



**HABITAT**  
ENERGY

**GC0166 Action 15**  
**Incorporating DFR &**  
**Redeclaration of MDO/B**  
**within Dispatch timescales**  
**Subgroup**

04th June 2024





# Technical vs Commercial nature of MDO/B for limited duration assets

Mindful of OFGEM's Open Letter on treatment of Dynamic Parameters

Posit the following should be accepted as legitimate reasons for modifying/netting from a purely technical SoE parameter, distinguishing at all times between NGESO Dispatch Timescale, & Scheduling Timescale:

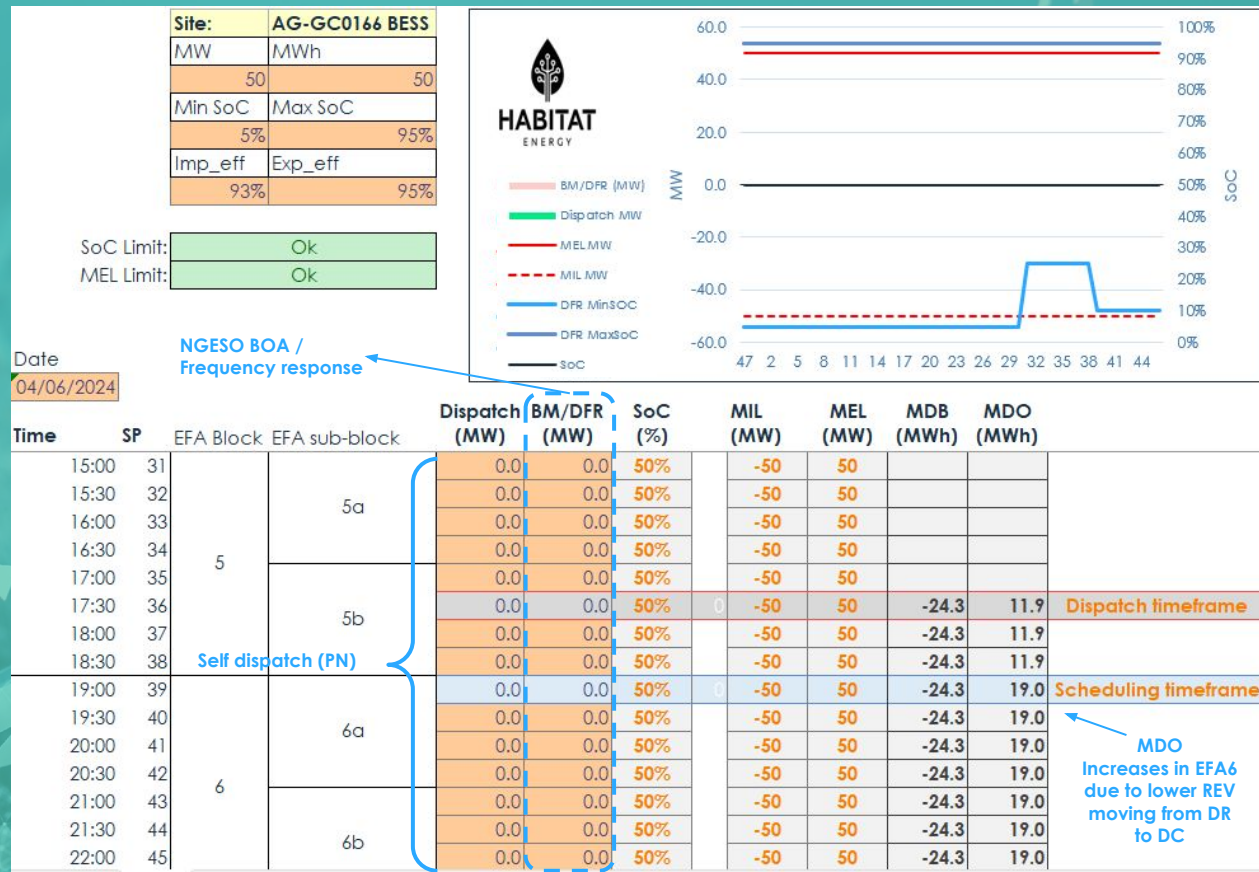
- Technical fault or outage impacting available energy
- Physical Notification as best view of intended dispatch profile [particularly on becoming 'Final' at Gate Closure if deliverability is to be maintained]
- Contracted ESO or DNO ancillary service energy which must be reserved under Service Terms (e.g. DFR)
- Response energy as part of ancillary service provision\*

