



# Netting Action Items

EMUSTF

February 25, 2015

- Terminology

- Ramp Limited Desired MW – achievable MW based on UDS requested ramp rate
- % Off Dispatch – percentage off dispatch using the lesser of the difference between the actual output and the UDS basepoint or the actual output and Ramp Limited Desired MW
- MW Off Dispatch – MW off dispatch using the lesser of the difference between the actual output and the UDS basepoint or the actual output and Ramp Limited Desired MW
- UDS LMP Desired MWh - calculated by comparing the hourly integrated UDS LMP to the unit's bid curve to determine a corresponding MW value. This value is not ramp-limited.
- All values are time-weighted over an hour

– If a unit's actual output is between its Ramp Limited Desired MW and its UDS Basepoint, it will be considered following dispatch

- Pool-scheduled or dispatchable self-scheduled units
  - If actual output between Ramp Limited Desired MWh and UDS Basepoint MWh, then unit is following dispatch
    - If not and % off dispatch > 10%:
      - RT MWh – Ramp Limited Desired MWh
    - If not and % off dispatch >20%:
      - RT MWh – UDS LMP Desired MWh

- If unit trips or is scheduled Day-ahead and does not run in RT:
  - $\text{RT MWh} - \text{Day-ahead Scheduled MWh}$
- If unit is dispatchable Day-ahead, but is Fixed Gen in RT:
  - $\text{RT MWh} - \text{UDS LMP Desired MWh}$
- If unit is not dispatchable in both Day-ahead and RT:
  - $\text{RT MWh} - \text{Day-ahead Scheduled MWh}$

- Self-scheduled unit with  $\text{Eco Max} \leq 110\% \text{ of Eco Min}$

OR

not dispatched by PJM above its Eco Min:

- $\text{RT MWh} - \text{Day-ahead Scheduled MWh}$

- Unit with  $\text{RT Eco Min} > \text{Day-ahead Eco Min}$  by greater of 5% or 5 MW

OR

$\text{RT Eco Max} < \text{Day-ahead Eco Max}$  by lesser of 5% or 5 MW

AND

UDS LMP Desired is either below RT Eco Min or above RT Eco Max

- $\text{RT MWh} - \text{UDS LMP Desired MWh}$

- Units are absolved of deviations if:
  - the absolute value of the hourly deviation MWh  $< 5$  MWh
  - OR
  - the absolute value of ratio of hourly deviation MWh to Day-ahead Scheduled MWh or Desired MWh  $\leq 5\%$

- Separately in Day-Ahead and in RT, each participant will have a net position on a system-wide and nodal basis. Deviations between the net position on a system-wide and nodal basis will be allocated a power balance and transmission uplift charge, respectively.
- System-wide (RTO) deviations for power balance and nodal deviations for transmission uplift would replace the current zone, hub, and interface components used in the current injection and withdrawal buckets
- DAOR charges remain allocated to all DA withdrawals



# PJM Netting Proposal – Transaction Netting Example

## Power Balance

DA	RT
100 MW Dec @ Bus 7	
200 MW Gen @ Bus 5A	220 MW Gen @ Bus 5A
50 MW Inc @ Bus 6C	
200 MW Demand @ Bus 7	210 MW Demand @ Bus 7
40 MW Import @ Hub C	35 MW Import @ Hub C
<b>DAOR charges apply to :</b>	
200 MW Demand	
100 MW Dec	
300 MW Total	
<b>Power Balance</b>	<b>Power Balance</b>
290 MW Injection	255 MW Injection
300 MW Withdrawal	210 MW Withdrawal
Nets to 10 MW Withdrawal	Nets to 45 MW Injection

**55 MW deviation between DA and RT for Power Balance**



## Transmission Uplift – Nodal deviations for Bus 7

DA	RT
100 MW Dec @ Bus 7	
200 MW Demand @ Bus 7	210 MW Demand @ Bus 7
300 MW Withdrawal	210 MW Withdrawal
<b>90 MW deviation between DA and RT for Transmission Uplift at Bus 7</b>	

- Status quo + alter generator deviation netting logic to include netting of deviations between Day-ahead and RT where a resource replacing another is following dispatch and incurring no deviations.
- Generators must be electrically equivalent by injecting at the same bus

- Generators A, B, and C located at same bus.
- A and B committed DA at 20 MW. C not committed DA.
- Prior to RT, Generator A trips.
- In RT, B and C run at 20 MW.
- Generator C follows PJM dispatch and incurs no deviations.
- New rules would allow Generator C to replace Generator A to net the deviation between DA and RT to 0.
- Mechanism would need to be developed to inform PJM of generator replacement.