

Operations Technical discussion

Jonathan Aust, Power Operations Manager

Zea Flores, Operations Engineering Manager

Jerry Krebs, Power Operations Project Coordinator

Marc Desmarais, WACM Balancing and Interchange
Supervisor

Operations technical discussions

- Transmission rights discussion – Jonathan Aust
- Real-time TTC project – Zea Flores
- Data requirements for WEIS and the BA – Jerry Krebs

Transmissions Rights discussion

Presented by Jonathan Aust, Power Operations Manager for CRSP, DSW, and RMR
aust@wapa.gov | Cell: 970-744-8775

Transmission rights for EI deliveries in the WEIS Market

WEIS transmissions owner rights

- The revised SPP tariff has highlighted the fact that use of transmission rights within the participating BA's is a critical topic
- SPP filed their response to FERC last Friday, based on that filing and the associated revision requests, SPP and the Market Participants have responded to two main concerns
 - First, the participating BA's currently use all transmission elements within the BA to provide EI service to all customers within the BA, using both the WAPA owned transmission system and BA customers transmission system to deliver and receive energy for EI service.
 - Second, excluding unused existing transmission service to serve their own load, if so desired, transmission owners may notify the BA that they do not want their transmission elements to be used in the WEIS market.

Why is this relevant?

- The WACM BA will continue to provide imbalance service on behalf of entities inside the BA footprint, contracted through WEIS for those who are not Market Participants
- The WACM BA will continue to use transmission elements of those entities who are taking the EI services within the BA to continue to facilitate the EI service for their load in the WACM footprint
- If a TO/TSP within the WACM BA does not want to make its transmission available to ensure EI can be provided using the WEIS Market's least cost economic dispatch, then that entity shall make a formal request to the BA to provide information necessary for SPP to create non-physical binding transmission constraints in SPP's market software

The Plan

- The team is actively working to flesh out this plan and the following are our thoughts so far:
 - The participating BA, WACM in this instance, will provide non-physical transmission constraints to SPP
 - Any entity that makes the request, will provide the BA with the amount of transmission to be with-held from the WEIS market on each relevant transmission path/element and a description of how that amount was determined.
 - This amount should represent no more than the transmission rights held by that entity and should ensure continued reliable BA operations and provision of EI within the BA.
 - The transmission with-held from the WEIS market for that transmission owner will be provided to the SPP Market Operator along with the description of how the non-physical constraint was determined.
 - The WACM BA will transfer those as they are received from the entity
 - SPP will ensure those non-physical transmission limitations are reflected as binding transmission constraints in the WEIS market software and will post on its public website information on the non-physical constraint and how it was determined.

Next steps

- The Team plans to capture the technical information in a Business Practice
- WACM's goal is to implement before market trials to ensure that this can be exercised during those trials
- The first draft will be presented during a July meeting
- Feedback will be incorporated after that meeting and then the draft will be posted for a ten-day comment period in August
- One-on-one meetings can be held where appropriate
- The BA will work to determine an EI approach in the instance that the market cannot deliver to an entity within the BA, PPR or otherwise

RMR RT Total Transfer Capability

Presented by Zea Flores RMR Operations Engineer Manager
zflores@wapa.gov Cell phone 970-278-6399

RMR Real-Time Total Transfer Capability (TTC)

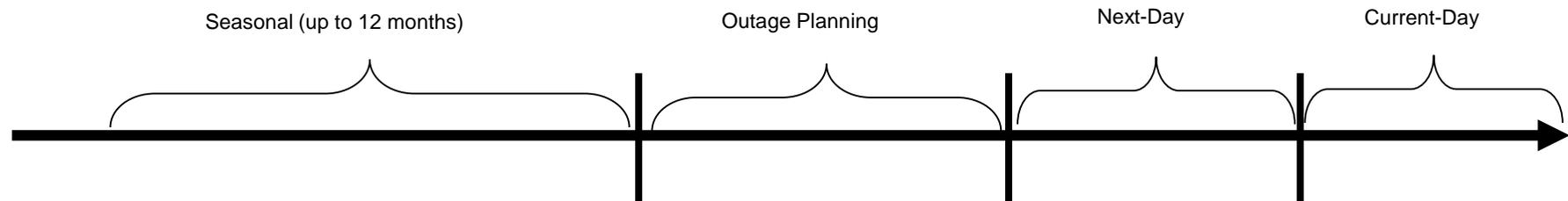
Objectives

- Improve reliability
- Coordinate real time mitigation
- Unlock transmission capacity