**\* Not conflating the Reserved Energy Volume (REV) required under the relevant contract with the updating of MDO/B headroom and footroom over and above the REV which is made available for BOAs, and should be viewed as ensuring a minimum level of accuracy of SoE desirable within BM systems. It is our recommendation that providers are not encouraged to model expected DFR throughput as part of calculating MDO/B, but instead net the Contracted energy requirement & periodically update based on actual response delivery at a reasonable cadence or following an agreed trigger threshold.**

# 10MW DRL in current EFA & 10MW DCL in upcoming EFA [i]



- Time now 17:30 [SP36]
- 10MW DRL contract being delivered in EFA5
- 10MW DCL Contract starting 19:00/EFA6
- No planned PN
- Next gate closure: 19:00
- prior submitted MDO 11.9MWh within NGESO Dispatch timeframe (gate closed periods)
- Increasing to 19MWh within scheduling timeframe as smaller Reserved Energy Volume (REV) from DC contract leaves more headroom





# 10MW DRL in current EFA & 10MW DCL in upcoming EFA [ii]



- Time now 17:55 [SP36]
- Provision of 2MWh of response in DRL so far in SP36
- redeclare MDO/B through to 19:00 via EDL (NGESO Dispatch timeframe / gate closed periods)
- redeclare MDO/B from 19:00 via EDT (Scheduling timeframe)

Site:	AG-GC0166 BESS
MW	MWh
50	50
Min SoC	Max SoC
5%	95%
Imp_eff	Exp_eff
93%	95%

SoC Limit:	Ok
MEL Limit:	Ok

Date  
04/06/2024



Time	SP	EFA Block	EFA sub-block	Dispatch (MW)	BM/DFR (MW)	SoC (%)	MIL (MW)	MEL (MW)	MDB (MWh)	MDO (MWh)	
15:00	31	5	5a	0.0	0.0	50%	-50	50			Provision of response warrants reded of MDO/B for accuracy*
15:30	32			0.0	0.0	50%	-50	50			
16:00	33			0.0	0.0	50%	-50	50			
16:30	34		5b	0.0	0.0	50%	-50	50			
17:00	35			0.0	0.0	50%	-50	50			
17:30	36			0.0	4.0	50%	-50	50	-24.4	11.9	
18:00	37	6	6a	0.0	0.0	46%	-50	50	-26.5	10.0	Dispatch timeframe
18:30	38			0.0	0.0	46%	-50	50	-26.5	10.0	
19:00	39			0.0	0.0	46%	-50	50	-26.5	17.1	
19:30	40		6b	0.0	0.0	46%	-50	50	-26.5	17.1	
20:00	41			0.0	0.0	46%	-50	50	-26.5	17.1	
20:30	42			0.0	0.0	46%	-50	50	-26.5	17.1	
21:00	43			0.0	0.0	46%	-50	50	-26.5	17.1	
21:30	44			0.0	0.0	46%	-50	50	-26.5	17.1	
22:00	45			0.0	0.0	46%	-50	50	-26.5	17.1	

\* Balances accuracy of SoE within BM systems with data load and a “desirable” number of redeclarations. Should there be an agreed percentage threshold from which a provider's new MDO/B differs from their last submitted value which triggers a redeclaration?

