

ETA Workshop 2.2

Reserves

Introduction

These slides discuss proposals with regard to how the TSOs ensures that adequate reserves are in place ahead of real time operation and how this interacts with participant's commercial positions and notifications.

While these proposals relate to reserves, they can be applied to all system services in the existing Ancillary Services arrangements / new System Services arrangements

Reserves in SEM

The TSOs requires plant to carry reserves to ensure continued security and stability of transmission system

Reserve is required for control (demand & wind changes) and system contingency (unit trip, largest single in-feed loss)

Reserve requirements in SEM are proportionally greater and more dynamic than other European synchronous areas

Reserve can be broken into three distinct steps

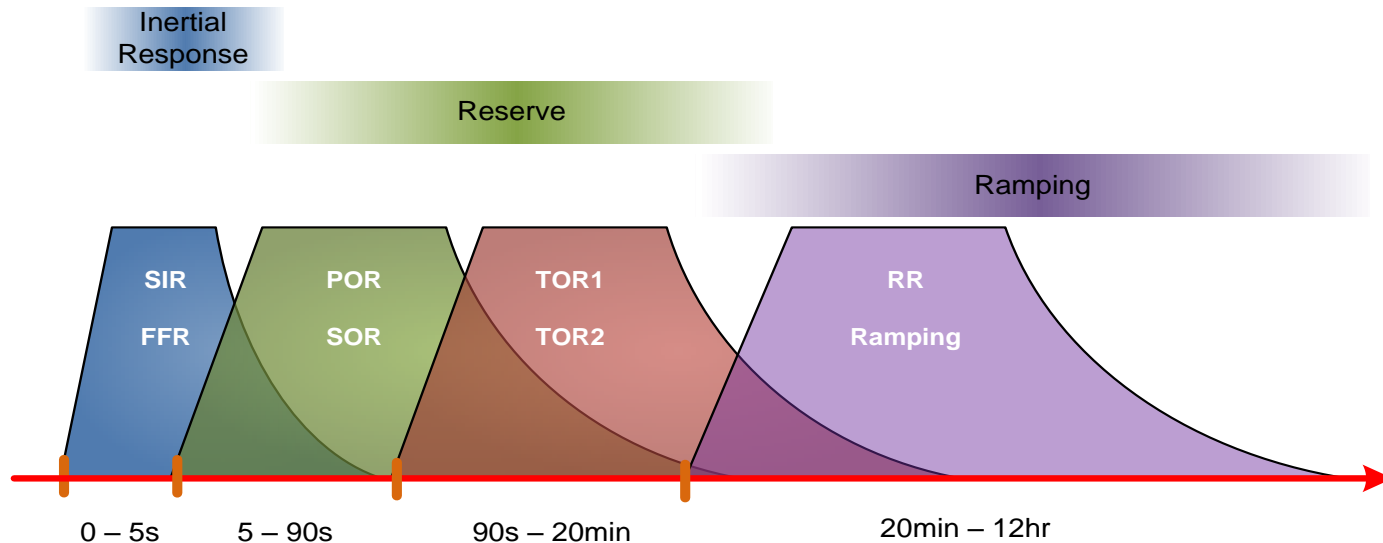
1. Capability – testing of plant capability and Grid Code compliance, contracting for this capability through an Ancillary Services Agreement
2. Deployment – positioning of the plant output to be capable of delivering the service (e.g. sync / pull back from max output)
3. Activation – automatic or manual delivery of the reserve energy

Reserve Types in SEM

Payment Rates	2014/2015
Primary Operating Reserve	€2.34 / MWh
Secondary Operating Reserve	€2.24 / MWh
Tertiary Operating Reserve 1	€1.87 / MWh
Tertiary Operating Reserve 2	€0.93 / MWh
Replacement Reserve (Synchronised)	€0.20 / MWh
Replacement Reserve (De- Synchronised)	€0.54 / MWh

DS3 System Services

New Services		Existing Services	
SIR	Synchronous Inertial Response	SRP	Steady-state reactive power
FFR	Fast Frequency Response	POR	Primary Operating Reserve
DRR	Dynamic Reactive Response	SOR	Secondary Operating Reserve
RM1	Ramping Margin 1 Hour	TOR1	Tertiary Operating Reserve 1
RM3	Ramping Margin 3 Hour	TOR2	Tertiary Operating Reserve 2
RM8	Ramping Margin 8 Hour	RRD	Replacement Reserve (De-Synchronised)
FPFAPR	Fast Post-Fault Active Power Recovery	RRS	Replacement Reserve (Synchronised)



