SEM committee

ETA Workshop 2.1

Participant Physical Notifications

Content of Physical Notifications

- Physical notifications represent the MW profile that the participant intends to generate or consume in the absence of any accepted balancing market offer or bid

- Initial day ahead notification should cover the whole 24 hour period trading day (23:00 to 23:00)
- Intraday notifications at hour x should cover the period from hour x+1 to the end of the trading day (23:00)

- With one hour gate closure, final physical notifications (FPNs) should cover either
  a) the half-hourly settlement period from 60 to 90 minutes ahead; or
  b) the two settlement periods from 60 to 120 minutes ahead for which ex-ante trading has closed.

- Generator availability should be submitted with physical notifications (mandatory Balancing Market)
  - Generator forced outage event – re-declare availability to zero, no need to resubmit physical notification

Granularity of Physical Notifications

- TSO needs to balance the generation and demand on the system at all times
- Physical notifications from all generator participants should define instantaneous MW levels at all times
- The actual spot data points submitted to the TSO could be defined every 30 seconds, or every minute, or every 2 minutes, and so on?
- MW level at intervening points between the submitted spot data points would be calculated through a simple linear interpolation
- May be need for Cost/Benefit Analysis to support optimum granularity
  - Accuracy vs data and IT requirements
  - Less than a minute resolution could be spurious accuracy

Timing of Physical Notifications

- How soon after their receipt of results from EUPHEMIA should participants be required to submit their initial day ahead physical notifications to the TSO?
  - Inc and Dec offers/bids to the Balancing Market to be submitted at the same time
- Participants will receive their DAM results at approx 12:00 Day Ahead
  - Proposed 14:00 final deadline for submission of initial physical notifications

- Should updated physical notifications from participants to the TSO during the intraday period be continuous or on the hour or at pre-defined times (e.g. every 4 hours)?

- The physical notification at gate closure of the intraday market is the final physical notification (with possible exception for Priority Dispatch plant)

Requirements for Demand and Wind

- Should physical notifications be required from demand?
  - TSO will be using TSO's own forecast of demand for the initial day ahead schedule
  - TSO will publish this aggregate demand forecast and the difference between it and the combined day ahead physical notifications from participants

- Should physical notifications be required from wind generation?
  - TSO could use TSO's own wind forecast instead

Validation of Physical Notifications

- Should generator TOD be submitted with the initial day ahead physical notifications and Incs/Decs everyday?
  - Or should this be submitted to the TSO via a separate route and only changes to standing TOD be submitted on a daily basis

- What validation of notifications will the TSO carry out?

- In the event of validation failure – notification is rejected and a valid resubmission is requested

- Deadline for valid initial day ahead notifications [proposed 14:00] – at this point the TSO uses valid notifications to calculate the Day Ahead operational schedule

“Linking” of Physical Notifications to Ex-Ante Trades

- **Linked Physical Notifications**
  - Must be based on the participant’s existing ex-ante trades (DAM and IDM volumes) at every submission

- **Fully Delinked Physical Notifications**
  - Represent the participant’s expected production schedule with no requirement to match ex-ante trades at any time

- **Partially Delinked Physical Notifications**
  - Final physical notifications must be based on the participant’s ex-ante trades but initial day ahead and intraday notifications can be based on expectations of final trades

Linked Physical Notifications

- Linked Physical Notifications
  - Must be based on the participant's ex-ante trades (DAM and IDM volumes) at all times
  - Allowed Tolerances could be defined

- Encourage liquidity into the ex-ante markets (especially the DAM)

- Possibly less flexible Orders being submitted to EUPHEMIA
  - Must be fully technically feasible (within to-be-defined tolerances)

- Day ahead notifications may provide less adequate information to the TSO to begin planning the day's dispatch
  - TSO would use their own dispatch algorithm, with their own forecast of demand and wind, and orders to EUPHEMIA (or possibly a different set of orders supplied by participants)
  - Potential for large updates in intraday and final physical notifications as trades are conducted in the IDM

Fully Delinked Physical Notifications

- Fully Delinked Physical Notifications
  - Represent the participant's expected production schedule with no requirement to match ex-ante trades at any time