- Software delivered Oct 2019
- Dispatch road test April 2020
- Coordinate procedure April 2020
- Go live October 1st

Industry changes

- NERC standard progression
- TOP-007 retired 2017
- RC SOL methodology
- Energy Imbalance Markets (WEIS & EIM)
- Real time engineers
- Tools/real time data

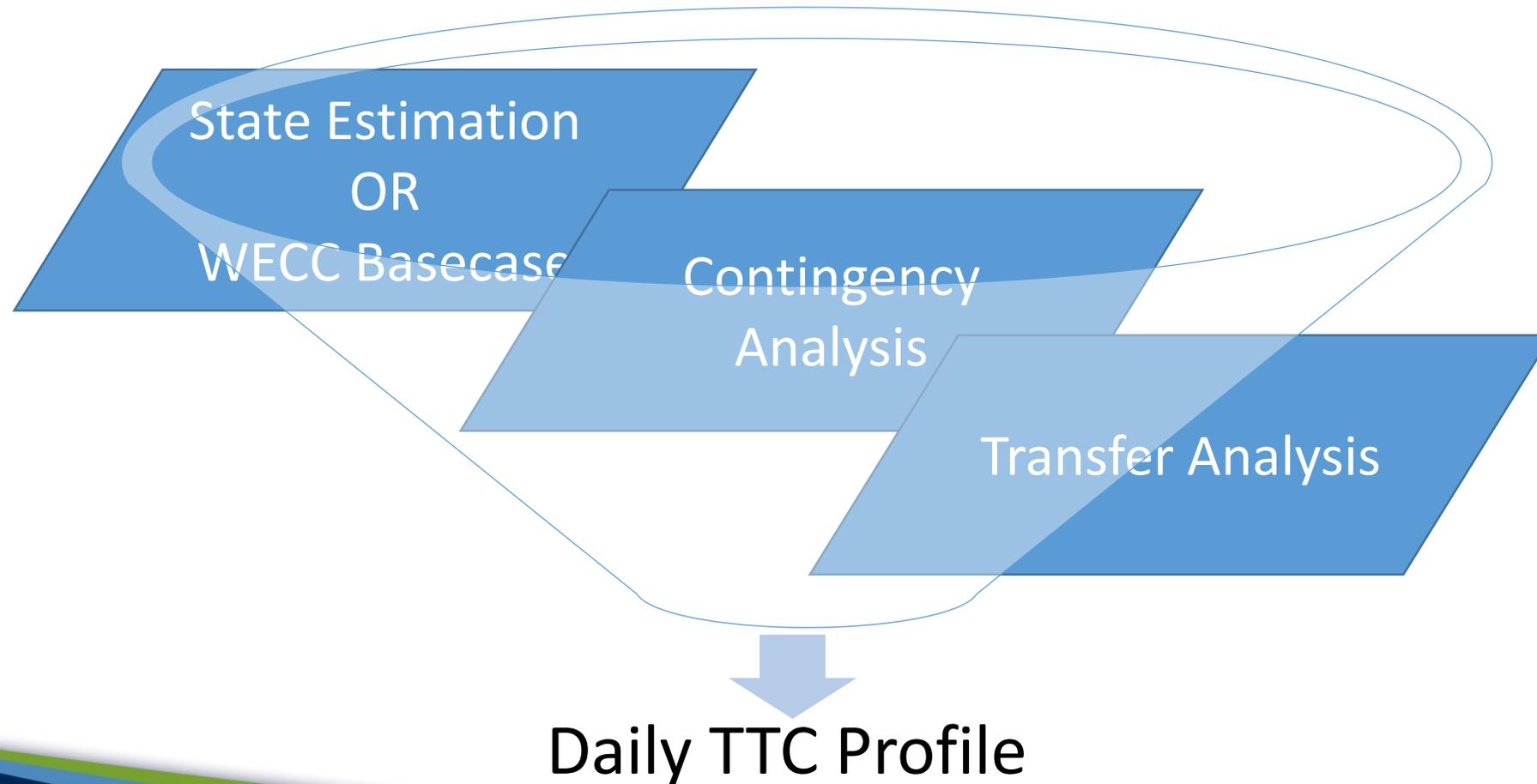


TTC calculations today

- Seasonal: 'Worst' case, all lines in service
- Reduce seasonal risk due to coverage of 6 months
- WACM load is 4450 MW
- Outages (2019) not always accurately captured
 - TOT1A: in outage 20%
 - TOT2A: in outage 5.5%
 - TOT3: in outage 11%, nomogram derates

Next day TTC calculations

Real Time Engineers



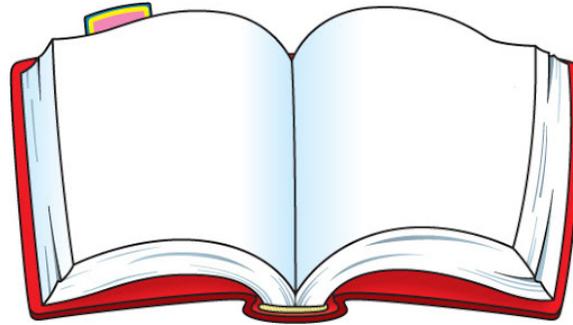
RMR Operations Project Coordination Update

Presented by Jerry Krebs RMR Operations Project Coordinator
Krebs@wapa.gov Cell phone 970-286-1380

WEIS Market High Level Status Review

- SPP Market Protocols have been created

- These are the rules by which the market will function



- Load and generation has been registered with SPP within the market footprint

- Market Participants have completed and submitted the registration process through SPP's onboarding process
 - The next date for changes to the load/generation will be in August. This allows SPP to create the market model

➤ WACM is currently working on data exchanges for the market. There are 3 buckets of data points that will need to be exchanged

- **Bucket 1** is Market Participant (MP) data
 - SPP has shared this data list with MP's



- **Bucket 2** is Partial Participating Resource (PPR) and non-MP data
 - The WACM BA has shared this data list with PPR's
- **Bucket 3** is BA data for reliability operations
