



# SIR25 DC TIE OPTIMIZATION

MARKET DESIGN

MARCH 18, 2020

*Helping our members work together to keep  
the lights on... today and in the future.*



SouthwestPowerPool



SPPorg



southwest-power-pool

# SIR25 DC TIE OPTIMIZATION

- **Purpose:**
- As the SPP Integrated Marketplace has matured it has become increasingly important to look for ways to manage/optimize our growing fleet of renewable generation. Additionally, as other RTO/ISO's have evolved and markets expand into new areas, development of methods to provide power quickly and reliably across footprints have been discussed in more detail than before. SPP's footprint is uniquely situated in that it is connected to multiple DC Ties that connect the Eastern and Western Interconnects, as well as a DC Tie with ERCOT. The DC Ties are able to very quickly shift power flows in either direction, enabling the ability to arbitrage between areas that need power on a 5-minute basis. Today, the DC Tie flows are scheduled by traders in advance and do not have the opportunity to automatically take advantage of real-time pricing differences between two areas.
- With the advent of SPP's Western Energy Imbalance Service (WEIS) market, over 700 MWs of DC Tie capacity will serve as a bridge between a real-time, 5-minute market in the west and SPP's Integrated Marketplace in the east. This opens up opportunities for the WEIS, SPP Integrated Marketplace and market participants in both markets to better optimize the flows across the DC Ties connecting these two footprints.

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- **Potential Benefit:**
- Properly implemented, this would allow for energy to be transferred across the DC Ties based on market clearing and economics. This would allow for pricing convergence between the two markets, more efficient usage of the DC Ties and lower overall production costs for all parties involved. Additionally, the availability of fast moving, bi-directional capacity could increase the overall reliability of the grid for all footprints involved. Once fully evaluated and implemented in the west and east markets administered by SPP, the concept could be expanded to allow for DC Tie optimization with ERCOT and potentially AC optimization with other neighboring markets.
- There are multiple ways to implement this from a technical perspective. A simplified version of Coordinated Transaction Scheduling appears to be the least impactful way to implement but further research into this matter is needed.

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- **Known Risks:**

- Market Clearing Engine Performance; Depending upon Implementation path, degree of difficulty

- **Known Impacts:**

- Depending upon implementation impacts could be: Market Clearing Engine, Scheduling Systems, Markets UI/API, Settlements

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- **Potential System / Process Impacts**
  - API/MUI, CMT, EMS, MCE, Scheduling, Settlements
- **Potential MCE Performance Impact**
  - Medium-High
- **Potential Complexity**
  - Design: Medium
  - Implementation: Medium
- **Market Philosophy Impacts:**
  - Price Formation, Market Efficiency

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- **SPP MMU Comments**

- As part of a joint study with Potomac Economics on seams issues for the Regional State Committee / Organization of MISO States (RSC/OMS) joint liaison committee, the SPP MMU is currently studying potential market efficiencies that could be gained through coordinated transaction scheduling with the MISO region.
- The MMU supports a study of market impacts and potential market efficiency gains through a coordinated transaction scheduling product.
- MMU support of implementation of coordinated transaction scheduling will be determined by the outcome of the study.
- MMU support of a coordinated transaction scheduling design will be determined by the design elements proposed.
- The MMU would like to participate with the RTO in a study of coordinated transaction scheduling between SPP and MISO, as well as any study supported design effort.