

NYISO - NY Generators Meeting

Persistent Dragging

Bob Thompson

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Persistent Dragging

- Non-GT dragging
 - Substantial problem for generators
 - Reliability problem for ISO
- GT dragging
 - Partly solved
 - Needs additional attention

Non GT Dragging

- Dragging units are a continuing problem
- They depress prices – costing you money
- They increase uplift
- They create operational problems

Non GT Dragging

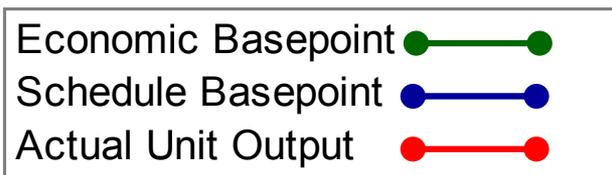
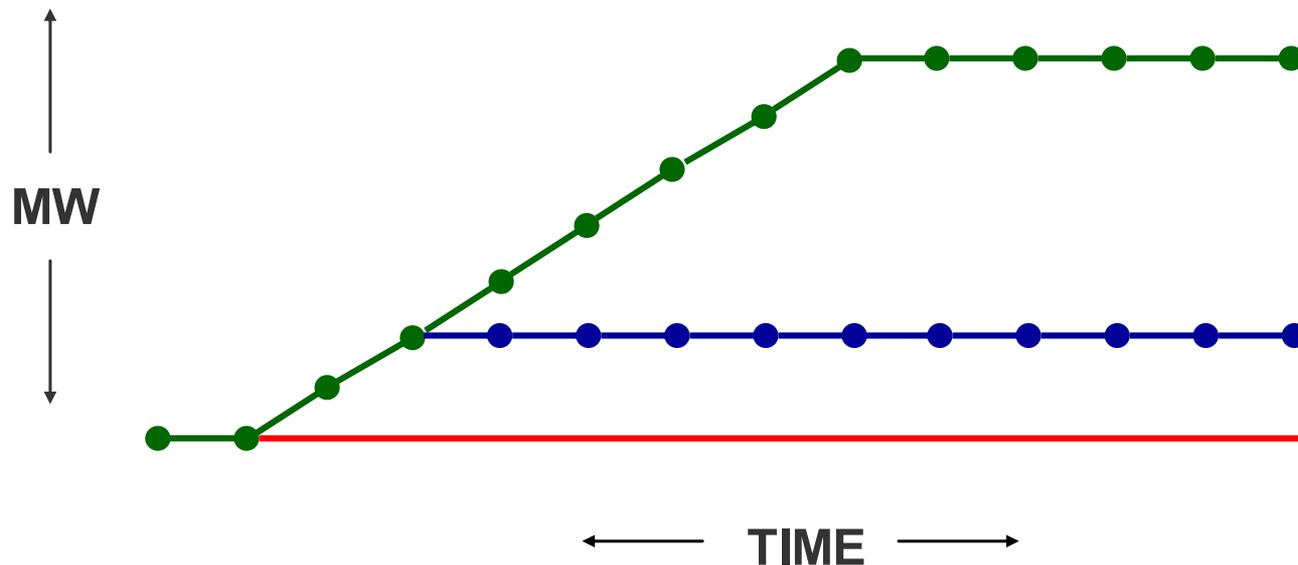
- Dragging units are a continuing problem
 - Hundreds of megawatts per hour during the day is not unusual
 - Starts with the morning pick-up and continues throughout the day

Non GT Dragging

- They depress prices
 - Dispatch logic is a “dual dispatch”
 - An price setting pass and a scheduling pass
 - Price setting pass accumulates basepoints (assumes units will reach their prior basepoint)
 - Scheduling pass dispatches from a units actual current output

Non GT Dragging

- Diagram to show impact of dual dispatch on a unit's basepoints when the unit does not move



Non GT Dragging

- Prices are depressed because:
 - Pricing pass assumes **all requested** supply is present
 - Dispatches additional supply to meet load respecting ramp limits
 - Scheduling BP assumes **only actual** supply is present
 - Dispatches available supply to meet load respecting ramp limits
 - Units responding to BP are moved above their economic level to make up for lagging units in order to meet load

Non GT Dragging

- This process costs you money because:
 - Price signals are distorted
 - Prices are depressed in real-time
 - Units dispatched above economic levels are losing profit (essentially the same as out of merit)
 - Units that fail to move to schedule BP lose two ways
 - Lost opportunity
 - Lower prices for what they do produce
 - All suppliers are losing

Non GT Dragging

- Dragging creates uplift
 - BPCG for uneconomic supply dispatched to compensate for dragging
 - Lower prices reduces all revenue
- Load cannot hedge uplift
 - Load loses also

Non GT Dragging

- This is not a problem caused by bad rules or deficient software
- This is mostly a behavior problem
- This is a problem we must correct

Non GT Dragging

- The ISO has done the following:
 - Corrected the dispatch errors for GT dragging
 - Improved the dispatch tools
 - Who is dragging
 - By how much – below economic and schedule BP
 - Taken action to have dispatchers more aggressively prod and derate persistent draggers
 - MMU monitoring for consistently poor ramp response and for potential withholding

Non GT Dragging

- Generators should do the following **immediately**:
 - Update ramp rates to what you can actually do!!
 - Follow your schedule basepoints!!
 - Inform the ISO if you suspect problems with telemetry, metering, or TO – Generator communication
- This is a problem **YOU** can fix **NOW!**

GT Persistent Dragging

GT Persistent Dragging

An accurate estimate of each generators' capacity enhances reliability of operation and results in prices that reflect the true state of the electric power system.

