

FINAL FACILITY STUDY

2007-T8

July 31, 2007

[Revised 3 Apr 08, for public posting]



Facility Study 2007-T8

Background

2007-T8 on behalf of their customer requested Western Area Power Administration (Western) to provide transmission network service for additional load to be served from the Fort Laramie 34.5kV Point of Delivery, consistent with Contract # 07-RMR-1611, Attachment F.

In order to comply with 2007-T8 request Western has performed a System Impact Study (SIS) and this Facility Study (FS). This FS will outline Western's facility requirements to provide network service. Western and 2007-T8 entered into Letter Agreement 07-RMR-1705 for Western to develop this FS.

The additional load will be located at two places on and near the existing Tap. The first stage load will be located adjacent to the existing facility and served by the new substation connected to 2007-T8 Tap line on the south side of Highway 26 near Fort Laramie. This load represents an additional 3100kVA at 0.95 pf with possible future additions making the total 4200kVA and is expected to come on line during June 2007. The second stage load will be north of the Tap at the Tank Farm. A new substation will be built to serve the approximately 5000kVA of load at this location and is expected to come on line during November 2007. Please refer to Attachment A.

Since 2007-T8 original request was received it has been determined that the additional load in both locations will be less than originally projected. Please refer to Attachment B. Also, the additional load in both locations will be served by the new Substation. Please refer to Attachment C.

Western performed a SIS to determine the impacts to Western's transmission system that may be caused by providing transmission network service to the proposed additional load. The SIS concluded that a 1.8MVAR capacitor bank will be required in order to mitigate low voltage problems caused by the proposed first stage additional load along with the proposed second stage additional load.

Project Description

2007-T8 will build the new Substation that will include a 34.5/4.16kV, 5MVA transformer. The new Substation will be connected to Wyrulec's 34.5kV tap line. Metering at this new substation will be located on the low side of the transformer.

Facility Study Wyrulec 34.5kV Substation

Western's Requirements

Metering at the new substation will be required since the existing metering at the RMPS #1 Substation is not situated to account for the load to be served by the new substation. Communications and MV-90 access for the metering in the new substation will also be required. Western must be notified prior to the testing of the metering in the new substation per Western's RMR Metering Policy. Please refer to Attachment D.

Once the metering, communications and MV-90 access are installed and their correct operation verified – the new substation can be energized.

In order to properly add the load to be served by the new substation to the 2007-T8 network transmission bill the losses from the transformer must be determined by estimate or test. Western will look for 2007-T8 to provide transformer test report loss data. If this data is not received prior to the end of a billing cycle then Western will estimate the transformer losses at 2%.

Western will require a 1.8MVAR capacitor bank to be installed. The preferred location for this capacitor bank is on the 34.5kV tap line between the tap point and the new substation. The first stage additional load may be energized prior to the installation of the capacitor bank.

Schedule

It is expected that 2007-T8 would install the required cap bank. In order to assist with the project Western could be contracted to perform the cap bank installation. It appears Western would be able to perform the cap bank installation prior to the second stage load addition scheduled for November 2007, however, a minimum full day outage would be required and crew availability would be determined based on the actual date requested by the customer.

Cost

2007-T8 estimated cost for the addition of a 1.8MVAR capacitor bank on a pole in 2007-T8 34.5kV tap line is \$28,050. Please refer to Table 1 for a cost estimate breakdown.

This budgetary cost estimate includes design, equipment, construction and commissioning. This estimate also includes a new pole and pole top assembly as well as oil disconnect switches for the cap bank.

This budgetary cost estimate does not include control power or wiring to the oil disconnect switches for the capacitor bank. Also, this estimate does not include land right-of-way activities.

Facility Study Wyrulec 34.5kV Substation

Table 1 – 1.8MVAr Capacitor Bank Installation Cost Estimate Breakdown

Description	Estimate
Planning	\$1,000
Design	\$3,000
Equipment	\$5,000
Construction	\$15,000
Commissioning	\$1,500
Sub Total	\$25,500
Contingency 10%	\$2,550
Total	\$28,050

ATTACHMENT A

ATTACHMENT B

ATTACHMENT C

ATTACHMENT D