MDO Increases in EFA6 due to lower REV moving from DR to DC



# Appendix

Other example scenarios

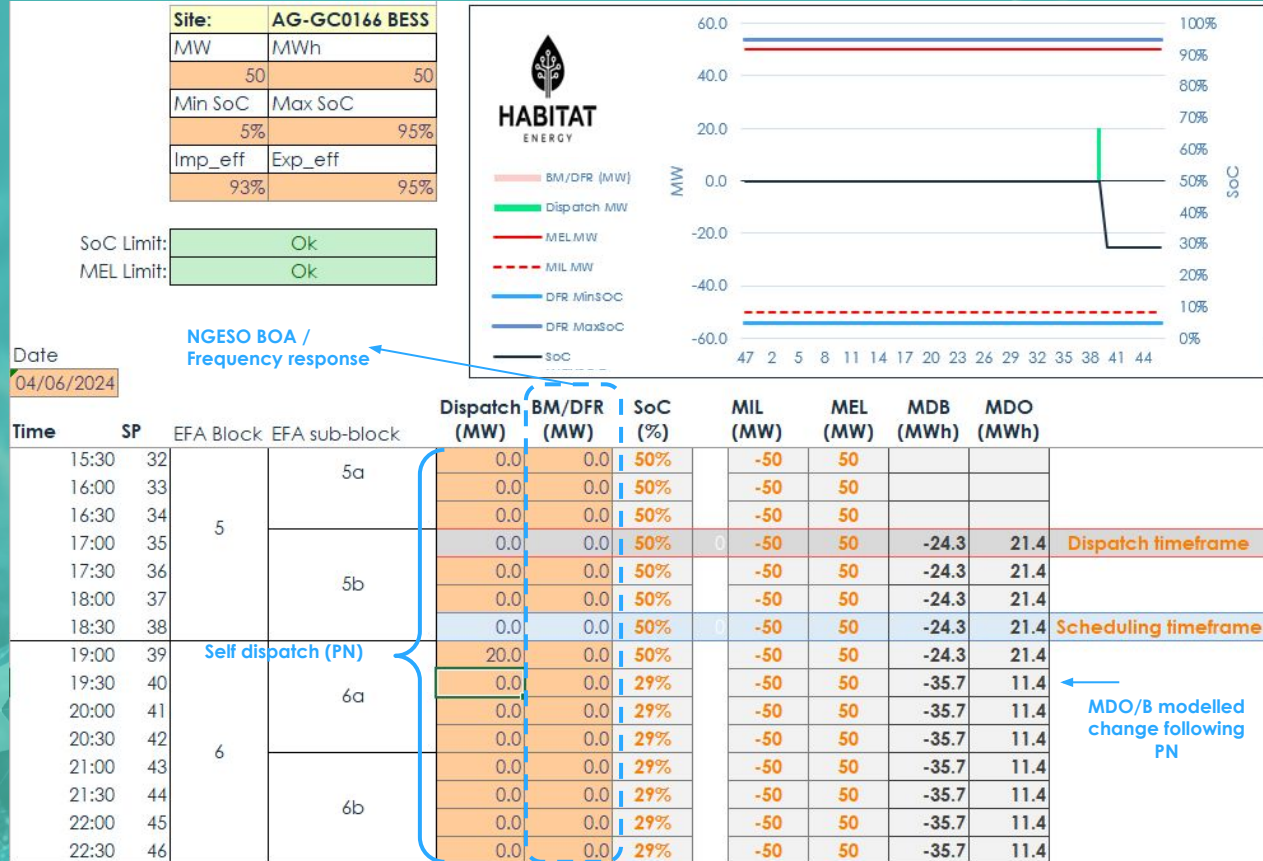
[A] & [B] - instances whereby PN energy should be netted from MDO/B with illustrative BOA

[C] - instances where there is an upcoming DFR contract with illustrative BOA

# A. No DFR, PN in future period [i]



- Time now: 17:00 [SP35]
- No DFR Contracts
- 20MW export PN planned for 19:00 [SP39]
- Next Gate Closure: 18:30 [SP38]
- Declared MDO 21.4MWh within dispatch [Gate Closed] window
- Dropping to 11.4MWh following the planned PN





# A. No DFR, PN in future period [ii]



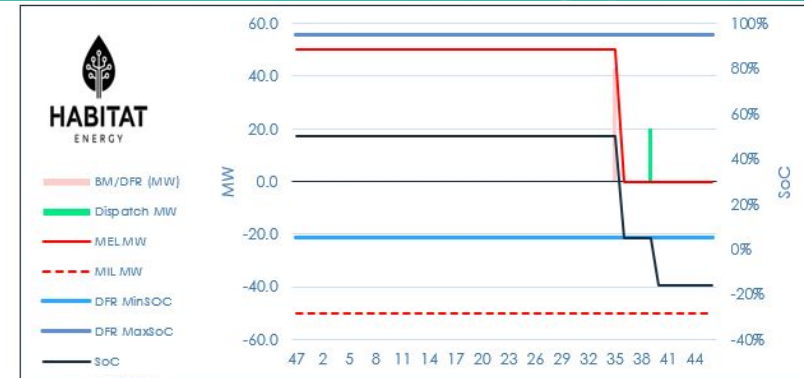
- NGESO issues BOA in SP35 using all available MDO (21.4 MWh)
- taking asset to Min SoC
- Result is that planned PN at 19:00 [SP39] is no longer deliverable
- MDO redeclared post BOA to zero, & update to MDB within dispatch timescale, as well as forward in scheduling timescale\*
- Occurs within scheduling timeframes so PN is removed and exposure traded

