



MOD_04_21 Balancing Market Modification Proposal

Expansion of the System Service Flag to include Cross-Zonal Actions
for System Security Reasons

17 June 2021 update

Update

- At the last Modification Committee it was agreed that this mod be deferred to allow a discussion between EP Kilroot and the RA's to discuss the responses given by the RAs the day before the last meeting.
- This meeting took place on the 14th June.
- It was agreed the modification would need to be amended and that a short update should be provided at the Modification Committee meeting on the 17th June.
- The objective is to provide greater clarity on the basis of the proposal to enable members to make a more informed decision

Overview

Background

- In SEM-15-103, it is clear that the RA's sought that those units which were providing replacement reserve during an event should have this reserve contribute to their obligation.
- This was outlined in a Market Rules presentation (by the MRG team) in December 2016 which described this issue from the detailed design as follows:
 - **Problem trying to resolve:**
 - The detailed design allows for any capacity utilised for DS3 System Services such as capacity providing reserve to count towards obligations;
 - Units which are desynchronised and providing replacement reserves, who would not normally clear in the market and who may not be able to clear in the market if they tried without creating unintended outcomes;

The solution that the Market Rules Team proposed, and which has been implemented does not solve the problem as described. However, with a small change we believe that mod_04_21 can correct this.

Flexible Peaking Generators

- **Flexible peaking generators meet all of the criteria relating to the problem the mkt design was trying to solve.**
 - Flexible peaking plant always provide DS3 System Services
 - they provide replacement reserve, this is enshrined in the TSOs Operational Constraints (see slide)
 - For Ireland, the combined output of these units <698MWs, 325MWs are required for replacement reserve
 - For Northern Ireland, the combined output of these units <272MWs, 125MWs are required for replacement reserve
 - The Resources listed as units providing Replacement Reserve (S_REP_ROI, S_MWMAX_ROI_GT, S_TEP_NI, S_MWMAX_NI_GT) are within this classification since these units are flexible peaking plants.
 - In addition, these units do not normally clear in the market.
 - In the Market Rules Working Group Comments and Feedback circulated 20170111 No 894 (ESB) identified that there are units that have the ability to be dispatched on to provide reserve after Gate Closure but may not be dispatched by the TSOs in a scarcity event due to an operational constraint (e.g. the combined OCGT output limitation for replacement reserve). As such there is no explicit instruction from the TSO to the unit. Consequently, as per the current algebra the unit is exposed to the non-performance charge even though it is being held/utilised for reserve.

TSOs Operational Constraints

3.5.3 Active Ireland Constraints

- [A] Scenario A: In this scenario if PBA or PBB are operating in combined cycle mode they will be considered as constraint resources
- [B] Scenario B: In this scenario if PBA or PBB are configured to synchronise in 10 minutes they will be considered as constraint resources

Name	TCG Type	Limit Type	Limit	Resources	Description
System Stability (S_NBMIN_ROImin)	NB	N>=	5 Units	AD2, DB1, G14, HNC, HN2, MP1, MP2, MP3, PBA [A], PBB [A], TB3, TB4, TYC, WG1	There must be at least 5 machines on-load at all times in Ireland. Required for dynamic stability.
Replacement Reserve (S_REP_ROI) (S_MWMAX_ROI_GT)	MW	X<=	698 MW [B]	AT1, AT2, AT4, ED3, ED5, RP1, RP2, TP1, TP3, PBA [B], PBB [B]	Combined MW output of OCGTs must be less than 698 MW (out of a total of 1023 MW) in Ireland at all times. 325 MW required for replacement reserve. The limit is subject to change based on the availability of the units and transmission constraints that may limit their output.
					[A] See Scenario A [B] See Scenario B