- Participants would submit their expected production schedule to the TSO at the Day Ahead stage
  - updating this expected production schedule throughout the intraday if their expectations changed

- TSO would have more information at the Day Ahead stage

- However potential for large updates in final physical notifications if "expected" intraday trades did not occur
  - But this potential could reduce closer to real time as scope for intraday trades reduced and participants changed their expectations accordingly

Fully Delinked Physical Notifications (2)

- Possibly more flexible Orders being submitted to EUPHEMIA
  - Orders would not be required to be technically feasible
  - Could lead to more simple hourly Orders

- If any reserve is to be procured before the Day Ahead stage then it could be reflected in expected production schedules submitted by participants

Partially Delinked Physical Notifications

- Partially Delinked Physical Notifications
  - Final physical notifications must be based on the participant's ex-ante trades but initial day ahead and intraday notifications can be based on expectations of final trades

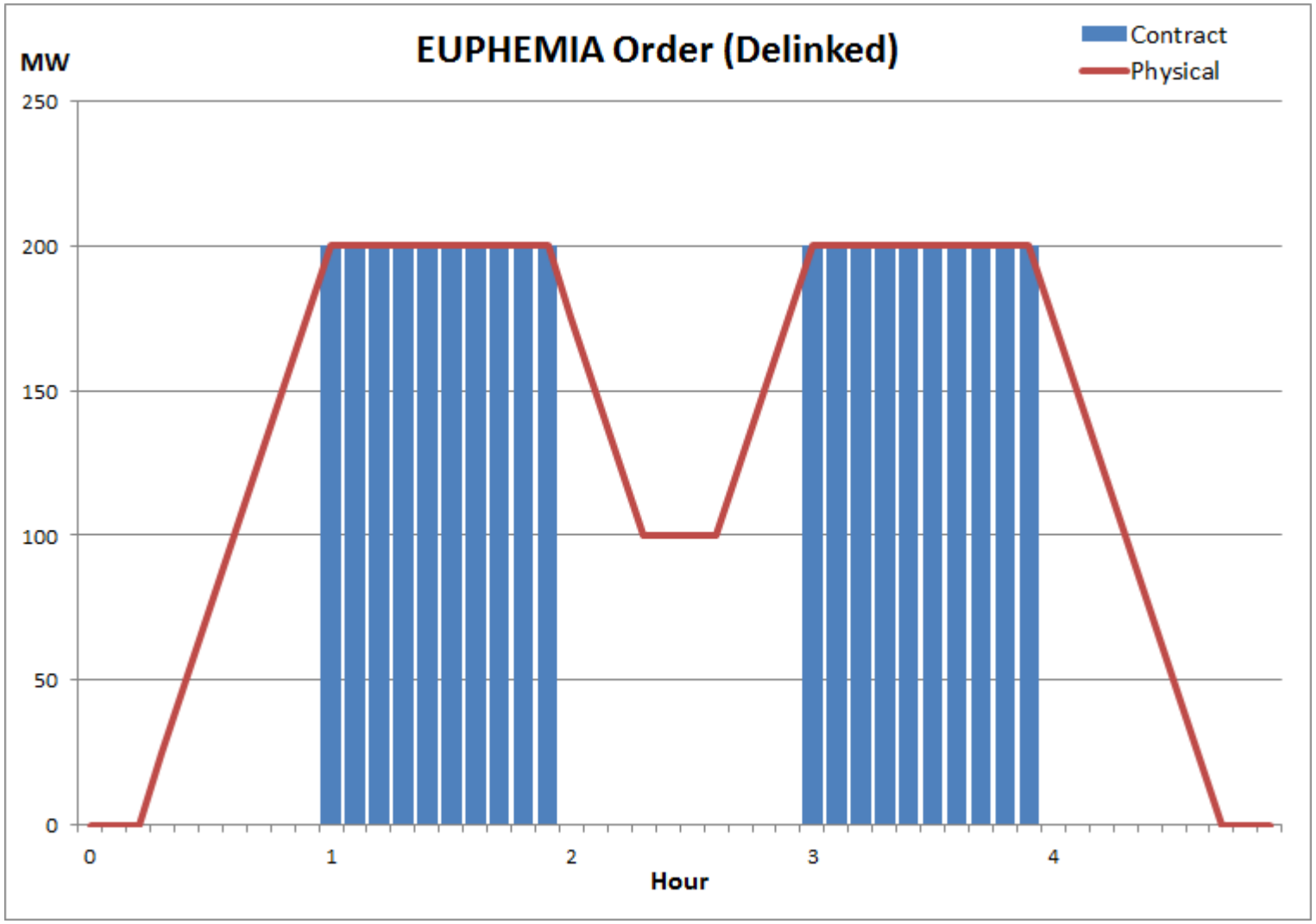
- Encourage liquidity into the ex-ante markets
- TSO would have more information at the Day Ahead stage
- Allow more flexible Orders into EUPHEMIA

