

TOT1A: Metering Point Relocation Comprehensive Progress Report (WECC Path 30)

Submitted to
TOT1A Stakeholders and TOT1A Interconnected Utilities
And
Western Electricity Coordinating Council

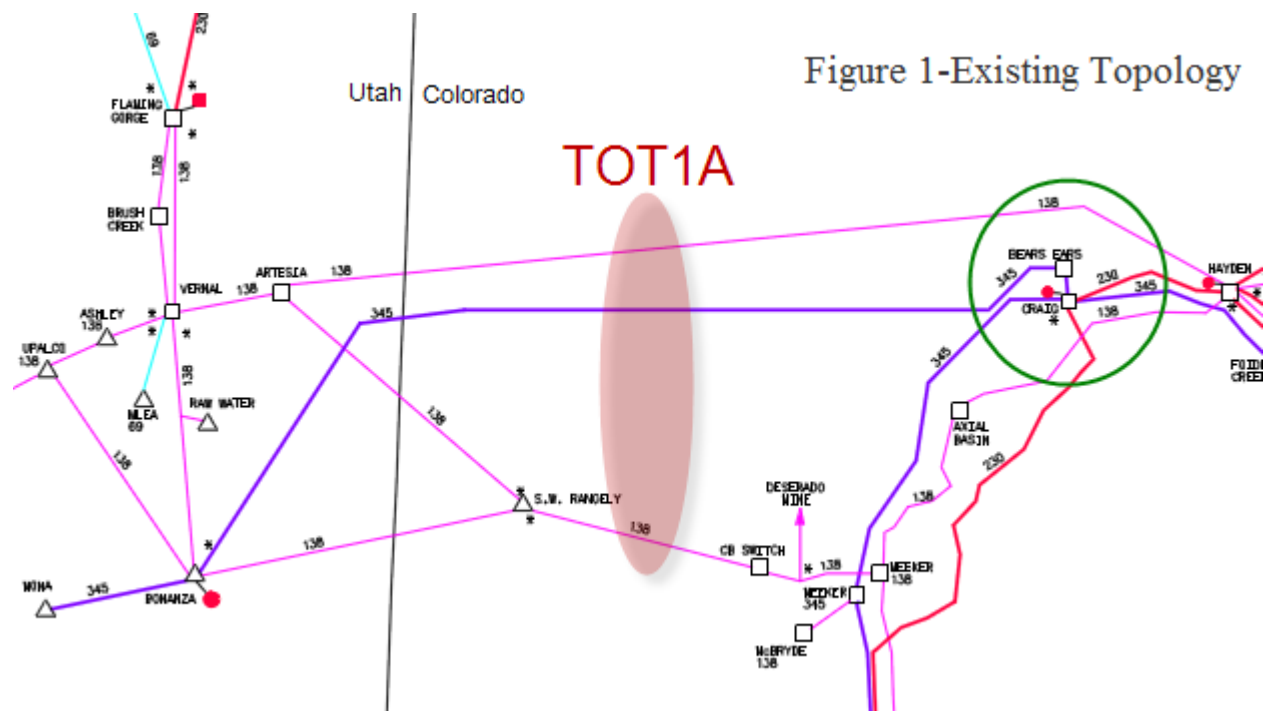
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Introduction

The intent of this document is to request an Expedited Path Rating Process for the relocation of a metering point for a component of the TOT1A, WECC Path 30. This document should serve as the Letter of Notification, the Comprehensive Progress Report, and the request for interest in joining a Project Review Group, if necessary. The TOT1A, WECC Path 30, is defined as the sum of flows on the Bears Ears-Bonanza 345 kV line, the Hayden-Artesia 138 kV line, and the Meeker-Rangely 138 kV line, shown in Figure 1, with the area of interest within the green circle. The metering for TOT1A is located at Bears Ears Substation, Rangely substation, and Hayden substation. The WECC Path 30 has an Existing Rating of 650 MW East to West.



