Parameter Limited Schedules

MIC/PLS Meeting
June 1, 2011

Joseph Bowring
Matthew Thompson
Bill Dugan

Monitoring Analytics

Background

- **Parameter limited schedules (PLS) were implemented for cost-based schedules and price-based schedules during emergencies on December 1, 2008.**
- **Units are placed on their cost-based schedule when they fail the TPS test, which incorporate their parameter limits.**
- **Units with physical limitations are able to submit exceptions to the Market Monitor on both a long-term and daily basis if they cannot adhere to the PLS matrix.**

Problem

- **Currently, parameter limited schedules apply only for cost-based schedules, except for emergencies.**
- **There are currently no limits on parameters for price-based schedules and therefore parameters for price-based schedules are a potential method to exercise market power.**

Issue 1

- **Currently, a unit may extend a minimum down time to avoid being turned off when not economic**
- **The result:**
  - **Force PJM to run the unit when it is not economic**
  - **Reduce prices for other generating units as a result of increased, uneconomic supply**
  - **Increase operating reserve credits to the unit and operating reserve charges paid by other participants.**

Issue 2

- **Currently, a unit may offer more flexible parameters on price schedules than the PLS values required for cost schedules**
- **For example, a unit may offer a 4 hour minimum run time on a price schedule and a 5 hour minimum run time on a cost schedule.**
- **This indicates that the unit does not offer its actual physical level of parameter flexibility on its cost-based schedules.**
- **The result, if PJM selects price based offer:**
  - **Higher market prices.**
  - **Increased operating reserve credits to the unit and increased operating reserve charges to other participants.**

Stakeholder Positions

- **Cycling some coal units causes additional wear and tear, which may not be seen until years later.**
- **Cycling some units results in additional start-up costs.**
- **PJM dispatch tool is not forward looking (7 days) enough to account for actual operation cycle of base-load units, which do not cycle daily.**
- **Units may offer more flexible price schedules than cost schedules, as units can run more flexibly at greater cost.**
  - **The additional cost is not quantifiable**

Example 1

- **100 MW CT (economic minimum) has a cost-based minimum run time (MRT) of 5.0 hours, and a price-based MRT of 2.0 hours.**
- **The unit offers $100/MWh on its price-based schedule, and $50/MWh on its cost-based schedule.**
- **If the unit has local market power, PJM will choose the price based offer**
  - **Under the price-based schedule, the unit will receive $20,000 for the two hour MRT.**
  - **Under the cost-based schedule, the unit would receive $25,000 for the five hour MRT.**

Example 1 (cont)

- **Result:**
  - **If marginal, market price is higher**
  - **If not marginal, operating reserve credits are higher**
  - **The market power mitigation rule is avoided**
- **The 5.0 hour MRT is not a physical requirement of the unit, but the current PLS rules permit it to offer at this level currently.**

Example 2

- **50 MW CT (economic minimum) has a cost-based MRT of 2.0 hours, and a price-based MRT of 1.0 hour.**
- **The unit offers $20/MWh on its price-based schedule, and $10/MWh on its cost-based schedule.**
- **If the unit has local market power, PJM will choose the price based offer.**
  - **Under the price-based schedule, the unit will receive $1,000 for the one hour MRT.**
  - **Under the cost-based schedule, the unit would receive $1,000 for the two hour MRT.**

Example 2 (cont)

- **Result:**
  - **If marginal, market price is higher**
  - **If not marginal, operating reserve credits are higher**
  - **The market power mitigation rule is avoided**
- **The 2.0 hour MRT is not a physical requirement of the unit, but the current PLS rules permit it to offer at this level currently.**

Example 3

- **Sub-Critical coal unit has:**
  - **Cost schedule minimum down time of 9.0 hours**
  - **Price schedule minimum down time of 24.0 hours, offered Monday-Thursday of the week.**
- **Unit is needed for Friday, but faces possibility of being uneconomic over weekend**
- **Unit increase minimum down time to 72.0 hours in price schedule offer for Friday**
- **Result:**
  - **Unit will be paid additional balancing operating reserve (BOR) credits for running out of merit over the weekend.**
  - **Other customers will pay increased BOR charges.**

Example 4

- **Sub-Critical Coal unit has:**
  - **Cost schedule maximum weekly starts of 5**
  - **Price schedule maximum weekly start of 1**
- **Unit has a minimum down time of 4.0 hours**
- **Unit is dispatched on price schedule for Monday peak.**
- **Unit is no longer economic on Monday off peak.**
- **Unit then is kept on through off peak, as a result of limit on max weekly starts parameter.**
- **Result:**
  - **Unit will be paid additional BOR credits for running out of merit during off-peak period.**
  - **Other customers will pay increased BOR charges.**

Additional Issues

- **PLS reviews are currently twice a year**
  - **Should PLS reviews be done once per year?**
- **Sub-critical coal parameters may reflect prior operating conditions that are no longer relevant.**
- **PLS parameters for Medium-Large and Large Frame CT Unit parameters are less flexible than actual operating experience.**
- **Daily exception process needs to be modified.**

Monitoring Analytics, LLC
2621 Van Buren Avenue
Suite 160
Eagleville, PA
19403

(610) 271-8050

MA@monitoringanalytics.com

www.MonitoringAnalytics.com