- However potential for large updates in final physical notifications if "expected" intraday trades did not occur

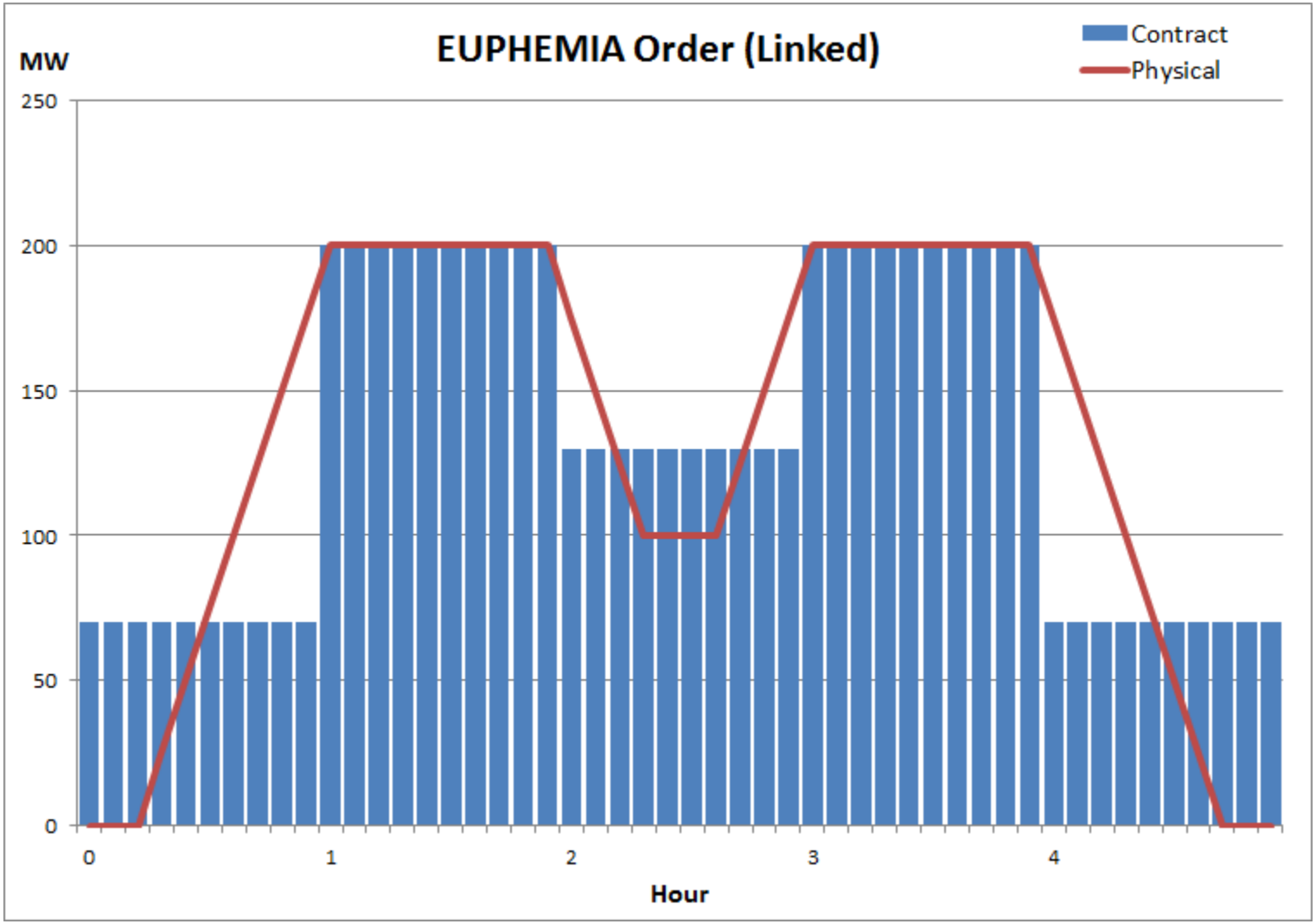
EUPHEMIA Order – Example

- 200MW unit
- 100MW Minimum Stable Level
- 4.166 MW/min Ramp rate

EUPHEMIA Order – Delinked Example