Site:	AG-GC0166 BESS
MW	MWh
50	50
Min SoC	Max SoC
5%	95%
Imp_eff	Exp_eff
93%	95%

SoC Limit:	Breach
MEL Limit:	Breach

Date  
04/06/2024



Time	SP	EFA Block	EFA sub-block	Dispatch (MW)	BM/DFR (MW)	SoC (%)	MIL (MW)	MEL (MW)	MDB (MWh)	MDO (MWh)	
15:30	32	5	5a	0.0	0.0	50%	-50	50			
16:00	33			0.0	0.0	50%	-50	50			
16:30	34			0.0	0.0	50%	-50	50			
17:00	35		5b	0.0	42.8	50%	0	50	-24.3	21.4	Dispatch timeframe
17:30	36			0.0	0.0	5%	-50	0	-48.6	0.0	MDO/B redeclared
18:00	37			0.0	0.0	5%	-50	0	-48.6	0.0	
18:30	38			0.0	0.0	5%	0	0	-48.6	0.0	Scheduling timeframe
19:00	39	6	6a	20.0	0.0	5%	-50	0	-48.6	0.0	Planned PN no longer deliverable
19:30	40			0.0	0.0	-16%	-50	0	-60.0	-10.0	
20:00	41			0.0	0.0	-16%	-50	0	-60.0	-10.0	
20:30	42			0.0	0.0	-16%	-50	0	-60.0	-10.0	
21:00	43		6b	0.0	0.0	-16%	-50	0	-60.0	-10.0	
21:30	44			0.0	0.0	-16%	-50	0	-60.0	-10.0	
22:00	45			0.0	0.0	-16%	-50	0	-60.0	-10.0	
22:30	46			0.0	0.0	-16%	-50	0	-60.0	-10.0	

\* MDO & SoC unlikely to go negative. Illustrative to highlight future breach

# B. No DFR, PN in next period to become Gate Closed [i]

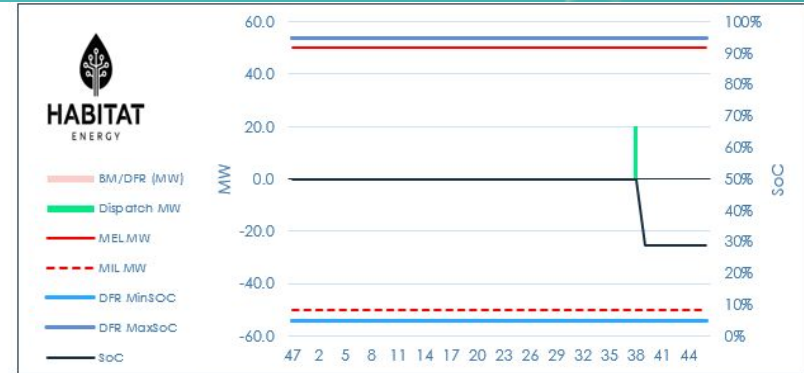


- Time now 17:25 [SP35]
- No DFR Contracts
- 20MW export PN planned for **18:30 [SP38]**
- Next gate closure: 18:30 [in 5min]
- prior submitted MDO 21.4MWh
- Alongside FPN, redeclare MDO to 11.4MWh within NGESO Dispatch timeframe (gate closed periods)
- MDB redeclared in scheduling window
- Safeguards deliverability of FPN showing NGESO available MWh headroom between Time\_Now and 18:30

Site:	AG-GC0166 BESS	
MW	MWh	
50	50	
Min SoC	Max SoC	
5%	95%	
Imp_eff	Exp_eff	
93%	95%	

SoC Limit:	Ok
MEL Limit:	Ok

Date  
04/06/2024



Time	SP	EFA Block	EFA sub-block	Dispatch (MW)	BM/DFR (MW)	SoC (%)	MIL (MW)	MEL (MW)	MDB (MWh)	MDO (MWh)	
15:30	32	5	5a	0.0	0.0	50%	-50	50			
16:00	33			0.0	0.0	50%	-50	50			
16:30	34			0.0	0.0	50%	-50	50			
17:00	35		5b	0.0	0.0	50%	-50	50	-24.3	11.4	Dispatch timeframe
17:30	36			0.0	0.0	50%	-50	50	-24.3		MDO redeclared
18:00	37			0.0	0.0	50%	-50	50	-24.3		
18:30	38			20.0	0.0	50%	-50	50	-24.3		Scheduling timeframe
19:00	39	6	6a	0.0	0.0	29%	-50	50	-35.7	11.4	
19:30	40			0.0	0.0	29%	-50	50	-35.7	11.4	
20:00	41			0.0	0.0	29%	-50	50	-35.7	11.4	
20:30	42			0.0	0.0	29%	-50	50	-35.7	11.4	
21:00	43		6b	0.0	0.0	29%	-50	50	-35.7	11.4	
21:30	44			0.0	0.0	29%	-50	50	-35.7	11.4	
22:00	45			0.0	0.0	29%	-50	50	-35.7	11.4	
22:30	46			0.0	0.0	29%	-50	50	-35.7	11.4	



