Operating Reserves Rules

RMWG
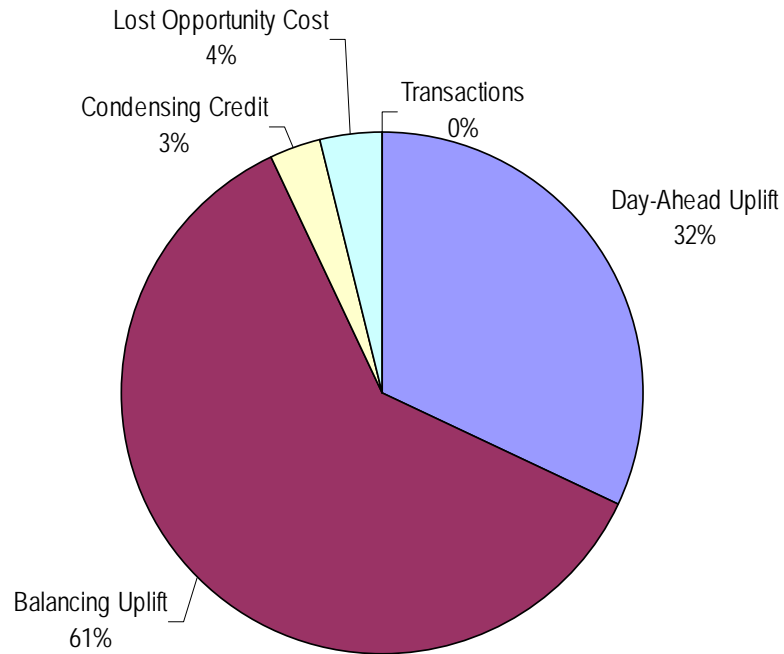September 8, 2005

Market Monitoring Unit

- How do imports/exports in real time (RT) impact balancing operating reserves?

- For Calendar Year 2004, imports/exports do not appear to have an impact on the level of Operating Reserves charges.

- Please provide data on Yearly Balancing and Day Ahead Operating Reserves Credits

- For 2004 Calendar Year Operating Reserve Credits:
  - Balancing = $249,463,523
  - Day Ahead= $129,230,218

(SOM 2004; Table 2-43;Energy Section, page 96)

Calender Year 2004 Operating Reserves Credits

Lost Opportunity Cost
4%

Condensing Credit
3%

Transactions
0%

Day-Ahead Uplift
32%

Balancing Uplift
61%

■ Day-Ahead Uplift ■ Balancing Uplift □ Condensing Credit □ Lost Opportunity Cost ■ Transactions

- What is the estimated effect of the proposed changes to the calculation of deviations for allocating Balancing Operating Reserve Charges?

- Proposed change:
  - For all types of units except CTs, where DA MW > Desired MW
  - Use (Desired MW – RT MW) as an allocator
  - In place of (DA MW – RT MW)

- Analysis for June 1, 2004 through June 30, 2005 (The total Cost of Relevant Operating Reserves remains constant):
  - Under Proposed Change:
    - Balancing Operating Reserve Rate = (Cost of Relevant Balancing Operating Reserves) / (Desired MW – RT MW) = $1.06
  - Under Present Rules:
    - Balancing Operating Reserve Rate = (Cost of Relevant Balancing Operating Reserves)/ (DA MW – RT MW) = $1.31

- Operating reserve payments concentrated among a relatively small number of units/owners
- The top ten units generally have:
  - Relatively high mark ups
    - Price offer over cost offer
  - Relatively inflexible operating parameters
    - Long minimum run times
    - Small number of starts per day
    - Long minimum down time
- Need to understand selection process for units providing operating reserves
  - Aggregate market
  - Locational issues

- Potential market power
  - Potential ability of unit owners to exercise market power in operating reserves markets
- Payment for flexibility
  - Pay operating reserves only to units that provide flexible operations
  - Flexible operations are determined by unit operating parameters

- Current local market power rule in energy market
  - Resources needed to relieve transmission constraints
  - Offer capping
- Current operating reserves market
  - Limited number of resources are frequently taken for operating reserves by PJM
  - Local conditions may be relevant to choice of units
  - Potential local market power issue
  - Potential aggregate market power issue

- Limit exercise of local market power in operating reserve market
    - Limit mark up
- Limit exercise of market power in aggregate operating reserve market
- Ensure that only flexible units are paid operating reserves
    - Require flexible operating parameters

- When units have local market power
  - Limit operating reserves payments to the higher of LMP or cost-based offer
- Issues
  - Definition of local market is unclear
  - Definition of local market is determined by operator actions
- Proposal
  - Local market power exists for units when they are used for operating reserves on a regular basis
  - Mark up should be limited for units taken for operating reserves on a regular basis

- Proposal
  - When units are taken repeatedly for operating reserves
  - When units increase mark up above a competitive level
  - Pay units for Operating Reserves Credits per cost-based offers
  - When defined test for "taken repeatedly" is met
  - When Offer Price > Cost-based offer for three days during 20 consecutive called days