EUPHEMIA Order – Linked Example



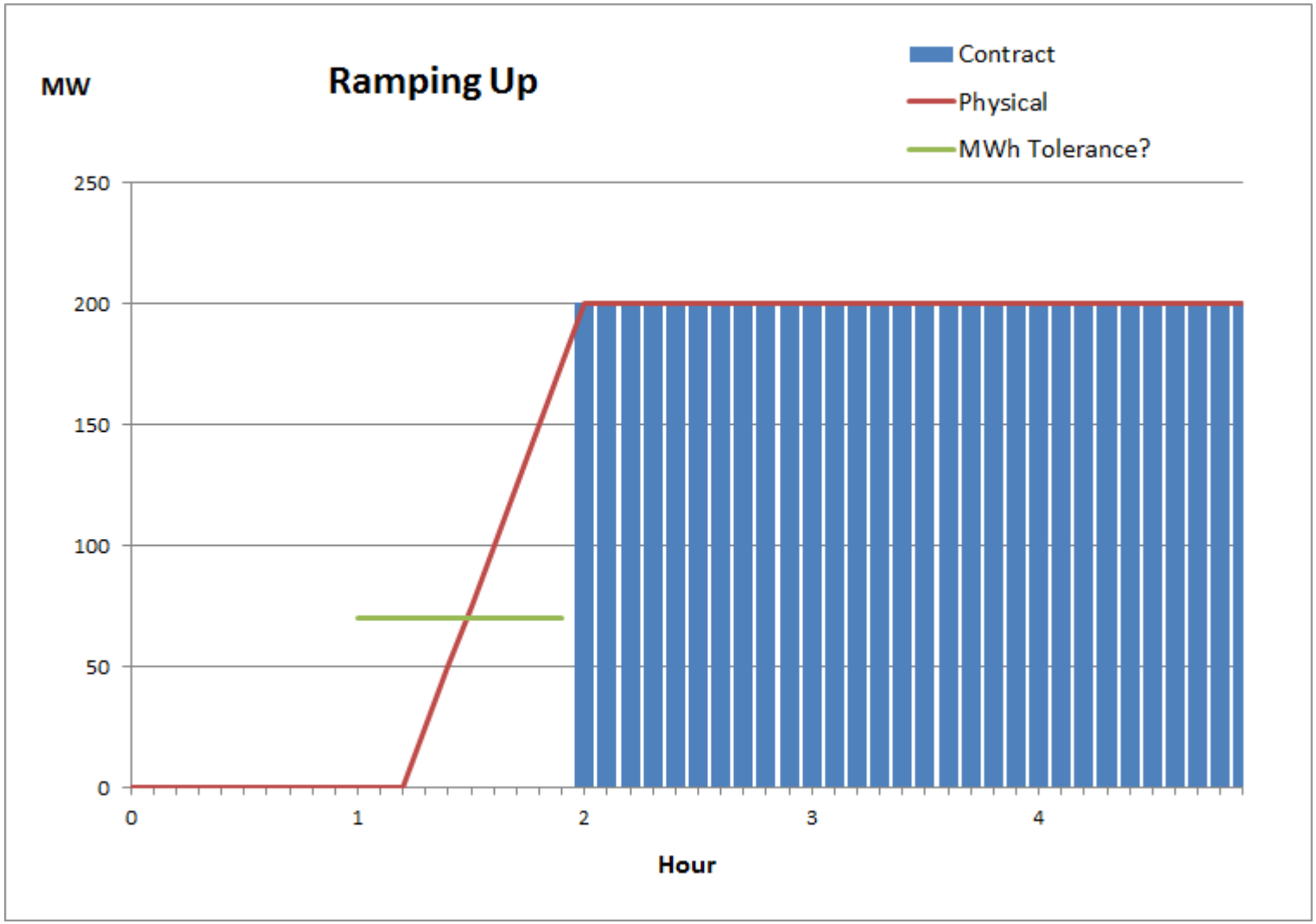
Information Imbalance Charge

- Could be charged against the difference between a participant's:
  - Day Ahead physical notification versus metered generation;
  - Intraday physical notification versus metered generation; and