I-SEM Arrangements

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- DAM Gate Closure will be 11:00 and the Trading Day starts at 23:00
- Physical Notifications (PNs) and incs/decs to the TSO will be circa 14:00
- BM will open during IDM after first PNs and inc/decs received
- Will be updated during day to reflect IDM trading
- Final Position of generators not known until 1 hour before real time

Issue

1. There will be situations where the TSO will require reserves from plant that require more than 1 hours notice
 - Start up times if a plant has a PN of 0MW (no DAM position)
2. There is a significant cost implication if dispatch instructions to carry reserve are carried out in the last hour
 - Notifying a gas CCGT during IDM vs. moving a diesel set 1 hr before real time.

Likely that plant will be running from previous periods that can provide reserve, hence objective during IDM is to ensure sufficient plant is synch'd or available to sync to meet reserve requirements

Proposals for I-SEM

Capability to Provide Reserve

- Testing of plant capability and grid code compliance
- Contracted through an Ancillary Services Agreement
- The BM is mandatory - plant will be required to submit a PN with associated incremental offer and decremental bid prices (incs & decs).
- The plant will be required to offer its full technical availability
- To deploy reserve it is proposed that the TSO will accept either the inc price or the dec price from the plant(s) it requires.

Proposals for I-SEM

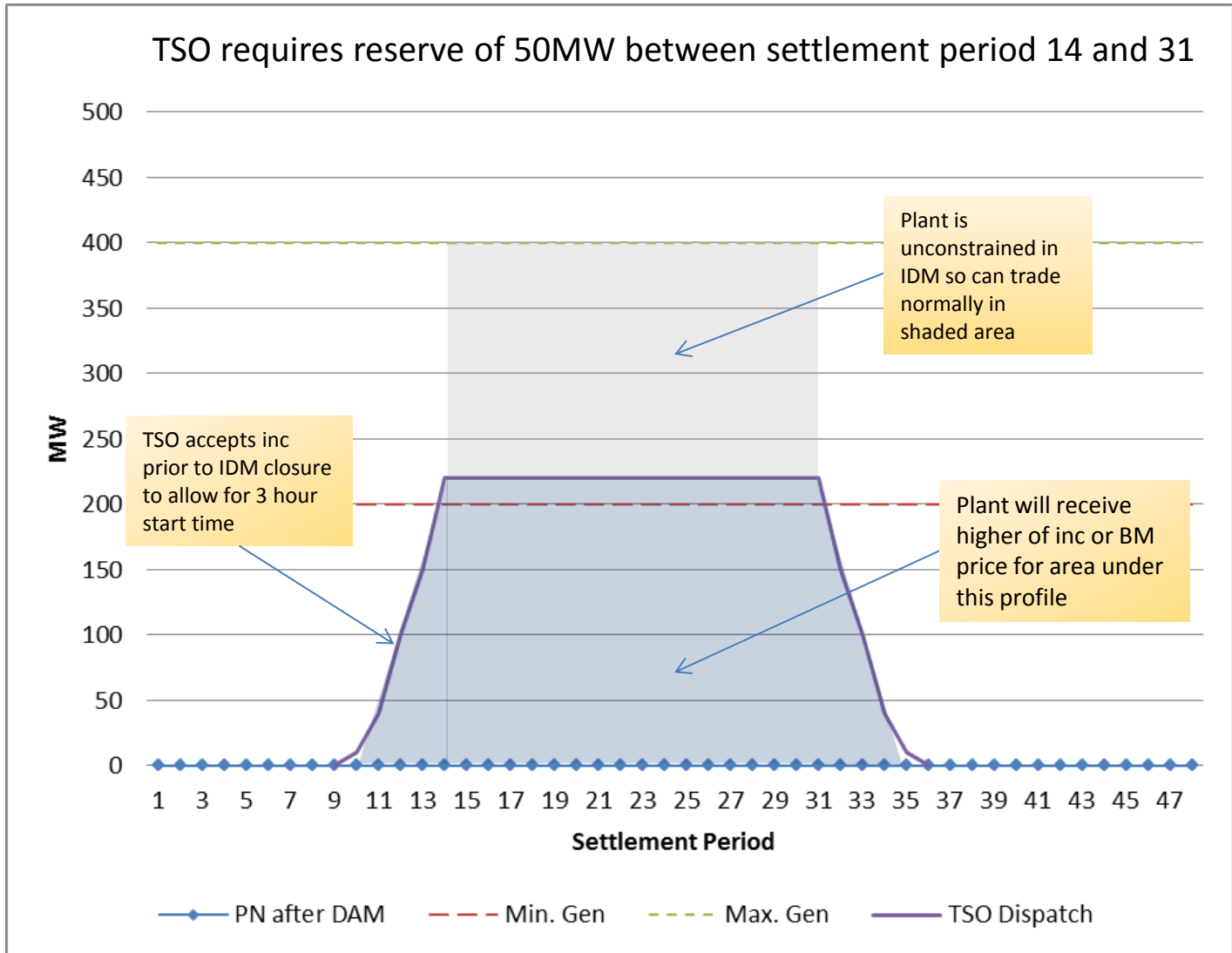
Provision of Reserve

- Based on the inc/dec acceptance from the TSO, the plant is now carrying 'headroom' that can be called during real time operation.
- The plant will receive reserve payments for carrying this reserve during the period required as per existing Ancillary Services arrangements / new System Services arrangements
- The plant can trade normally in the IDM (unconstrained) and its FPN is netted against the inc/dec acceptance
- Consideration needs to be given to the inc/dec price where the plant has sold energy required for reserve.

