

# **The Single Electricity Market (SEM)**

## **Appendix P**

### **Draft Text**

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## **APPENDIX P: PROFILING CALCULATIONS**

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- P.1 This Appendix P of the Code contains a description of the Instruction Profiling operations used to determine the values for each Trading Period of the Dispatch Quantity for each Generator Unit that is included within Ex-Post Indicative MSP Software Runs and Ex-Post Initial MSP Software Runs.
- P.2 Instruction Profiling is performed after 14:00 on the day after the start of the relevant Trading Day for the Ex-Post Indicative MSP Software Run.
- P.3 Instruction Profiling is performed after 14:00 four days after the start of the relevant Trading Day for the Ex-Post Initial MSP Software Run that is used in Initial Settlement.
- P.4 Instruction Profiling is performed prior to any additional Ex-Post Initial MSP Software Runs performed by the Market Operator as required for Settlement purposes in accordance with the Code.
- P.5 Instruction Profiling will not be performed for Autonomous Generator Units, Interconnector Units or Interconnector Residual Capacity Units, and the values of Dispatch Quantity for these Generator Units are calculated as outlined within Section 5 of the Code.
- P.6 Intentionally blank.

### **CAPTURE INPUT DATA**

- P.7 The Registration Data and Technical Offer Data for the Generator Units used to create the Instruction Profile is
1. Registered Capacity / Maximum Generation
  2. Hot Cooling Boundary
  3. Warm Cooling Boundary
  4. Block Load Flag
  5. Block Load Cold, Block Load Warm and Block Load Hot
  6. Loading Rate Hot 1, 2 & 3
  7. Loading Rate Warm 1, 2 & 3
  8. Loading Rate Cold 1, 2 & 3
  9. Load Up Break Point Hot 1 & 2
  10. Load Up Break Point Warm 1 & 2
  11. Load Up Break Point Cold 1 & 2
  12. Soak Time Hot 1 & 2
  13. Soak Time Warm 1 & 2
  14. Soak Time Cold 1 & 2
  15. Soak Time Trigger Point Hot 1 & 2
  16. Soak Time Trigger Point Warm 1 & 2

17. Soak Time Trigger Point Cold 1 & 2
  18. Ramp Up Rate 1, 2, 3, 4 & 5
  19. Ramp Up Break Point 1, 2, 3 & 4
  20. Dwell Time 1, 2 & 3
  21. Dwell Time Trigger Point 1, 2 & 3
  22. Ramp Down Rate 1, 2, 3, 4 & 5
  23. Ramp Down Break Point 1, 2, 3 & 4
  24. Deloading Rate 1 & 2
  25. Deload Break Point
  26. Maximum Ramp Up Rate (applicable to Demand Side Units)
  27. Maximum Ramp Down Rate (applicable to Demand Side Units)
  28. Fuel Type
  29. Pumped Storage Flag
  30. Dispatchable Capacity (Maximum Generation applicable to Demand Side Units)
  31. Start of Restricted Range 1
  32. End of Restricted Range 1
  33. Start of Restricted Range 2
  34. End of Restricted Range 2
- P.8 Outturn Data for each Generator Unit for the Trading Day is supplied by the System Operator.
1. Outturn Minimum Stable Generation
  2. Outturn Minimum Output
  3. Outturn Availability
  4. Last Status Change Time
- P.9 For each Dispatch Instruction issued in the Trading Day the following information is supplied by the System Operator.
1. Instruction Issue Time
  2. Instruction Effective Time
  3. Target Instruction Level
  4. Instruction Code
  5. Instruction Combination Code
  6. Dispatch Ramp Up Rate
  7. Dispatch Ramp Down Rate
- P.10 The range of Instruction Codes and Instruction Combination Codes that are issued by the System Operator are listed in Table [1]

**Table [1] – Instruction Codes and Instruction Combination Codes obtained from the System Operator**

<b>Instruction Code</b>	<b>Instruction Combination Code</b>	<b>Description</b>
SYNC	n/a	Synchronise the Generator Unit at the specified Instruction Effective Time.
MWOF	n/a	Adjust the Generator Unit Output to the specified Target Instruction Level.
DESY	n/a	Desynchronise the Generator Unit at the specified Instruction Effective Time.
GOOP	PGEN	Instruct positive Output from a Pumped Storage Unit at the specified Instruction Effective Time.
GOOP	PUMP	Instruct negative Output from a Pumped Storage Unit at the specified Instruction Effective Time.
GOOP	SCT	Instruct Synchronisation and very low positive Output from a Pumped Storage Unit at the specified Instruction Effective Time.
GOOP	SCP	Instruct Synchronisation and 0MW Output from a Pumped Storage Unit at the specified Instruction Effective Time.
TRIP	n/a	Retrospectively issued Dispatch Instruction to indicate that a Generator Unit Desynchronised unexpectedly.
WIND	LOCL	Instruction for a Wind Power Unit to reduce Output due to a Local Network Constraint at the specified Instruction Effective Time.
WIND	LCLO	Instruction for Wind Power Unit to cease the reduction of Output due to a Local Network Constraint at the specified Instruction Effective Time.
WIND	CURL	Instruction for a Wind Power Unit to reduce Output due to an All-Island Curtailment at the specified Instruction Effective Time.
WIND	CRLO	Instruction for Wind Power Unit to cease the reduction of Output due to an All-Island Curtailment at the specified Instruction Effective Time.
MXON	n/a	Instruction to a Generator Unit to adjust its generated Output to the registered Short Term Maximisation Capability at the specified Instruction Effective Time.
MXOF	n/a	Instruction to de-activate a Maximisation Instruction at the specified Instruction Effective Time.
FAIL	n/a	Retrospectively issued Dispatch Instruction to indicate that a Generator Unit failed to Synchronise as instructed.

