TOT-5 SUMMER 2004 OPERATING PROCEDURE

Effective Date: **6/01/2004**

DEFINITION: TOT-5 or WECC Path 39 is made up of the following 10 transmission elements:

1. Craig - Ault 345-kV Line
2. Hayden - Archer 230-kV Line
3. Gore Pass - Blue River 230- kV Line
4. Gore Pass 230/138-kV Transformer
5. Basalt – Malta 230- kV Line
6. Rifle – Hopkins 230-kV Line
7. Curecanti - Poncha 230-kV Line
8. Hayden – Gore Pass 138-kV Line
9. Basalt – Hopkins 115-kV Line
10. Gunnison – Poncha Junction (Salida) 115-kV Line

These transmission lines run across the continental divide and connect Western Colorado to the Colorado Front Range. The prevailing power flow is west to east. Western Area Power Administration's Rocky Mountain Region (Western) is the path operator. The path owners and their respective percentage share of transfer capability are:

Platte River Power Authority (PRPA) = 11.31%
Public Service Company of Colorado (PSCO) = 28.57%
Tri-State Generation and Transmission Association (TSGT) = 15.48%
Western Area Power Administration = 44.64%

TOT-5 is a thermal limited path. Western, as path operator, has 30 minutes to correct OTC conditions on TOT5. TOT-5 has a static transfer capability limit, and it does not change unless there is an outage to one of the elements. The maximum TOT-5 Actual Transfer Capability (west to east) for the 2004 Summer Operating Season has been determined to be 1680 MW. Operating Procedures are utilized as necessary to attain listed transfer capability. East to west transfer capability for TOT-5 has not been defined. The transfer capability across TOT-5 is independent of on-peak and off-peak transfer levels between major areas of WECC, thus does not require a nomogram.

OPERATING PROCEDURE

Refer to TOT-5 SCADA Display for the following information. There is a transmission map of the region on the left-hand side of the display. The computer uses the real time data from this region to determine the west to east transfer capability. In the top and middle of the display, the computer posts the value and limit of the actual flows and schedule flows. If actual flow or schedule flow exceeds the limit, an alarm will be issued and the quantity outside of the limit will be indicated in red video. Also, the algorithm calculates the scheduling limit for the path owners based upon their percentage ownership. Those values get compared with each owner's schedule on the path. Should the individual entity's schedule exceed the limit an alarm will be issued.

The total schedules for PRPA, TSGT, and Western are all static and get transferred from Western's Energy Accounting System (TIGER) to SCADA. PSCO's total schedule, however, is comprised of static and dynamic components. The static portion of the PSCO's schedule comes from TIGER while the dynamic portion of the PSCO's total schedule is calculated based upon the actual flow out of the PSCO's Western Colorado system. Refer to the bottom right hand side of the TOT-5 Display to see both components of PSCO's total schedule.

ABNORMAL SCHEDULING OR LOADING CONDITIONS

A – Over Schedule of an Individual Owner

Check the entity's net schedule on TIGER and verify that the correct net schedule has been transferred to SCADA. If the total net schedule for that entity in TIGER matches the SCADA display, contact the entity that has exceeded its limit and ask that entity to either acquire additional capacity from other owners or curtail its schedule by the **next scheduling hour**. In the middle of the SCADA display, a real time transmission transaction can be entered should one of the path owners need to purchase transmission from other entities.

B – Over Schedule of the Path

If the path's total schedules exceed the path's limit, contact the entity or entities that have exceeded their limit and ask them to bring their schedules under their limit **within 30 minutes**.

C – Actual Overload of the Path

Actual overload on the path is caused by:

1. Sudden loss of a TOT-5 element or a transmission line which could affect the flow on TOT-5
2. A large inadvertent flow
3. One or more entities with schedules greater than their scheduling limit

If the actual overload on the path is the result of schedule overload of one or more entities contact the entity or entities that have exceeded their schedule limit and ask them to reduce their schedule immediately. Notify the Rocky Mountain-Desert Southwest Reliability Center (RDRC) for any path overload. Schedule reduction is expected to reduce the actual flows to 95% or less depending on the source and the sink of the schedule. If the actual overload is due to the inadvertent flow, then Western as the path operator is obligated to bring the actual flow on TOT-5 under the calculated limit within 30 minutes. As the 30-minute time limit for the OTC violation approaches, use the Shiprock and Waterflow phase shifting transformers independently to reduce the flow on the path. Tapping down the phase shifters will decrease the flow on TOT-5 and TOT-1A. However, the flow on TOT-2A, and TOT-3 will be increased. Watch the flow on the other paths (TOT-2A, TOT-3) while you are changing the phase shifters' tap. Make sure you are not violating the WECC MORC by creating inadvertent flow on those paths. Coordinate PST operation with the RDRC. The RDRC will allow certain violations to WECC MORC under emergency conditions. Western dispatch shall make a log entry for any operations that violate established WECC/MORC procedures. If the phase shifters cannot provide enough relief, call Montrose Marketers to request reduction of Curecanti generation, call TSGT to request reduction of Craig Generation, and call PSCO to request reduction of either Craig or Hayden generation .

Outage of an Element Affecting TOT-5

If one of TOT-5 transmission lines or an element that affects the total transfer capability becomes unavailable, the program automatically detects the new system configuration and adjusts the actual and schedule limit based on current studies for the correct configuration. Notify the owners of the path and advise them of the new limit and ask them to adjust their schedules to match the new limits. The program assumes that all the outages are forced outages and divides the transfer capability among the path owners according to their respective ownership percentage. If there is a planned outage, select the appropriate outage from the Planned Outage List on the TOT-5 SCADA Display, and the program will use a different ratio to calculate the transfer capability among the path owners. If the program did not detect the outage of an element, disable the automatic outage detection by clicking on the MANUAL OVERRIDE OFF on the top of the TOT-5 Display. Then, select the element that is out of service and change its status to De-energize. The transfer capability will be readjusted based upon the new system conditions.