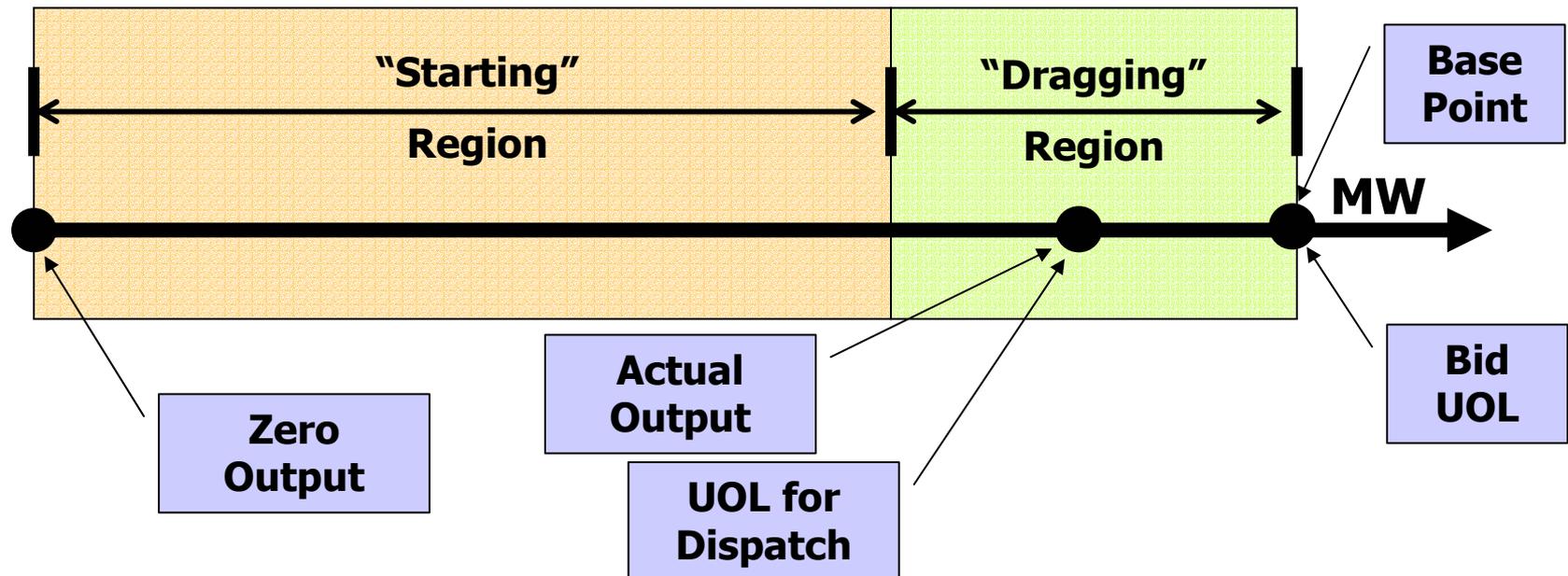
Gas turbine capability decreases as ambient temperature increases. On hot days there was no way (other than manual derates) to reflect the reduced capability of gas turbines in the dispatch.

We fixed this in SCD for gas turbines

Deployed & Enabled: 6/24/2003

Gas Turbines

- **Automatic detection of dragging in SCD**
- **Automatic compensation for dragging in SCD**
- **Automation at higher output levels only**



Otherwise

- New displays to monitor gas turbines
 - Distinguish between dragging and starting
- New displays to monitor other units
 - Monitor deviation between actual output and desired output
- Manual derate is required for SCD to “see” a reduced upper operating limit

Hour-Ahead

- A generator must be derated manually for BME to “see” a reduced upper operating limit.
 - Gas turbines within the “derate” region
 - Gas turbines within the “startup” region
 - Non-gas turbines (steam, combined-cycle, nuclear, hydro, etc.)

Under Generation Penalties

- UOL is not automatically reduced to actual
- Dispatch logic sees the actual as UOL
- Settlements still sees bid UOL as upper limit
- Penalties are therefore applied when divergence exceeds undergen limits

Who's doing what to who?

- Some MPs unable to accurately assess UOL
 - DAM bidding forecast is 2 days in advance
- UOL derates on DAM schedule requires a call and action by ISO operator
- Some ISO operators mistakenly said that new SW was handling the derate – it isn't
- Recommending forgiving penalties to GT's since June 24th.
- Problem of “manual derate overload” for operators is likely during heavy load periods

What to do going forward?

- Units without DAM schedules are not a problem. MPs can update UOL in-day.
- ISO is considering the possibility of forgiving undergen penalties since 6/24 for all GTs given the confusion on the derate practice.

What to do going forward?

LEGACY

- Consider eliminating under generation penalties on GT units scheduled in DAM.
- Require MPs to appropriately derate all GT units not scheduled in DAM. No call in is normally required, derates can be done through the bid pages on-line.
- Consider modification to the penalty bandwidth of 3% to eliminate problems from normal in-day weather uncertainties.
- ISO will issue a technical bulletin ASAP that clearly describes the rules and expected results.

What to do going forward?

SMD2

ISO to ensure that RTS software and rules automate the process as much as possible.