

Discussion Topic:
Curtailments Due to
Unscheduled Flow
Mitigation
And Determination of
Non-Performance

USF Introduction

- ▣ Unscheduled Flow (USF) has been an issue for Transmission Operators throughout the Western Electricity Coordinating Council (WECC) since the interconnected system has been in existence.
- ▣ USF is the phenomenon by which power flows over paths other than its contract or scheduled paths.

USF Introduction

- ▣ USF is a result of operating an interconnected electric system in which many parallel paths exist for power flowing from sending points to receiving points.
- ▣ The magnitude of the USF on a given path will vary as a function of several interrelated factors.

USF Introduction

- ▣ The curtailment calculation tool initiates a prescription for schedule reductions that result in the megawatt relief requested by Qualified Transfer Path Operator.
- ▣ BA's receive curtailment prescriptions for schedules sinking within their boundaries and take action to approve prescribed schedule reductions;
- ▣ BAs may arrange to provide relief called for by this Guideline in a manner other than prescribed, provided that the arrangements are as effective as the identified Schedule reduction in reducing USF across the Qualified Transfer Path.

USF Introduction

- ▣ Schedules across the Path are deemed “on-path schedules”.
- ▣ Schedules that impact the flow on the Path, but are not scheduled on the Path are deemed “off-path schedules”.

The webSAS Tool

- ▣ The USF curtailment calculation tool currently in use in the WECC is OATI's webSAS program.
- ▣ Currently the tool only prescribes curtailment of off-path schedules as on-path schedules are limited/reduced by the Path Operator through Accommodation.
- ▣ The percentage of an off-path schedule that flows over the Path is expressed as the Transmission Distribution Factor (TDF).

Transmission Distribution Factor

- ▣ The greater percentage that an off-path schedule has as a component of flow on the Path, the greater the TDF value.
- ▣ The TDF of an energy schedule is determined by a WECC model based on the location of the generator providing the energy (Source) and where the energy is consumed (Sink).
- ▣ All registered Sources and Sinks in the WECC are mapped into electro-geographical regions or Zones.
- ▣ The TDF is calculated based on the location of the generator and the load.
- ▣ The model determines what percentage of the energy would flow on each possible path between the Source Zone and the Sink Zone.

webSAS Tool

- ▣ The webSAS tool calculates the curtailments necessary to reduce the USF on the path.
- ▣ The greater the impact of an off-path schedule, the larger the amount of curtailment.
- ▣ In this method, all schedules that cause unscheduled flow are curtailed to some degree.
- ▣ **The curtailments do not consider the firmness of transmission capacity on the paths they are scheduled upon.**

webSAS Tool

- ▣ It is key to understand that the Path Operator does not curtail off-path schedules, nor does the Path Operator or any other human entity determine which schedules to curtail or how much to curtail them.
- ▣ Curtailments are determined by the webSAS software algorithm, based on modeling of the physical transmission system.

webSAS Tool

- ▣ When the webSAS tool issues curtailments, it is not reducing any entity's transmission rights on any path, merely reducing the level of energy that can flow.

Determining Non-Performance within the WSPP contract

Schedule curtailments due to Unscheduled Flow mitigation have caused disagreement among WSPP members.

- ▣ Is the Seller to be the non-performing party?
- ▣ Is the Purchaser is the non-performing party?
- ▣ Should a USF curtailment be considered an Uncontrollable Force?

USF Summary

- ▣ Under USF, neither Seller nor Purchaser have actively chosen non-performance.
- ▣ Neither Seller nor Purchaser have had their transmission rights reduced or curtailed.
- ▣ When scheduling, same source/sink different path equals same result. Reductions calculated based on zones, direction and contribution to actual flow.

USF Non Performance Discussion

- ▣ One might argue that one or the other's chosen transmission path to or from the point where the ownership of the energy changes hands is the cause of the curtailment.
- ▣ It must be recognized that the TDF is calculated from the Source Zone to the Sink Zone, regardless of the path, or which party is moving the energy in between the Zones.
- ▣ The TDF from the point of transfer of ownership, or transfer point to the Sink, or from the Source may have greater influence over the TDF, however that influence is hard if not possible to determine.

