

CC Modeling

Agenda 7

BIC

April 27, 2005

Bob Thompson

CC Modeling

1. Seek input from CC owner/operators to fully understand characteristics and limitations of units.
 - 1.a Report results of (1) to MPs
2. Develop Feasible alternatives in conjunction with ABB
 - Scheduling (optimizing) the operating state and/or
 - Detecting the operating state and making allowances for physical limitations.

We are here → 2.a Report results of (2) to MPs.

3. Select model characteristics in conjunction with MPs.
4. Implementation, tariff filing, testing and deployment.

CC Modeling Plan

- Results to date were presented by Bob deMello to MSWG on April 12
- The presentation to MSWG included a number of questions that need to be addressed.
- NYISO staff are discussing these questions with various CC owner operators to guide development of a recommended approach.

CC Modeling

- This is a very complex modeling task. There is no off-the-shelf solution. The ABB model is a starting point.
- Real-time scheduling and management can get particularly complicated for the multi-unit models.
- The Implementation process is recommended to be done in stages.
- Begin with improvements that can be done in a manageable manner.
- Build the next steps as we gain experience.
- Report to BIC as we progress.

Startup and Shutdown Penalties

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Startup and Shutdown Penalties

- The *Startup period* is defined here as the period between the time it synchronizes to the Grid and the time it reaches its bid minimum generation level.
- The *Shutdown period* is defined here as the period between the time a unit receives a zero basepoint and begins shutting down and the point where it ceases to supply energy to the grid.

Startup and Shutdown Penalties

- Penalties during SU and SD applies to most steam units, not only Combined Cycle.
- Units have two choices under today's rules to recover startup and shutdown costs.
 - Bid an estimate into their startup bid.
 - Bid their startup period into the HAM as a price taker and recover LBMP for startup energy.

Startup and Shutdown Penalties

- Units not bidding into the HAM simply dump their energy into the RT market and are not paid for it. This creates short term LF variations for the ISO.
- Units bidding into the HAM cannot properly follow dispatch instructions and accrue penalties when startup processes create variations from estimated output.
- The penalties are intended as incentives to modify behavior. They serve no purpose during these periods of operation.

Startup and Shutdown Penalties

- It is therefore recommended that the under-generation penalty be dropped during unit startup and shutdown periods and that during these periods units be paid LBMP for all energy produced.

Startup and Shutdown Penalties

- Generators should be allowed to designate when they are in a start-up (SU) or shut down (SD) mode.
- When in a SU/SD mode, a plant would use the self-scheduling options to inform the NYISO HAM of estimated output.
- Unit will be scheduled at his actual output for which he would be paid LBMP and would not be subject to performance penalties.

Startup and Shutdown Penalties

- To ensure that the elimination of penalties during S/U and S/D is not abused in some way, startup periods will normally be less than two hours. Shutdown periods will normally be less than one hour. Exceptions must be supported with justifications.
- Utilization of this feature will be monitored to identify any potentially abusive behavior.
- The NYISO will retain the right to revoke the ability of any plant to use the SU/SD flag should it detect an adverse market or operational impact and, after consultation with the generator, determine it to be due to abusive behavior.

Startup and Shutdown Penalties

- Next Steps

- BIC information only discussion – 4/27
- MSWG review and issues resolution - 5/3
- Proceed to BIC/MC/Board