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Capped Flag	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1
P>(MC+10%) Flag	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1																							
2	1	1																						
3	1	1	1																					
4	1	1	1	0																				
5	1	1	1	0	0																			
6	1	1	1	0	0	0																		
7	1	1	1	0	0	0	0																	
8	1	1	1	0	0	0	0	0																
9	1	1	1	0	0	0	0	0	0															
10	1	1	1	0	0	0	0	0	0	0														
11	1	1	1	0	0	0	0	0	0	0	0													
12	1	1	1	0	0	0	0	0	0	0	0	0												
13	1	1	1	0	0	0	0	0	0	0	0	0	0											
14	1	1	1	0	0	0	0	0	0	0	0	0	0	0										
15	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0									
16	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0								
17	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
18	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0						
19	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0					
20	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
21		1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
22			1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
23				0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
24					0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1

- Operating reserve payments are payments for flexibility
- Proposal
  - Limit operating reserve payments to units with operating parameters based on the physical characteristics of the units
  - Specify operating parameters range for unit classes

- Current:
  - No rules that address the operating parameters of units selected for operating reserves
- Proposed:
  - Maintain unit parameters at levels based on physical characteristics
  - Notification of PJM in instances of parameters change
  - PJM defines a set of unit parameter levels
  - Operating Reserves Credits limited to units with defined parameters
  - Exceptions

Technical Parameters Defaults

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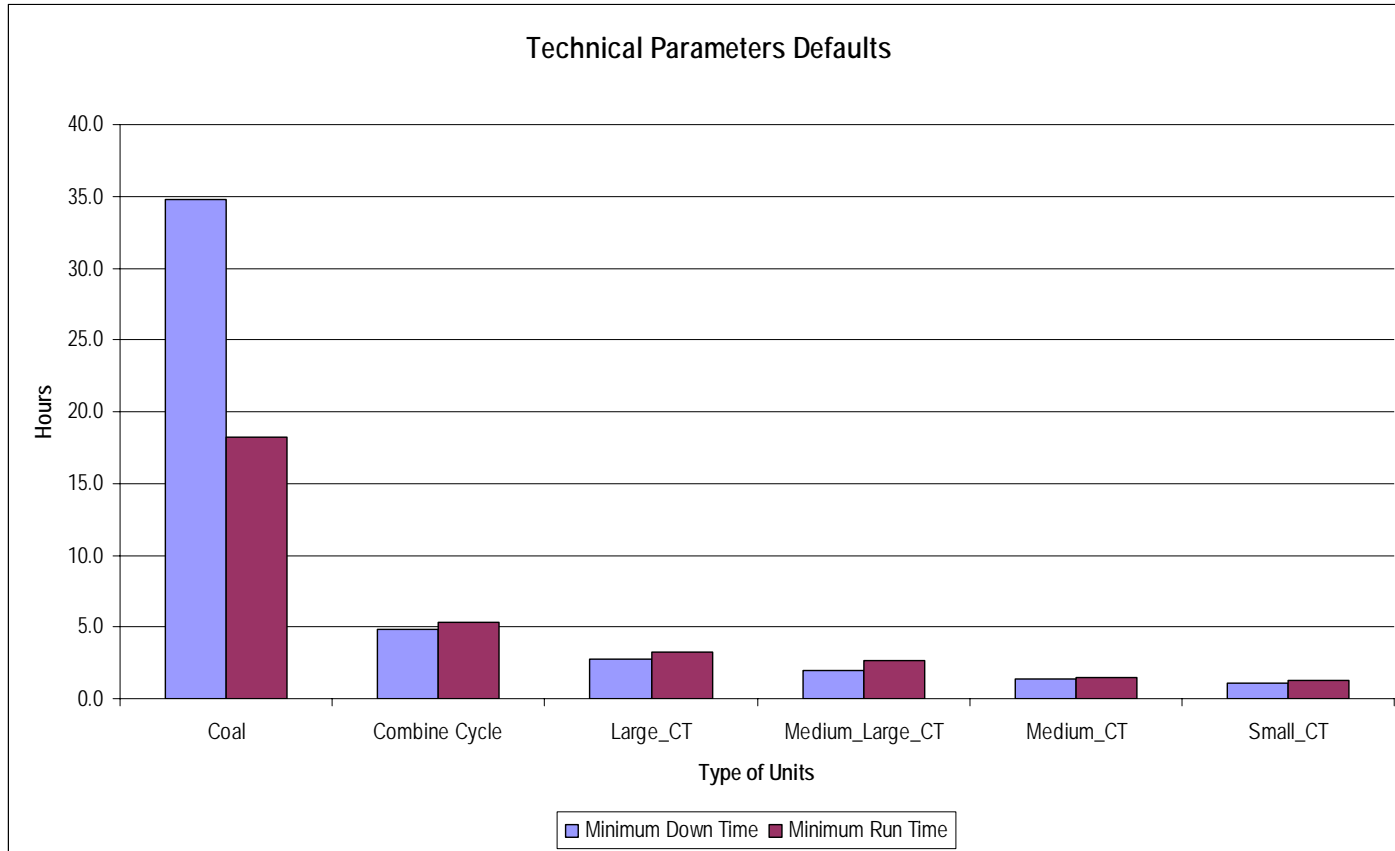
Unit_Type	Minimum Down Time (hours)	Minimum Run Time (hours)
Coal	34.8	18.2
Combine Cycle	4.8	5.3
Large_CT 135 MW- 180 MW	2.7	3.3
Medium_Large 65-125 MW	2.0	2.6
Medium_CT 30- 65 MW	1.3	1.5
Small_CT 29 MW	1.1	1.3