USF Non-Performance Discussion

- ▣ One could determine the Zone in which the transfer point resides and calculate the TDF from that Zone to both the Source Zone and Sink Zone to attempt to determine the percentage share of the overall TDF and assign a percentage of non-performance to each party.
- ▣ That theory fails as TDF calculations between Zones are not additive. Clearly, if the transfer Point and either the Source or Sink reside in the same Zone, then a stronger argument can be made that the party moving the energy to or from the transfer point Zone is responsible for the TDF and therefore at fault.
- ▣ In any case, the assignment of fault cannot be clearly assigned in all cases.

USF Non-Performance Discussion

- ▣ When the new Unscheduled Flow Mitigation program is implemented and curtailments to schedules using less than firm transmission priority are curtailed first, then one may argue that the party that scheduled the transaction on non-firm transmission is the non-performing party.
- ▣ In this case, careful review of the transmission elements making up the path is necessary to determine which party used the lowest level of transmission priority.
- ▣ One or more segments of transmission may share the same level of priority, acquired by each party.
- ▣ This again would foster debate regarding who is the non-performing party.

The Question!

- ▣ Can we consider curtailments under USF to be Uncontrollable Force?

Conclusion

- ▣ It will be up to the WSPP membership to determine whether the effort required to determine which party is non-performing when USF curtailments are made is worth the effort.

Conclusion

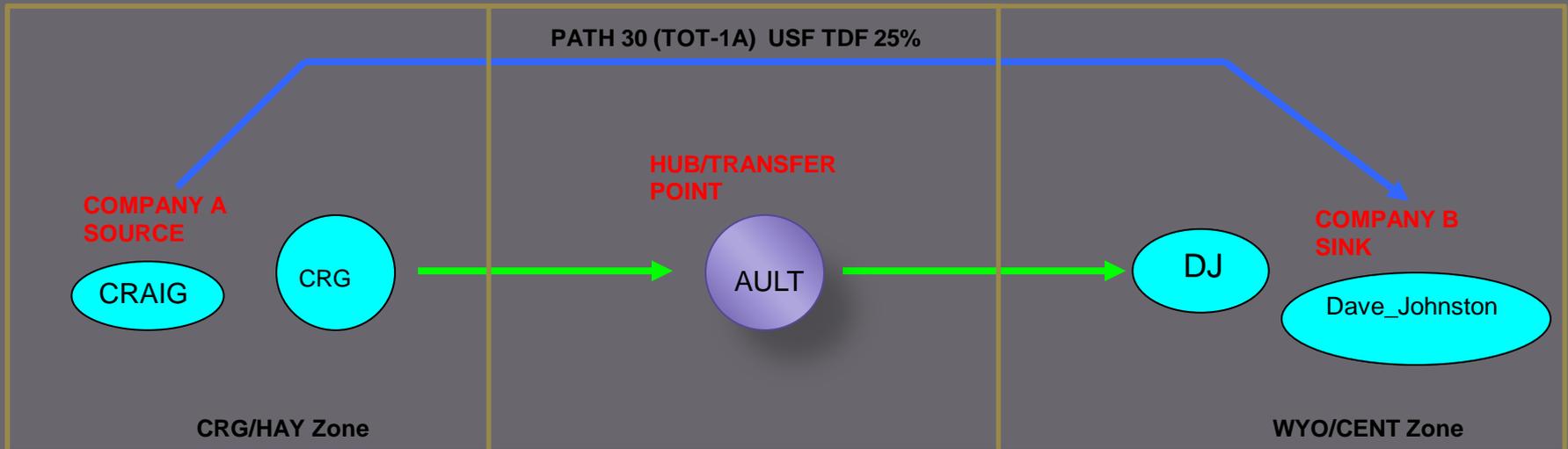
- ▣ If so, WSPP should determine guidelines to set to aid in that determination.
- ▣ Otherwise parties will need to negotiate each curtailment with their counterparty.

