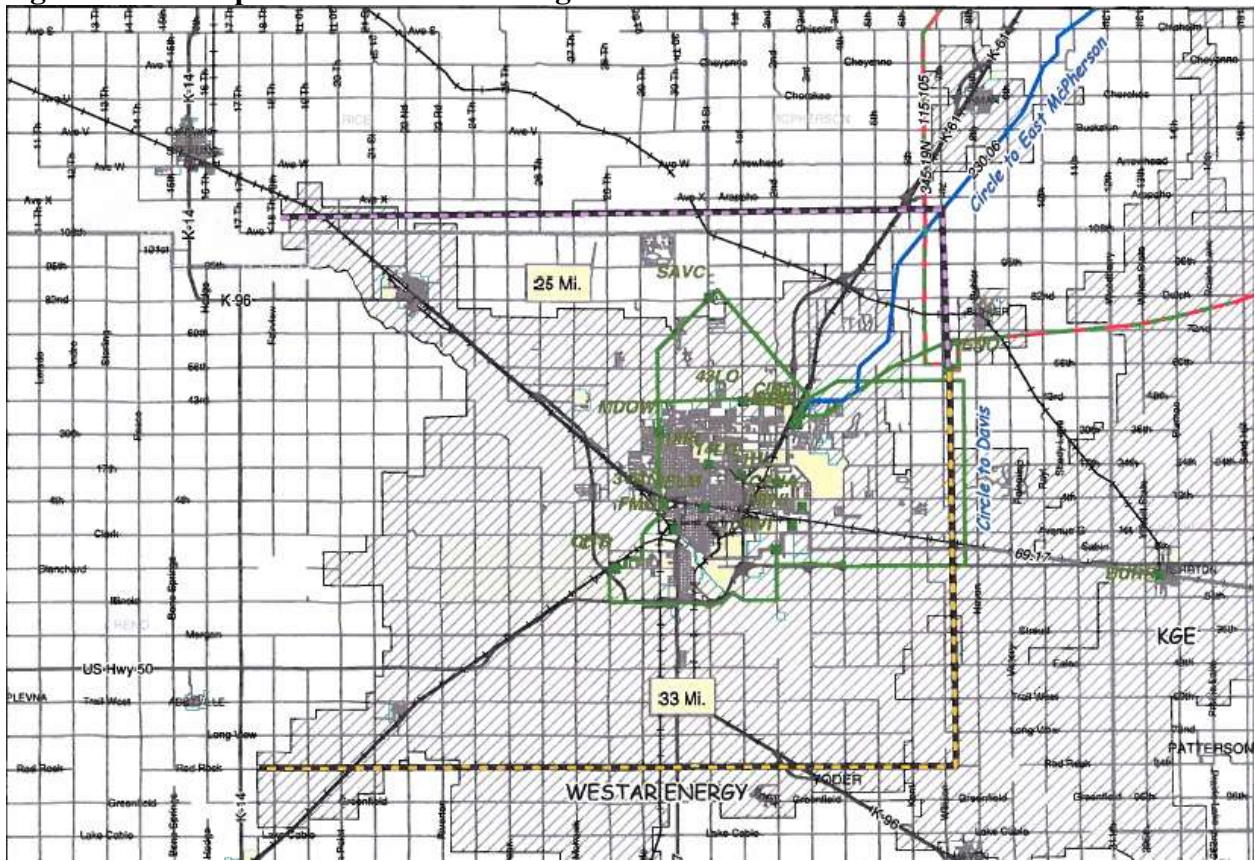
This estimate is accurate to +/- twenty (20) percent, based on current prices, in accordance with Attachment A of Appendix 4 of the Interconnection Facilities Study Agreement. However, recent cost fluctuations in materials are very significant and the accuracy of this estimate at the time of actual construction cannot be assured.

The following approximate time lines for the project are based on WR's engineering time, average procurement time, and good weather during construction. The amount of time per task may change if consultants are hired to perform this work.

60 weeks	Engineering Time
60 weeks	Procurement Time
50 weeks	Construction Time
170 weeks	Total

Westar Energy also maintains its own Facility Connection Requirements, which may be found at (www.wr.com).