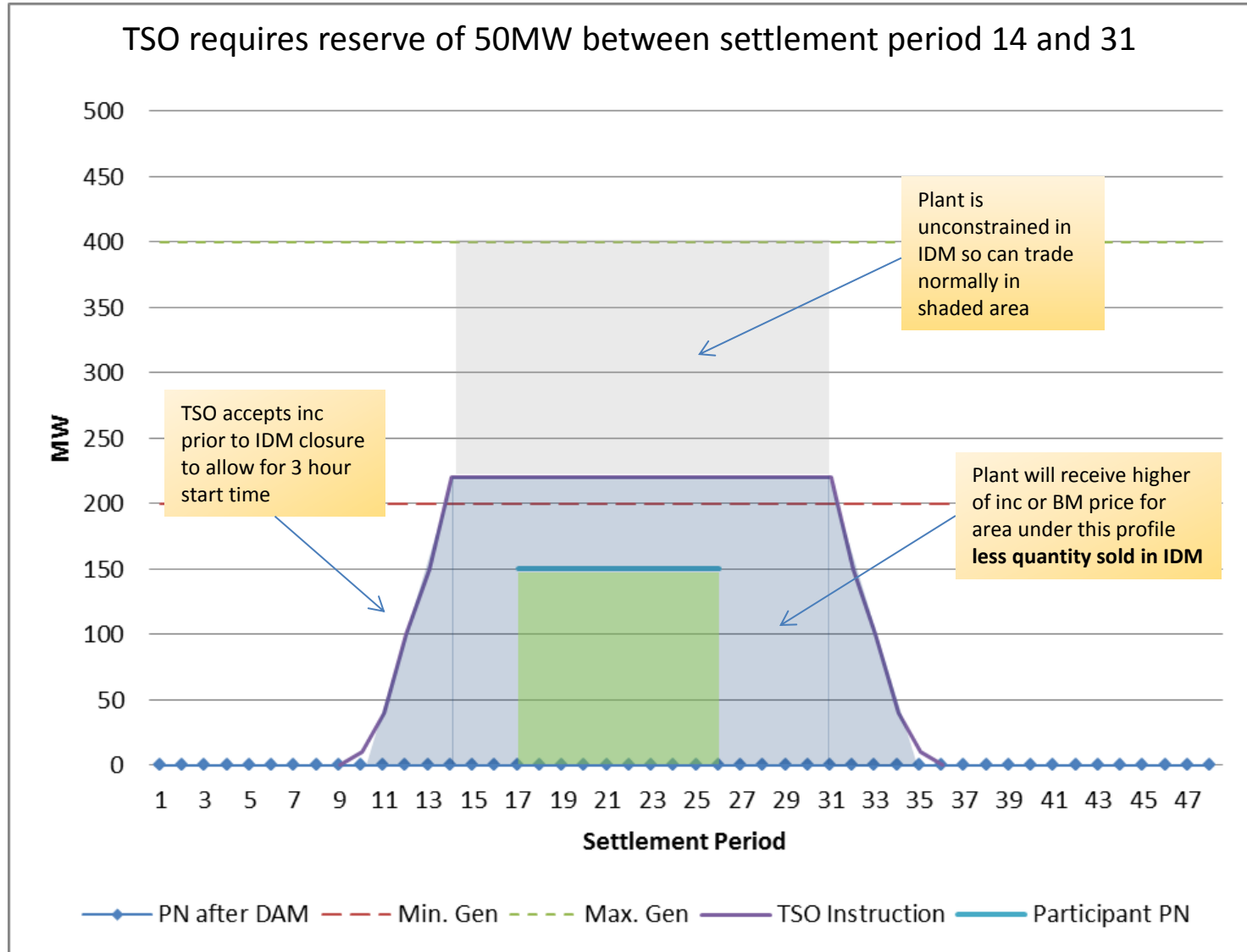
Activation of Reserve

- The plant will submit its final PN (FPN) at 1 hour before real time with associated incs/decs.
- Reserves can be activated automatically