Conclusion

- ▣ If not, then the WSPP could determine that USF curtailments are an integral hurdle to moving energy across the grid, recognizing that both Seller and Purchaser are acting in good faith,
- ▣ *and agree that USF curtailments should fall under the umbrella of Uncontrollable Force.*

USF Non Performance Discussion

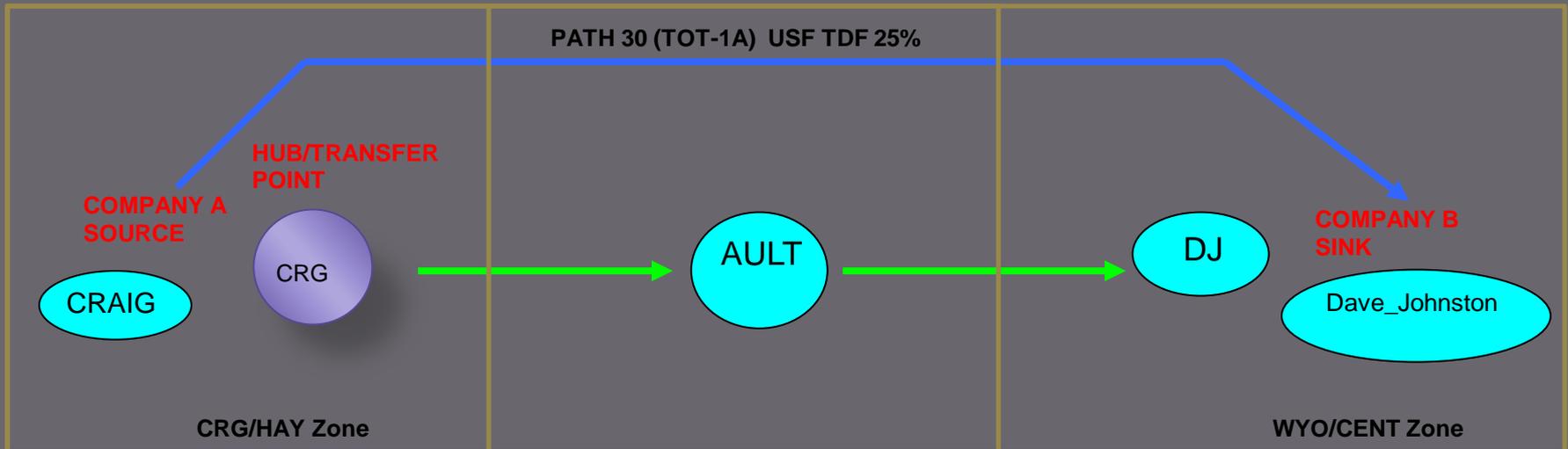
Example 1: Company A sells to company B, note the hub/transfer point in purple.



Is Company A or B responsible for curtailment?

