



# Estimating Tier 1 Reserves

Joe Ciabattoni  
Operating Committee  
March 6, 2018

Event	Date	Start Time	End Time	Duration	Region	Tier 1 Estimate (MW)	Tier 1 Response (MW)
1	01/01/2018	02:41	02:48	00:07	RTO	1135.7	668.4
2	01/03/2018	03:00	03:13	00:13	RTO	1896.7	509.9
3	01/07/2018	14:15	14:24	00:09	RTO	2513.1	850.5

- Poor response attributed to
  - Lack of Spin Maximum updates
  - Inaccurate Spin Ramp Rate
  - Communication from MOC to Generator

- Data quality and limits directly affect Tier 1 estimates
  - Impact to Scarcity Pricing
    - Over or under estimating
  - Operator decisions and actions
    - Disconnect between Economic Dispatch and Energy Management System (EMS) actual reserves
    - Additional Tier 2 commitments

- Cap Spin Max at Economic Maximum
  - Spin Max  $\leq$  Eco Max
  - Allows unit limitations to be reflected in limits
    - duct firing
    - oil topping
- Spin Ramp Rate = Economic Ramp Rate