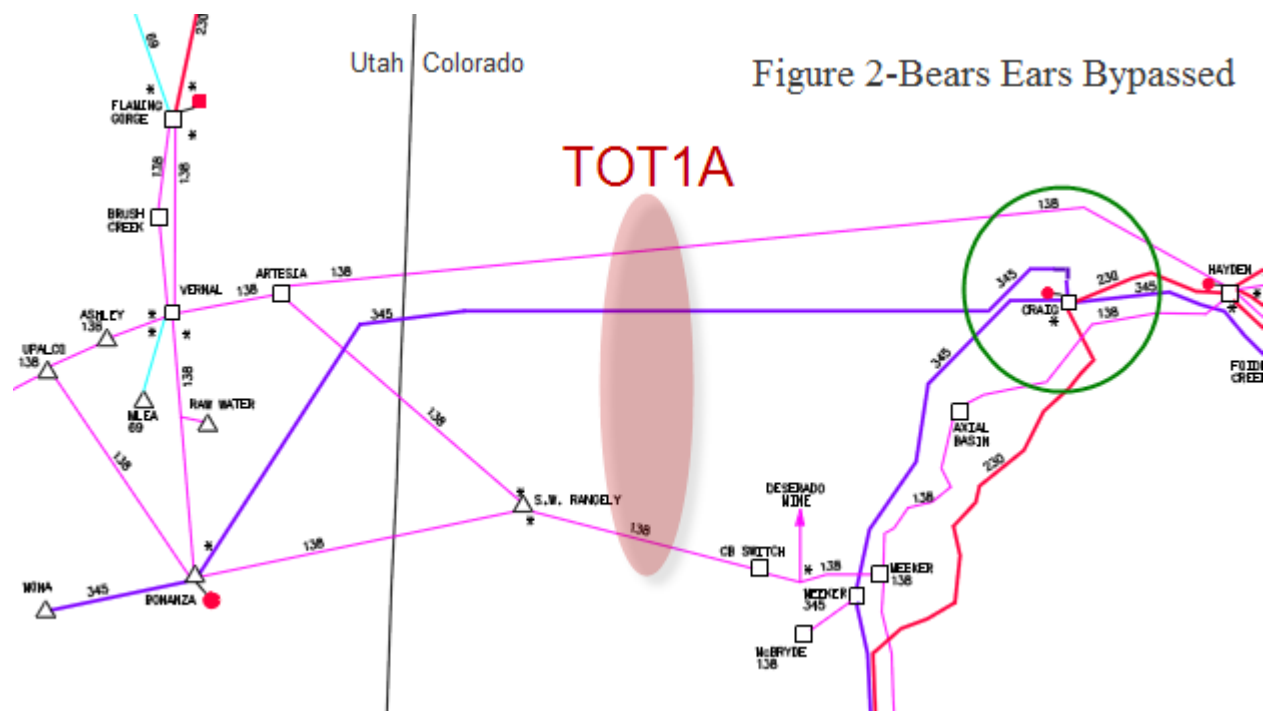
This document will address the impact of moving the existing meter point for the Bears Ears-Bonanza 345 kV line from Bears Ears substation to the Craig 345 kV substation, bypassing Bears Ears substation and creating the Craig-Bonanza 345 kV line. The transmission line distance from Bears Ears 345 kV substation to the Craig 345 kV substation is 0.6 miles and the transmission line distance from Bears Ears 345 kV substation to the Bonanza 345 kV substation is 102.0 miles.

History of Bears Ears Substation and Description of Meter Relocation

The Bears Ears substation was utilized previously as a 345 kV hub that contained three 345 kV lines, one to Craig substation, one to Bonanza substation, and one to Rifle substation. The 345 kV line to Rifle was converted to operate at 230 kV and sourced from the Craig 230 kV substation as part of the conversion. The Bears Ears substation has subsequently operated with two 345 kV lines and no load since the conversion.

Although it is anticipated that at some time in the future the Craig-Rifle 230 kV line will be converted back to operate at 345 kV and sourced again from Bears Ears Substation, it is beyond the five year horizon and will require extensive facility upgrades. The proposed rehab/maintenance costs at Bears Ears substation are prohibitive and a joint agreement by the Bears Ears owners has resulted in the decision to bypass Bears Ears substation and relocate the metering point to nearby Craig substation, 0.6 miles from Bears Ears substation. The existing metering at Craig substation on the Craig-Bears Ears 345 kV line is a revenue meter with a free standing CT and will not require modifications to provide accurate Craig-Bonanza 345 kV MW and MVAR line flows.

The topology of TOT1A with Bears Ears substation bypassed is shown in Figure 2.



Comprehensive Impact

The impact of moving the Bears Ears meter to the Craig substation is negligible as the transmission line distance is 0.6 miles from Bears Ears to Craig substation and there are no other interconnections or loads at Bears Ears substation. The Craig-Bonanza 345 kV line will be 102.6 miles compared to Bears Ears-Bonanza 345 kV line which is 102.0 miles. Utilizing the WECC 2013 Heavy Summer operating case, reviewed by the Rocky Mountain Operational Study Group, this negligible impact can be seen by comparing the power flow one line diagrams of the TOT1A system with Bears Ears substation in-service, shown in Figure 3, and Bears Ears substation bypassed, shown in Figure 4.