Figure 5 – WR's portion of Reno-Mullergren 345 kV



The proposed interconnection project is not within the Westar Energy service area. Note that the figure above shows a North and a South route. This Cost Estimate assumed the shorter North route.

Figure 6 – Reno 345 kV Substation Upgrades One-Line

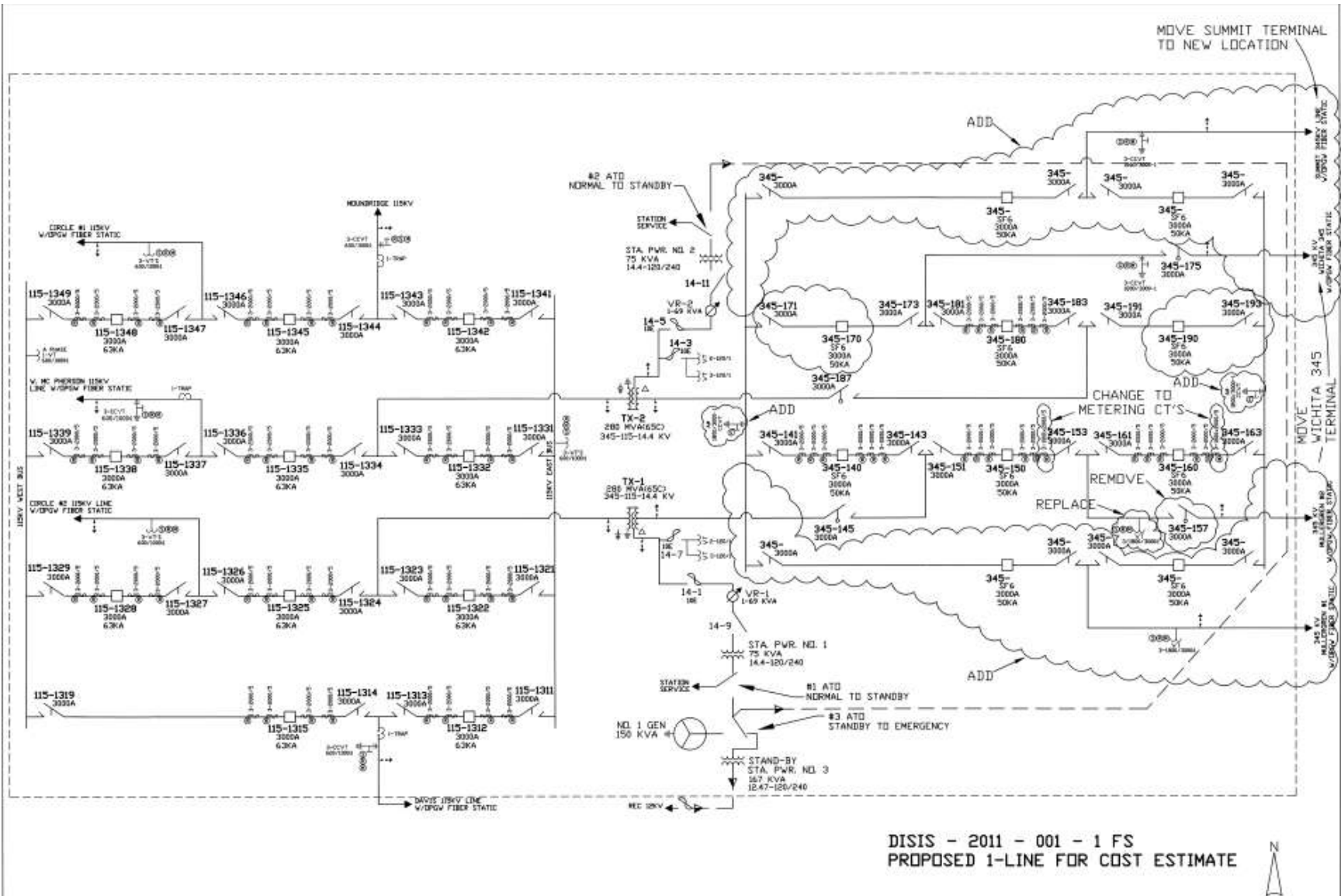


Figure 7 – Reno 345 kV Substation Upgrades Layout