  - Final physical notification versus metered generation
- Larger charge would be levied against information imbalances that occur closer to real time
- Magnitude of charge could be linked to system stress events

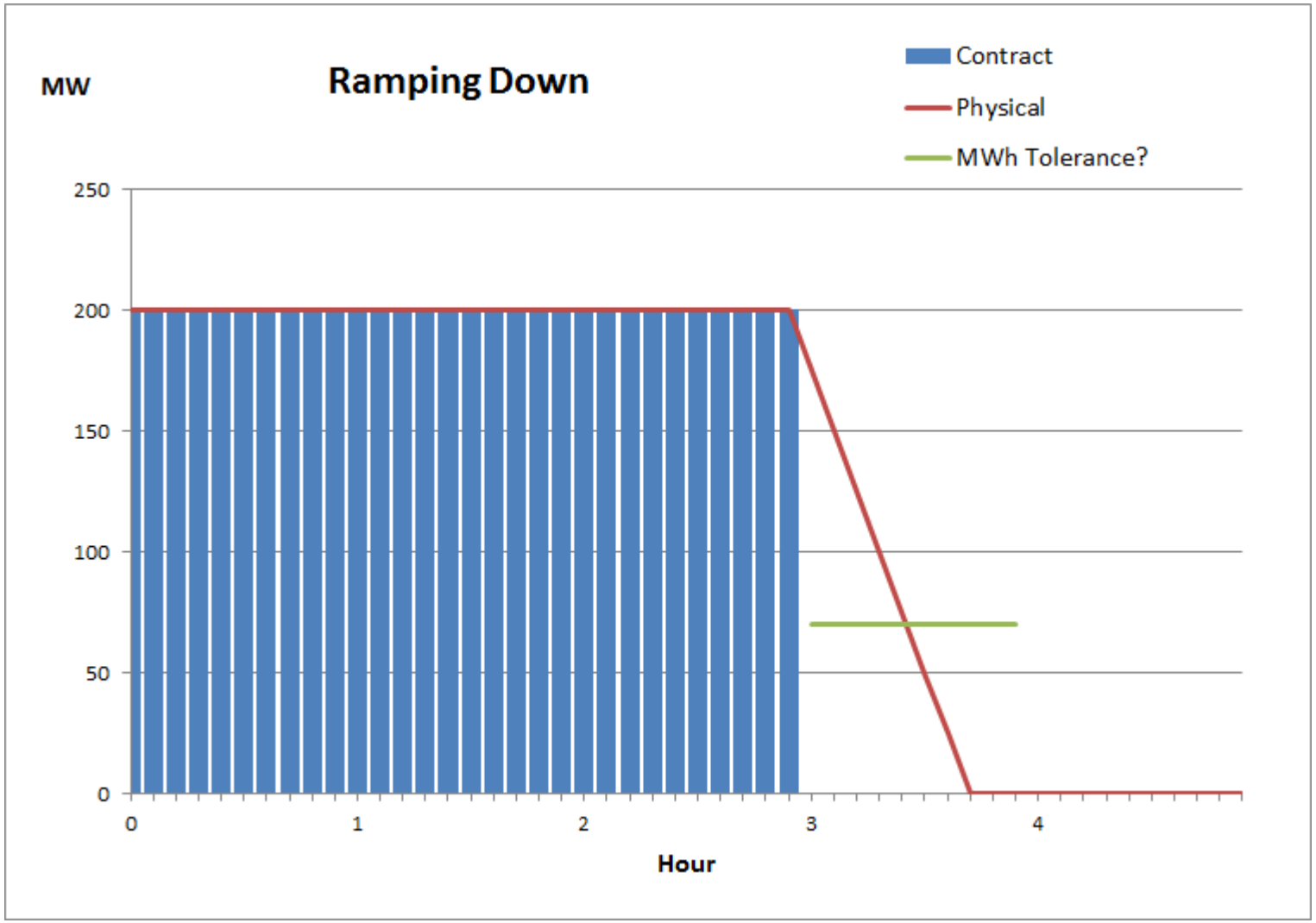
Linked Physical Notifications – Tolerances

