



California ISO
Your Link to Power

California Independent
System Operator Corporation

Observations from CRR Dry Run

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Topics to be Discussed

- **Analysis process**
- **Remaining steps for CRR Dry Run**
- **Reactive Power and Losses modeling**
- **General observations**
 - Trading Hubs
 - System wide balance of source and sink nominations



Analysis Process

- **Review all binding constraints**
 - By looking at each constraint we can see which nominations contributed to the particular constraint
 - This review allows us to determine if there are any modeling concerns
- **Point of delivery issue**
 - Ensure that injections are at CAISO grid facilities
- **Run analysis with contingencies**
 - Run the same SFTs with contingency analysis to determine if a contingency case is more restrictive than our interface and thermal constraints
 - The IFM will be running with a similar set of contingencies



Remaining Steps for CRR Dry Run

- **Tier 3 – In process**
 - Upper bounds sent out on Nov 8th
 - SubLAPs can be used
 - Get nominations back by Nov 15th
- **Annual auction**
 - Prepare bid portfolios as soon as possible
- **Monthly allocation**
 - Early preparation of forecast data is helpful
- **Monthly auction**
- **Prepare FERC report**



Losses and Reactive Power

- **The Full Network Model (FNM) used in the CRR System is a DC FNM**
- **The DC FNM does not account for losses or reactive power**
- **The IFM will consider losses and reactive power**
- **The CRR process needs to modify our constraints (interfaces and thermal limits) to be consistent with the IFM**
- **To account for losses we scale thermal limits and interface limits by a factor of 97%**



Losses and Reactive Power - Continued

- **To account for reactive power we scale thermal limits by an additional factor of 97%**
- **The effect of this scaling is to reduce interface limits by 3% and to reduce thermal limits by just under 6% (97% times 97%)**



Trading Hub

- **Definition of the Trading Hub is all generation in a particular zone, NP15, ZP26 or SP15**
- **An injection at a Trading Hub is like a small injection at every gen bus in the zone**
- **For tiers 1 and 2 of the annual/seasonal process Sources are limited to 75% of PMax**
- **The transmission is reduced to 75% of capability**
- **For tier 1 load is limited to 50% of the Seasonal Eligible Quantity (which is 75% of the Load Metric) and for tier 2 load is taken to 75% of the Seasonal Eligible Quantity**



Trading Hub - Continued

- **If generation can go up to 75% of PMax and the injections at the Trading Hub add to every generation bus then it is possible to exceed a line limit if the generator is radially connected**



System Balancing of Nominations

- **CRR nominations are balanced injections at sources and withdrawals at sinks**
- **These nominations create flows on the entire transmission system**
- **If the pattern of the sources is not consistent with how the load would typically be served then the nominations can create unusual flow patterns and create binding constraints where we would typically not see them**