# B. No DFR, PN in next period to become Gate Closed [ii]



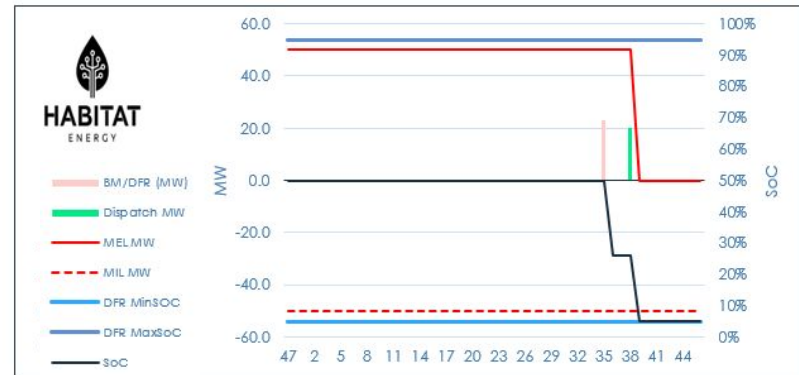
- NGESO issues BOA using all available MDO (11.4 MWh)
- redeclare MDO to 0MWh & update MDB within NGESO Dispatch timeframe (gate closed periods)
- MDO now zero but FPN energy has already been netted so it remains deliverable

Site:	AG-GC0166 BESS	
MW	MWh	
50	50	
Min SoC	Max SoC	
5%	95%	
Imp_eff	Exp_eff	
93%	95%	

SoC Limit:	Ok
MEL Limit:	Ok

Date

04/06/2024



Time	SP	EFA Block	EFA sub-block	Dispatch (MW)	BM/DFR (MW)	SoC (%)	MIL (MW)	MEL (MW)	MDB (MWh)	MDO (MWh)	
15:30	32	5	5a	0.0	0.0	50%	-50	50			
16:00	33			0.0	0.0	50%	-50	50			
16:30	34			0.0	0.0	50%	-50	50			
17:00	35		5b	0.0	22.8	50%	0	-50	50	-24.3	11.4
17:30	36			0.0	0.0	26%	-50	50	-37.3		
18:00	37			0.0	0.0	26%	-50	50	-37.3		
18:30	38			20.0	0.0	26%	0	-50	50	-37.3	0
19:00	39	6	6a	0.0	0.0	5%	-50	0	-48.6	0.0	
19:30	40			0.0	0.0	5%	-50	0	-48.6	0.0	
20:00	41			0.0	0.0	5%	-50	0	-48.6	0.0	
20:30	42			0.0	0.0	5%	-50	0	-48.6	0.0	
21:00	43			0.0	0.0	5%	-50	0	-48.6	0.0	
21:30	44		6b	0.0	0.0	5%	-50	0	-48.6	0.0	
22:00	45			0.0	0.0	5%	-50	0	-48.6	0.0	
22:30	46			0.0	0.0	5%	-50	0	-48.6	0.0	

Dispatch timeframe  
MDO/B redeclared  
Scheduling timeframe



# C. 10MW DCL in upcoming EFA [i]

- Time now 17:00 [SP35]
- 10MW DCL Contract starting 19:00/EFA6
- Next gate closure: 18:30
- prior submitted MDO 21.4MWh
- NGESO issues BOA using all available MDO (21.4 MWh) in SP35
- redeclare MDO to 0MWh & update MDB within NGESO Dispatch timeframe (gate closed periods)
- PN charge / Rebaseline in 18:30 [SP38] to regain SoE compliance ahead of EFA6 DCL contract