 - SPP is still finalizing this data list



Current focus for operations

- **Continue working with MP's and PPR's in the BA for data transfers**
 - WACM would like to have critical data point transfers verified/created by June 12, 2020. This will allow critical transfers to be set up with SPP.
 - Work with PPR's for create/verify non-critical and environmental data transfers to ensure the BA is ready for market trails starting on August 3, 2020
- **Evaluate operational changes for market implementation**
 - Create operator training
 - Create operational procedures and work flow

Upcoming major project milestones and dates

- June 3 – Market Trials – Connectivity-Testing Kickoff Meeting:
- June 1-30 – API, XML Listener, LSA and User Role Setup in QA system
- July 1-31 – Connectivity Testing with SPP
- Aug. 3-Nov. 20 – Structured and Unstructured Testing
 - Tuesdays and Thursdays – scripted work
 - Mondays, Wednesdays and Fridays – retesting and unscripted work
- Aug. 3-Nov. 20 – Deployment Testing
- Nov. 23-Dec. 9 – API, XML Listener, LSA and User Role Setup in production system
- Dec. 10-Jan. 14 – Parallel Operations Testing
- **Feb. 1 – WEIS Market Go-Live**

WACM operations staff contacts for project

- Jerry Krebs
 - RMR Operations project coordinator
 - krebs@wapa.gov
 - 970-286-1380
- Marc Desmarais
 - WACM Balancing/Interchange supervisor
 - desmarais@wapa.gov
 - 970-646-1678
- Chris Powell
 - Tech writer/SME for Interchange
 - Powell@wapa.gov
 - 720-326-0114
- Norm Harryhill
 - Tech writer/SME Generation
 - harryhill@wapa.gov
 - 970-420-4172
- Julia St. Marie
 - IT specialist EMS/SCADA support
 - jstmarie@wapa.gov
 - 603-235-4498



QUESTIONS?