2013 HS RMOSG Operating Case
Bears Ears 345 kV substation in-service

TOT1A Cut
plane

TOT 1A = 505.5 MW

Load 1A = 310.4 MW

357.9

Bonanza Substation

Bonanza

Bonanza West = 664.7 MW

TOT 2A = 299.7 MW

TOT 5 = 42.0 MV

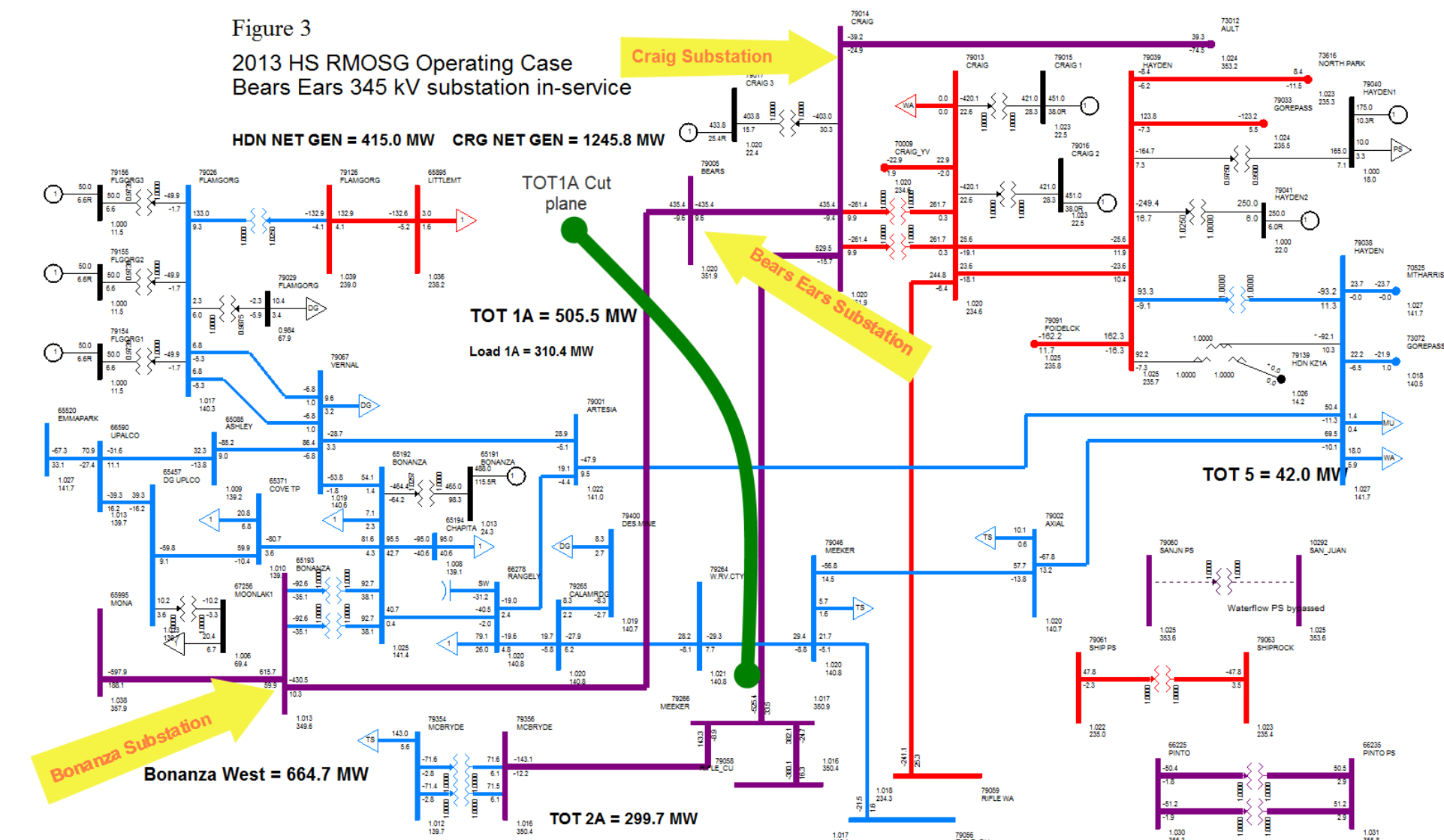


Figure 4

2013 HS RMOSG Operating Case
Bears Ears 345 kV substation bypassed

HDN NET GEN = 415.0 MW CRG NET GEN = 1245.8 MW

Craig Substation

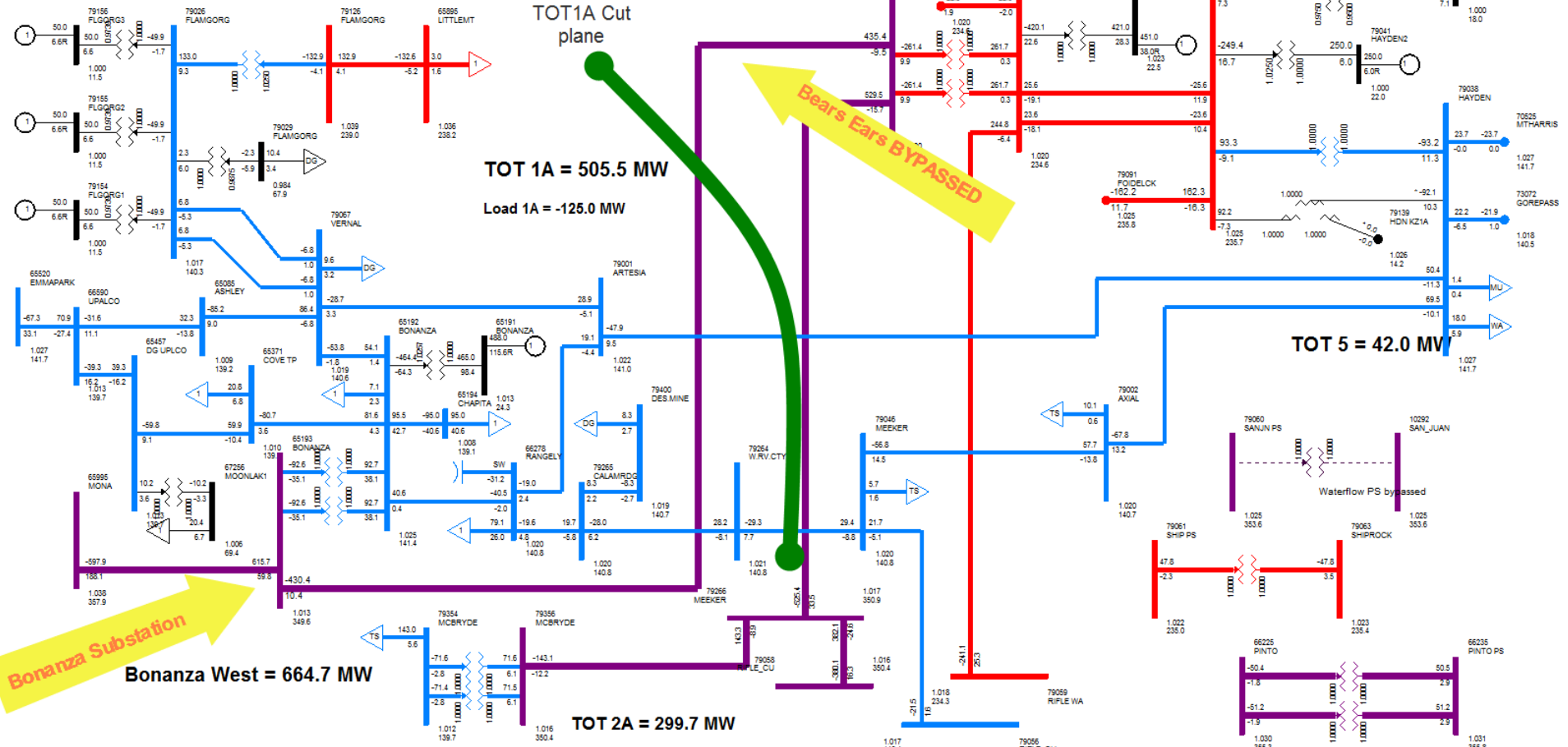
TOT1A Cut plane

TOT 1A = 505.5 MW

Load 1A = -125.0 MW

Bears Ears BYPASSED

TOT 5 = 42.0 MW



As can be seen, there is only a 0.1 MVAR impact on TOT1A between the two cases of Bears Ears 345 kV substation in-service and Bears Ears 345 kV substation bypassed. Additionally, a comparison of the metering data at Bears Ears substation and Craig substation for the Craig-Bears Ears-Bonanza 345 kV line supports defining the impact of moving the metering from Bears Ears 345 kV substation to Craig 345 kV substation on TOT1A, as negligible.

Conclusion

The Bears Ears 345 kV substation has a 102.0 mile, 345 kV line to Bonanza and a 0.6 mile, 345 kV line to Craig substation. The Bears Ear-Bonanza 345 kV line is a component of TOT1A, WECC Path 30. TOT1A has an Existing Rating of 650 MW. Due to lack of load and interconnections at Bears Ears 345 kV substation, and the prohibitive proposed rehab/maintenance costs, the Bears Ears 345 kV substation owners have jointly agreed to bypass Bears Ears 345 kV substation indefinitely. This bypass necessitates the relocation of the meter for the Bears Ears-Bonanza 345 kV line component of TOT1A from Bears Ears 345 kV substation, to the Craig 345 kV substation, resulting in the 345 kV component of TOT1A being renamed the Craig-Bonanza 345 kV line. This meter relocation has negligible impact on TOT1A, supporting the request for an expedited WECC Path Rating process to change the 345 kV line component from Bears Ears-Bonanza 345 kV line, to Craig-Bonanza 345 kV line, with metering at Craig substation.