USF Non Performance Discussion

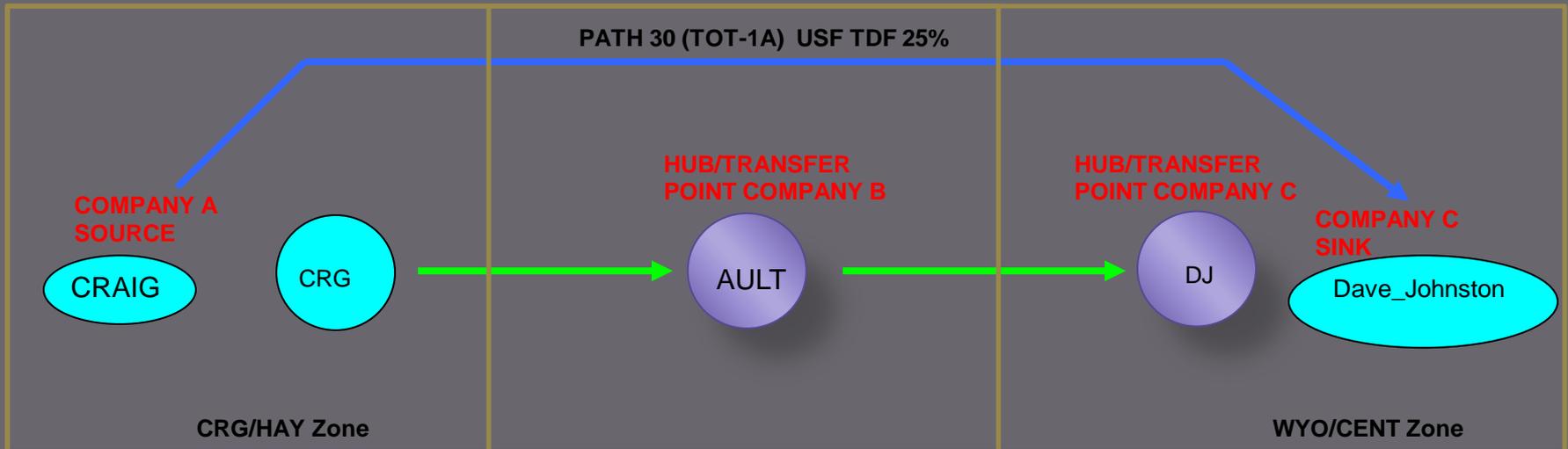
- Example 2: Company A sells to company B, note the hub/transfer point in purple.



- Is Company A or B responsible for curtailment?

USF Non Performance Discussion

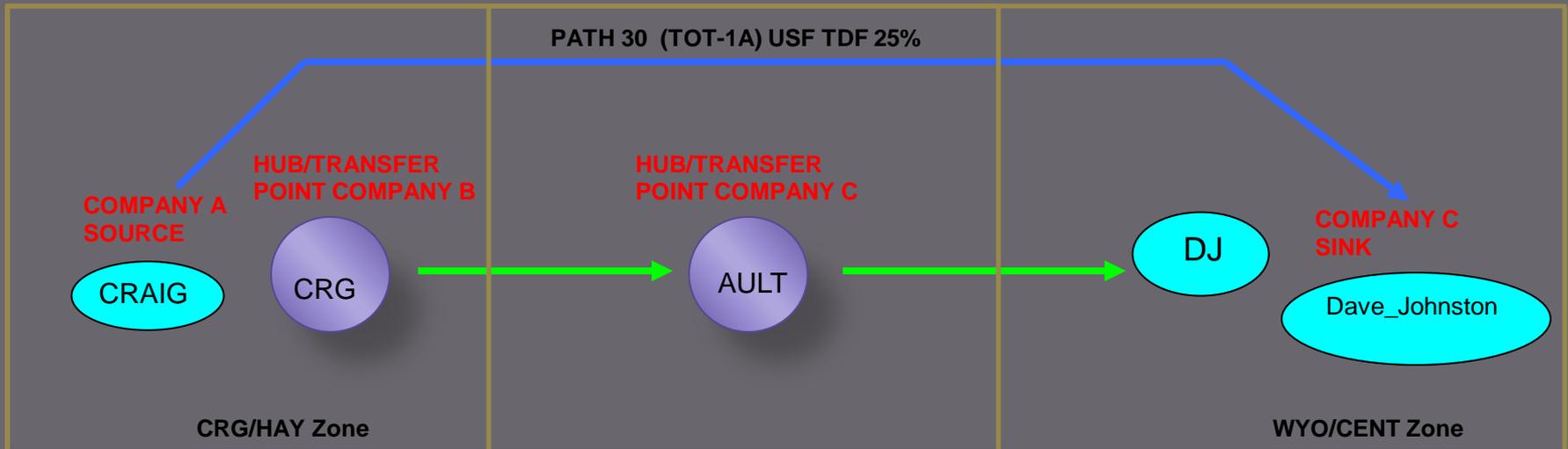
Example 3: Company A sells to company B, company B sells to company C, note the hubs/transfer points in purple.



Is Company A, B, or C responsible for curtailment?

USF Non Performance Discussion

Example 4: Company A sells to company B, company B sells to company C, note the hubs/transfer points in purple.



Is Company A, B, or C responsible for curtailment?