Hypothetical Examples

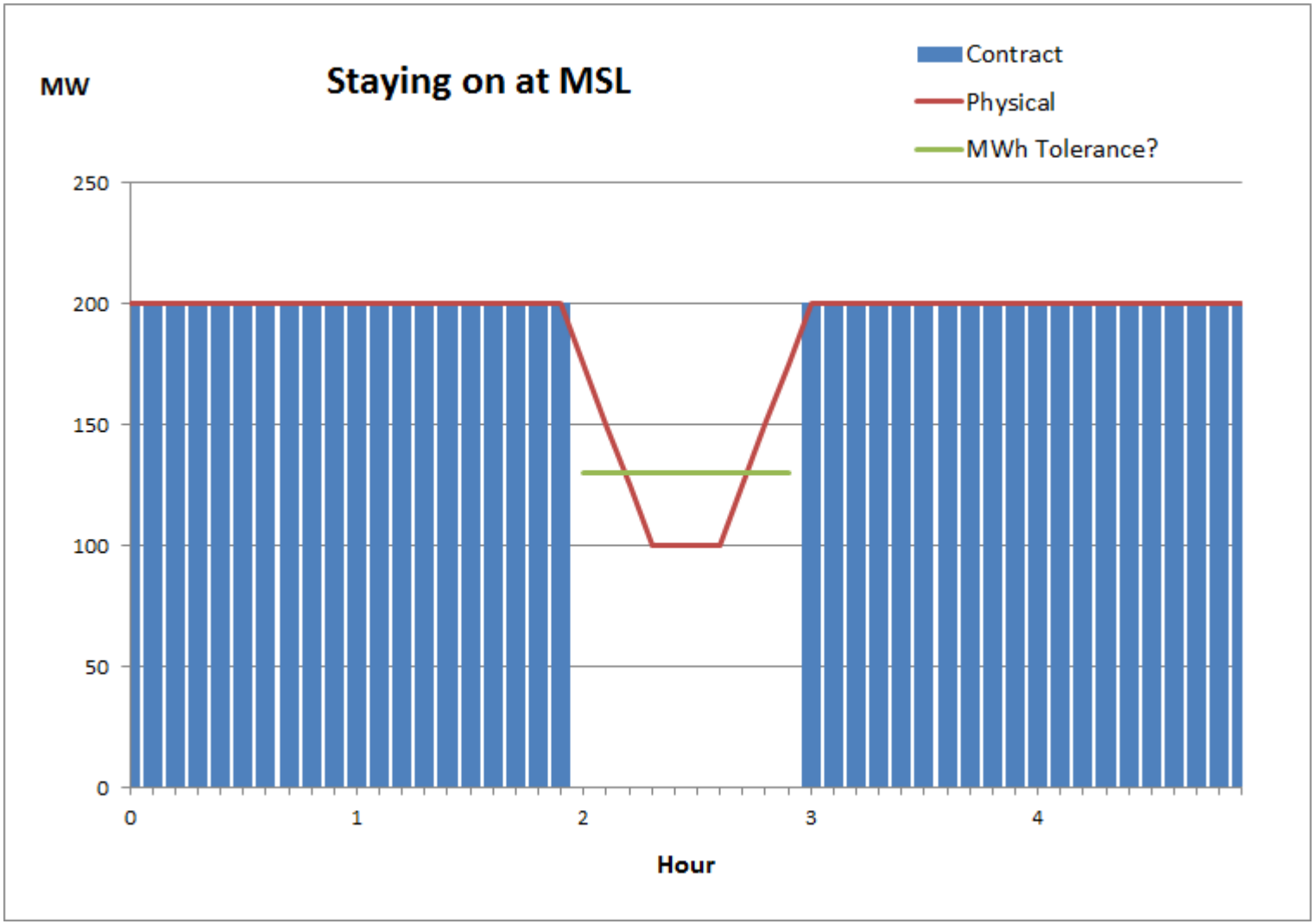
Ramping Up Tolerance



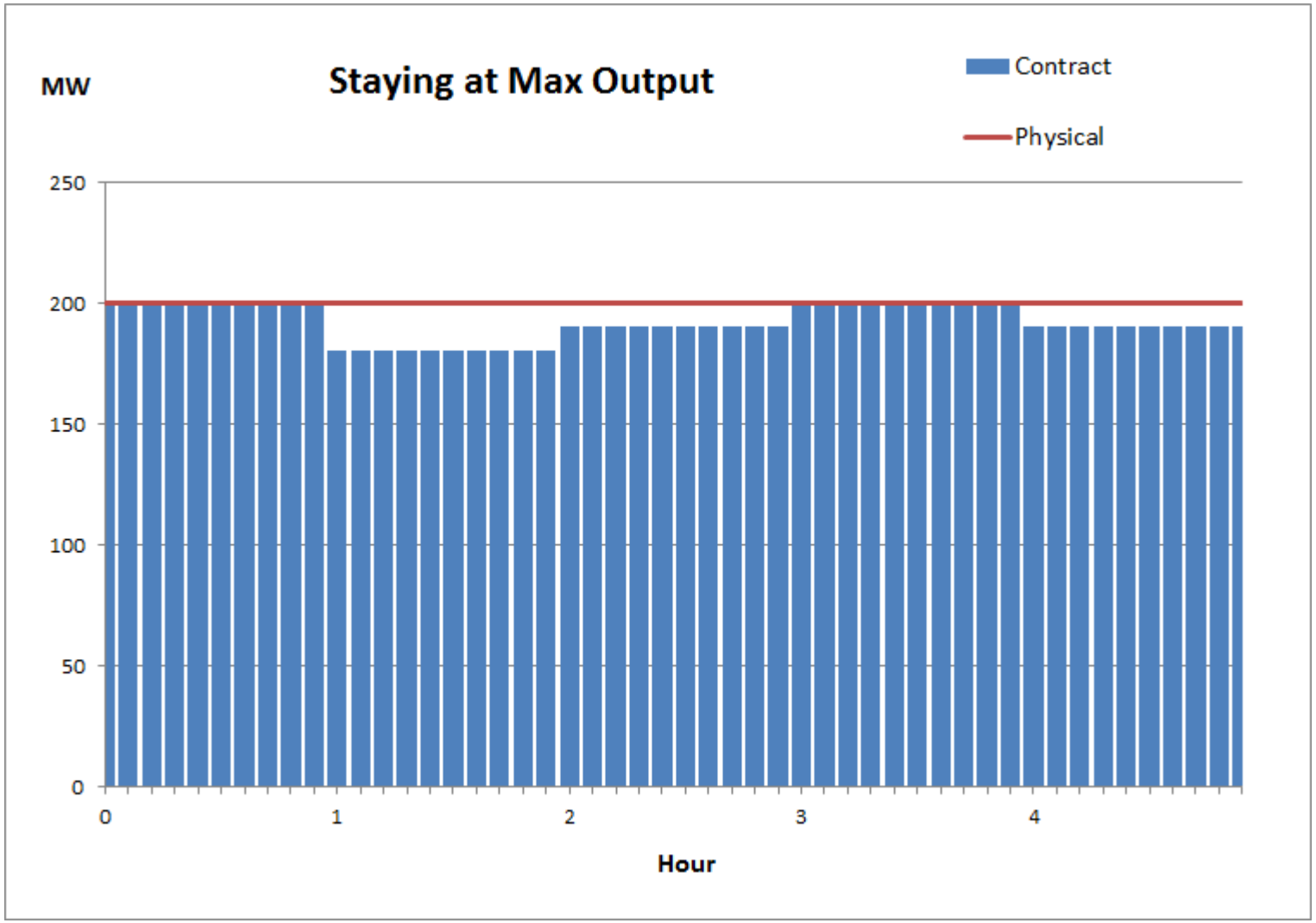
Ramping Down Tolerance



Staying on at MSL Tolerance



Staying at Max Output Tolerance



Physical Notifications Discussion