3.5.2 Active Northern Ireland Constraints

Name	TCG Type	Limit Type	Limit	Resources	Description
System Stability (S_NBMIN_MINNIU)	NB	N>=	3 Units at all times	B10, B31, B32, C30, K1, K2	There must be at least 3 machines on-load at all times in Northern Ireland. Required for dynamic stability.
System Stability (S_NBMIN_MINNI3)	NB	N>=	1 Unit at all times	C30, K1, K2	There must be a least 1 machine on-load at all times in Northern Ireland. Required for dynamic stability.
Replacement Reserve (S_REP_NI) (S_MWMAX_NI_GT)	MW	X<=	272 MW	BGT1, BGT2, CGA, CGT8, EMPOWER, IPOW, KGT1, KGT2, KGT3, KGT4	Combined MW output of OCGTs and AGUs must be less than 272 MW (out of a total of 397 MW) in Northern Ireland at all times. 125 MW required for replacement reserve. The limit is subject to change based on the availability of the units and transmission constraints that may limit their output.

'Extracts from TSOs May 2021 Operational Constraints Update'

Replacement Reserve

Current Market Design

- Current design already applies the FSS flag where the TSO is holding back capacity for reserve. The solution was to ensure that if a scarcity event is called but the plant wasn't called but has a 'reserve' flag, it would be deemed to have delivered on its RO obligation.

Replacement Reserve

- The management of the broader reserves available to the TSOs lead to actions were although the replacement reserve is maintained in the flexible peaking units they are rarely FSS flagged.
- The objective of this mod is to enable the broader identification of these units in line with the TSOs definition

Action needed

- The identification of the potential unequitable treatment of peaking plants as capacity providers in circumstances when they are not dispatched was raised during the establishment of the market rules (Market Rules Working Group Comments and Feedback circulated 20170111 - No. 855 (BNM)). It highlighted that the capacity revenue stream is the main income for this type of unit. If the frequency of unmanageable RODPs increases it will lead to the erosion of this capacity revenue and could undermine their economic viability.
- The solution given is that the TSO issues a 'reserve' flag to the unit in EDIL where the TSO is holding back plant for reserve. The flag would be issued after Gate Closure so there shouldn't be any risk of the generator abusing its constrained position in the ex-ante markets and the trading in the opposite direction rules would prevent this anyway.

12th Jan 2021 example

Cross Zonal Action

- the BM price was €1,474.23 at 17:00 to 17:30 and €1,720.50 from 17:30 to 18:30 for 346MWh
- The price was set by the Cross Zonal Action taken for System Security in NI

Available Capacity

- The outturn shows that was a significant amount of available dispatchable capacity during these periods. Whilst the requirement to take the action is not being questioned, it is clear from the table below that this action left a considerable volume of reserves available to the TSO. Particularly the flexible peaking generators group had 73% of its available capacity not dispatched, 75% in NI.
- Would this be deemed a scarcity event? Even within NI?
- There was a limited amount of peaking units flagged as being held back for reserve during this period, yet without the cross zonal action it would have been likely that the available capacity for replacement reserve in NI would have come under stress

RODP Event Example		All-Island Mkt		Gas Generators		Coal & Oil Generators		Flexible Peaking Generators		Flexible Peakers NI only	
		Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
		Capacity not	Dispatchable	Capacity not	Dispatchable	Capacity not	Dispatchable	Capacity not	Dispatchable	Capacity not	Capacity not
		dispatched	Capacity	dispatched	Capacity	dispatched	Capacity	dispatched	Capacity	dispatched	dispatched
12th Jan		MWs	MWs	MWs	MWs	MWs	MWs	MWs	MWs	MWs	MWs
Start Period	End Period										
12/01/2021 17:00	12/01/2021 17:30	1448	3933	309	1473	173	952	678	337	253	
12/01/2021 17:30	12/01/2021 18:00	1383	3933	276	1420	150	956	661	341	238	
12/01/2021 18:00	12/01/2021 18:30	1718	3933	391	1419	243	974	765	359	284	
	Average MWs	1517	3933	325	1437	189	961	701	346	258	
	Underutilised %			8%		13%		73%		75%	