or as instructed by the TSO during real time operation as needed through acceptance of either the final inc or dec

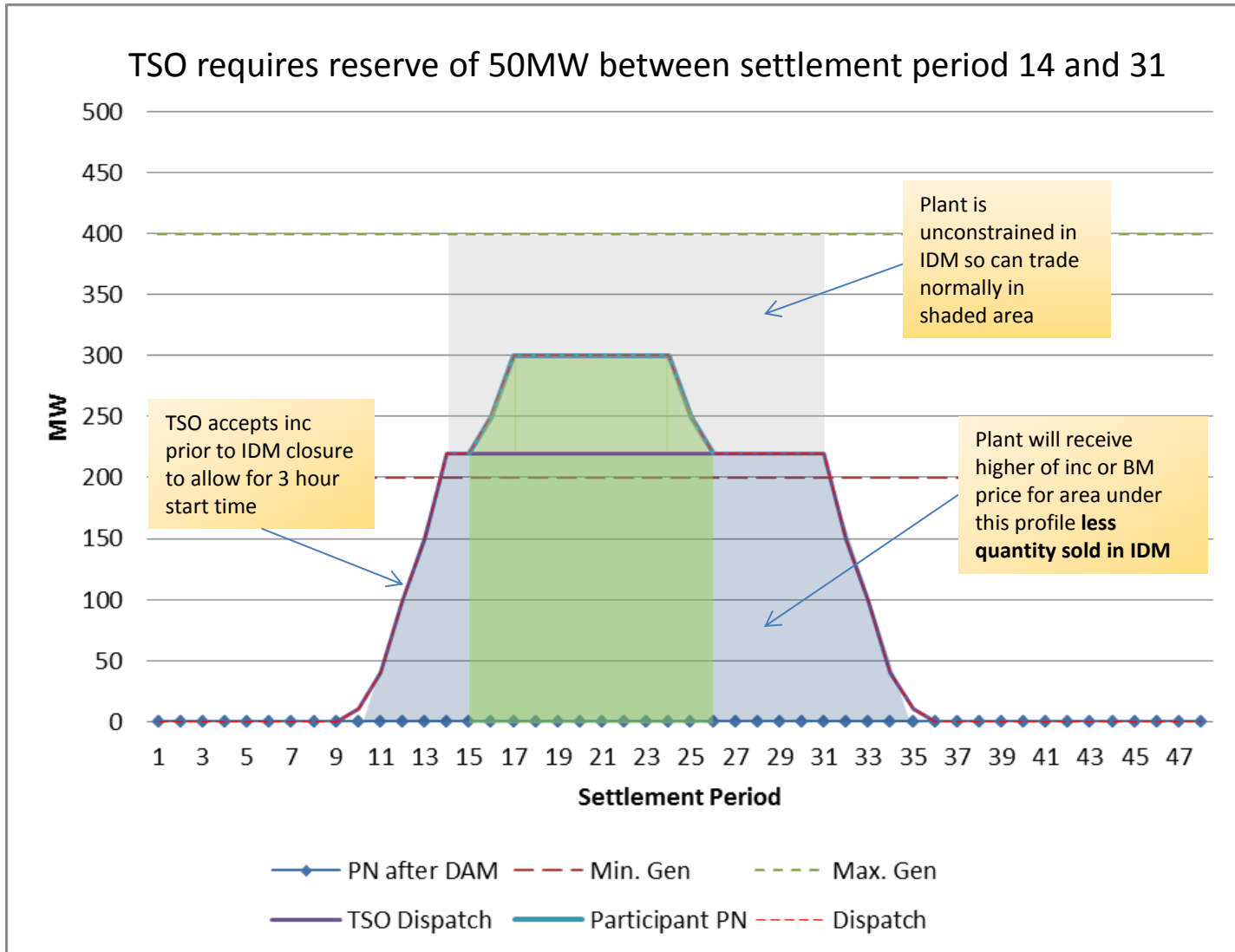
Example 1 - Unit with No DAM/IDM Position