Site:	AG-GC0166 BESS
MW	MWh
50	50
Min SoC	Max SoC
5%	95%
Imp_eff	Exp_eff
93%	95%

SoC Limit:	Ok
MEL Limit:	Ok

Date  
04/06/2024



Time	SP	EFA Block	EFA sub-block	Dispatch (MW)	BM/DFR (MW)	SoC (%)	MIL (MW)	MEL (MW)	MDB (MWh)	MDO (MWh)	
16:30	34	5		0.0	0.0	50%	-50	50			
17:00	35	5		0.0	42.8	50%	-50	50	-24.3		
17:30	36		5b	0.0	0.0	5%	-50	0	-48.6		
18:00	37		5b	0.0	0.0	5%	-50	0	-48.6		
18:30	38		5b	-10.0	0.0	5%	-50	0	-48.6		
19:00	39		6a	0.0	0.0	14%	-50	50	-43.8	1.9	
19:30	40		6a	0.0	0.0	14%	-50	50	-43.8	1.9	
20:00	41		6a	0.0	0.0	14%	-50	50	-43.8	1.9	
20:30	42		6a	0.0	0.0	14%	-50	50	-43.8	1.9	
21:00	43	6	6a	0.0	0.0	14%	-50	50	-43.8	1.9	
21:30	44		6b	0.0	0.0	14%	-50	50	-43.8	1.9	
22:00	45		6b	0.0	0.0	14%	-50	50	-43.8	1.9	
22:30	46		6b	0.0	0.0	14%	-50	50	-43.8	1.9	

Dispatch timeframe  
MDO/B redeclared

Scheduling timeframe

Second MDO/B Redeclaration on submission of PN for SP38

# C. 10MW DCL in upcoming EFA [ii]



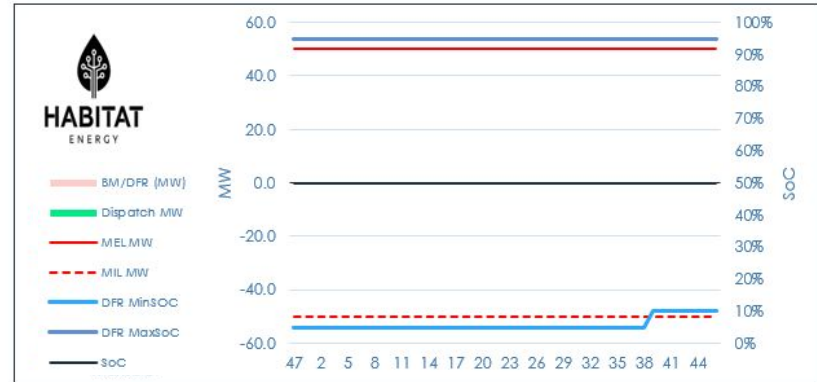
- Time now 17:25 [SP35]
- No BOA received
- Ahead of gate closure\*  
redeclare MDO to 19MWh for remainder of SP35 as well as subsequent periods in EFA6
- as on SP38 becoming gate closed there is no longer any opportunity for the provider to manage SoC to enter the DC contract with the required service energy

\* At the risk appetite of the provider to determine how much time to leave to re-baseline/PN before gate closure. Requires quick turnaround following acceptance & assessment of BOA energy, and MWh needed to recover, allowing time for EDT submission

Site:	AG-GC0166 BESS
MW	MWh
50	50
Min SoC	Max SoC
5%	95%
Imp_eff	Exp_eff
93%	95%

SoC Limit:	Ok
MEL Limit:	Ok

Date  
04/06/2024



Time	SP	EFA Block	EFA sub-block	Dispatch (MW)	BM/DFR (MW)	SoC (%)	MIL (MW)	MEL (MW)	MDB (MWh)	MDO (MWh)	
16:30	34	5		0.0	0.0	50%	-50	50			
17:00	35	5		0.0	0.0	50%	-50	50	-24.3	21.4	Dispatch timeframe
17:30	36	5	5b	0.0	0.0	50%	-50	50	-24.3		
18:00	37	5	5b	0.0	0.0	50%	-50	50	-24.3		
18:30	38	5	5b	0.0	0.0	50%	-50	50	-24.3	19	MDO redeclared
19:00	39	6	6a	0.0	0.0	50%	-50	50	-24.3	19.0	Scheduling timeframe
19:30	40	6	6a	0.0	0.0	50%	-50	50	-24.3	19.0	
20:00	41	6	6a	0.0	0.0	50%	-50	50	-24.3	19.0	
20:30	42	6	6a	0.0	0.0	50%	-50	50	-24.3	19.0	
21:00	43	6	6b	0.0	0.0	50%	-50	50	-24.3	19.0	
21:30	44	6	6b	0.0	0.0	50%	-50	50	-24.3	19.0	
22:00	45	6	6b	0.0	0.0	50%	-50	50	-24.3	19.0	
22:30	46	6	6b	0.0	0.0	50%	-50	50	-24.3	19.0	