Tier 1 Estimate Changes

October 2013
• Reviewed all Synchronous Reserve Events since 1/1/2012 (42 events)

• Performance metrics:
  – Tier 1 actual response vs. estimate Tier 1 reserve
    • Avg response = 71%, which is bias up by two over-performance events. Removing those two, the Avg Response drops to 62%.
      – 9/10 response was 12%
  – Percent of Units outperforming eco max = ~4%

• GO/OC discussions
  – Combined Cycles and Hydro capability reviewed:
    • Hydro doesn’t respond automatically to synch reserve event
    • Most CC units max out below eco max for spin reserve
Changes not being made

• Regulation:
  – No changes to units assigned reg. They are currently assumed to be able to respond with the MWs outside their regulation band and will remain in the Tier 1 estimate.

• Constraint Control:
  – No changes. These units are expected to respond to a Synch reserve event and will remain in the Tier 1 estimate.
• Change #1:
  – All Units used in the Tier 1 estimate will be capped to the lesser of Eco Max or Spin max.

• Change #2:
  – All Hydro Units will be removed from the Tier 1 estimates.
  – All Combined Cycles units will be removed from the Tier 1 estimate with the exception of units that have submitted a Spin Max < Eco Max.
    • NOTE: PJM does have the ability to add or remove units on a case by case basis and may do so based on actual performance.

• Change #3:
  – Remove units from the Tier 1 estimate with a Manual Dispatch instruction.
• During Hot or Cold Weather Alerts, the Degree of Generator Performance (DPG) modifier will be used to adjust the Tier 1 response estimate
  – See the attached presentation (slide 55) for more explanation of DGP:
Future changes

• Manual/public posting/training to be created that will include:
  – Tier 1 Information
    • The unit types are included in the Tier 1 Calculation
    • The Tier 1 calculation used during ‘normal’ operating days
    • The Tier 1 calculations implemented during when in emergency procedures
  – Expected response to a Synchronizer Reserve event for non-Tier 2 resources
• Investigate how to provide GOs the DPG value in use.
Current Tier 1 Estimate is the lesser of
{Greater of (SpinMax, EcoMax) – Energy Dispatch MW
OR
(Spin Ramp Rate, else Ramp rate) * 10minutes}

– Example: Unit A is a combined cycle that bids
  • Eco Max=Emergency Max=Spin max = 525MWs.
  • Ramp rate = 5MWs/min.
  • Energy Dispatched MW = 490MWs.
  • Tier 1 = lesser of [(525-490),(5MW*10min)] => 35MW.