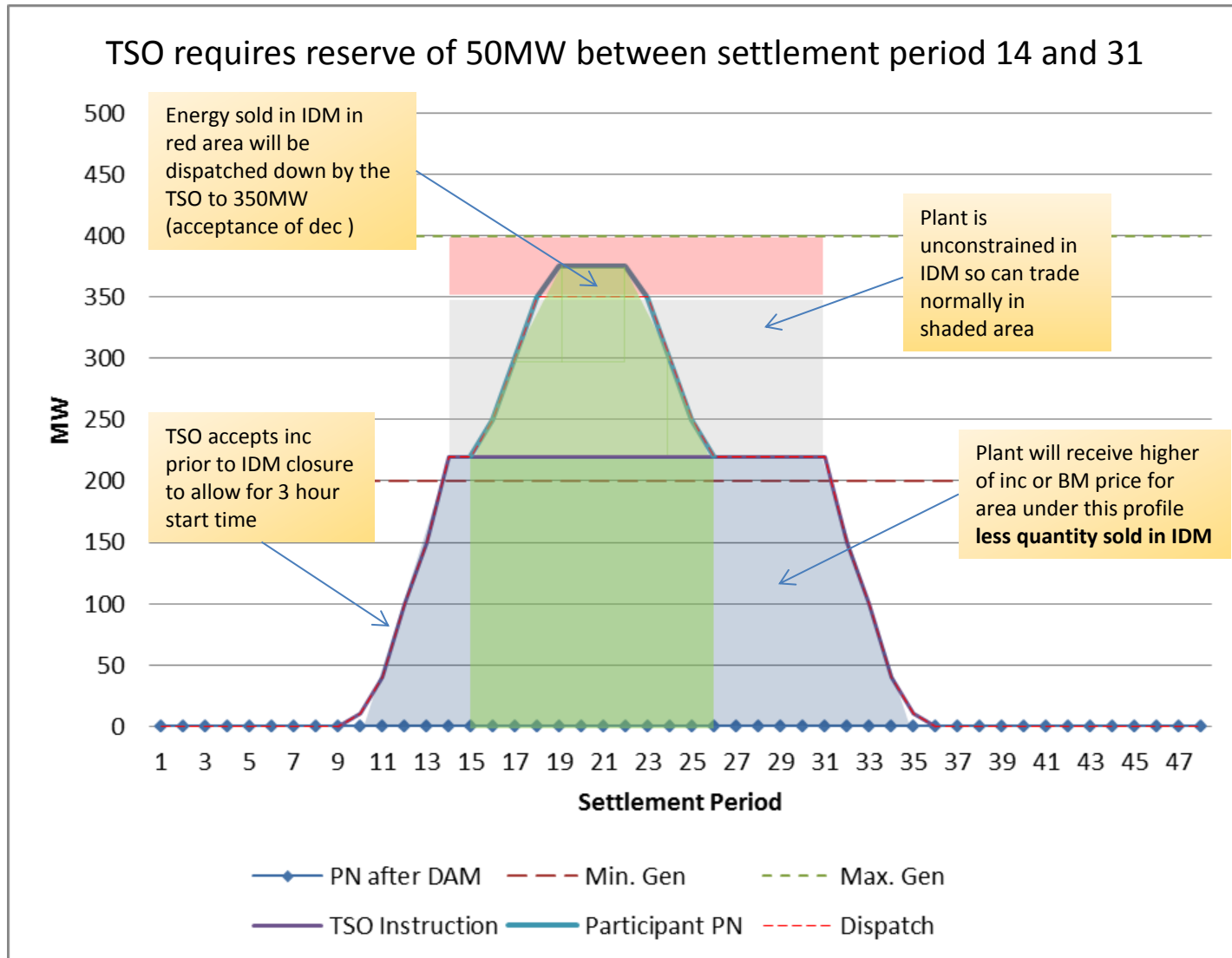
Example 2 – IDM Trading Only (No DAM Position)



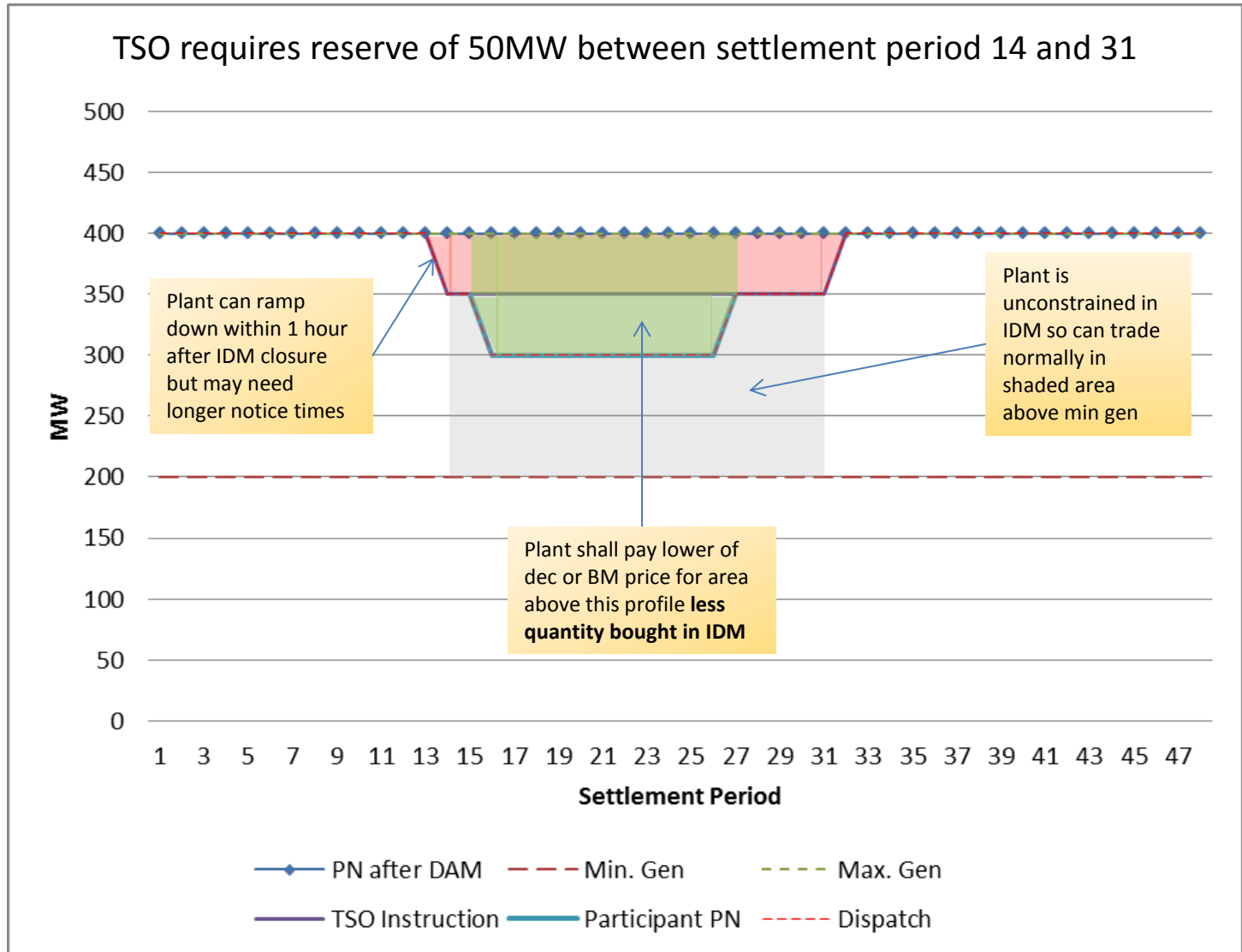
Example 3 – IDM Trading Only (No DAM Position)



Example 4 – IDM Trading Only (No DAM Position)



Example 5 – Unit with DAM Position



Discussion