## **DISPATCH INSTRUCTION VALIDATION**

P.12 Dispatch Instructions for a Trading Day are sorted by Generator Unit, Instruction Effective Time and Instruction Issue Time.

- a. If multiple Dispatch Instructions with the same Instruction Effective Time but different Instruction Issue Times were issued for a Generator Unit, then the Dispatch Instruction with the latest Instruction Issue Time will be used. For Dispatch Instructions having the same Instruction Issue Time and Instruction

Effective Time, the Dispatch Instruction will be ordered based on the following sequence of Instruction Codes.

- i. TRIP
  - ii. MWOFF
  - iii. MXON
  - iv. SYNC
  - v. GOOP
  - vi. WIND
  - vii. MXOF
  - viii. DESY
- b. For Dispatch Instructions having a MWOFF Instruction Code and equal Instruction Effective Times, the Dispatch Instruction with the largest Target Instruction Level is used.
- c. For two Dispatch Instructions having the same Instruction Effective Time, where the first Dispatch Instruction is defined as Dispatch Instruction A and the second Dispatch Instruction is defined as Dispatch Instruction B, the resultant Dispatch Instruction, Instruction Code and Instruction Combination Code used is shown in the Table 2. For the avoidance of doubt MWOFF(x) is defined as Dispatch Instruction having an Instruction Code of MWOFF and a Target Instruction Level of x MW. SYNC(x) is defined as Dispatch Instruction having an Instruction Code of SYNC and a Target Instruction Level of x MW. DESY(x) is defined as Dispatch Instruction having an Instruction Code of DESY and a Target Instruction Level of x MW. PGEN(x) is defined as a Dispatch Instruction having an Instruction Code of GOOP, an Instruction Combination Code of PGEN and a Target Instruction Level of x MW.

**Table [2] – Validation Rules for two Dispatch Instructions having the same Effective Time**

<b>Instruction Code A</b>	<b>Instruction Combination Code A</b>	<b>Instruction Code B</b>	<b>Instruction Combination Code B</b>	<b>Resultant Instruction Code A</b>	<b>Resultant Instruction Combination Code</b>
MWOFF(x)	n/a	SYNC	n/a	SYNC (x)	n/a
SYNC	n/a	MWOFF(x)	n/a	SYNC (x)	n/a
MWOFF(x)	n/a	DESY	n/a	DESY (x)	n/a
DESY	n/a	MWOFF(x)	n/a	DESY (x)	n/a
MWOFF(x)	n/a	GOOP	PGEN	GOOP	PGEN (x)
GOOP	PGEN	MWOFF(x)	n/a	GOOP	PGEN (x)

P.13 The sorted Dispatch Instructions for each Generator Unit are validated using the rules in Tables [3-6]

**Table [3] – Validation Rules for Dispatch Instructions for non-Pumped Storage Units**

<b>Validation of Dispatch Instruction for Generator Units that are not Pumped Storage Units</b>		
<b>Preceding Instruction Code</b>	<b>Current Instruction Code</b>	<b>Action</b>
SYNC	SYNC	Ignore Dispatch Instruction
DESY	DESY	Ignore Dispatch Instruction
TRIP	TRIP	Ignore Dispatch Instruction
SYNC	FAIL	If Instruction Effective Time for Dispatch Instruction having FAIL Instruction Code is up to and including 1 hour after the Instruction Effective Time for a Dispatch Instruction having SYNC Instruction Code, the Dispatch Instruction having a SYNC Instruction Code is ignored. Dispatch Instructions having Instruction Effective Times between the Instruction Effective Times for the Dispatch Instructions having the Fail and SYNC Instruction Codes are ignored.
SYNC	FAIL	If Instruction Effective Time for Dispatch Instruction having FAIL Instruction Code is over 1 hour after the Instruction Effective Time for the Dispatch Instruction having SYNC Instruction Code, profile the Dispatch Instruction having SYNC Instruction Code as normal and discard the Dispatch Instruction having Instruction Code FAIL.
FAIL	SYNC	Ignore Dispatch Instructions having FAIL Instruction Code, if Dispatch Instruction is not matched with previous Dispatch Instruction having a SYNC Instruction Code. Profile Dispatch Instruction having SYNC Instruction Code as per normal.

**Table [4] – Validation Rules for Dispatch Instructions for Pumped Storage Units**

<b>Validation of Dispatch Instructions for Pumped Storage Units</b>		
<b>Preceding Instruction Code</b>	<b>Current Instruction Code</b>	<b>Action</b>
DESY	DESY	Ignore Dispatch Instruction
TRIP	TRIP	Ignore Dispatch Instruction
SYNC	SYNC	Ignore Dispatch Instruction
SYNC	FAIL	If Instruction Effective Time for Dispatch Instruction having FAIL Instruction Code is up to and including 1 hour after the Instruction Effective Time for a Dispatch Instruction having SYNC Instruction Code, the Dispatch Instruction having a SYNC Instruction Code is ignored. Dispatch Instructions having Instruction Effective Times between the Instruction Effective Times for the Dispatch Instructions having the FAIL and SYNC Instruction Codes are ignored.
SYNC	FAIL	If Instruction Effective Time for Dispatch Instruction having FAIL Instruction Code is over 1 hour after the Instruction Effective Time for the Dispatch Instruction having SYNC Instruction Code, profile the Dispatch Instruction having SYNC Instruction Code as normal and discard the Dispatch Instruction having Instruction Code FAIL.
FAIL	SYNC	Ignore Dispatch Instruction having FAIL Instruction Code, if Dispatch Instruction is not matched with previous Dispatch Instruction having a SYNC Instruction Code. Profile Dispatch Instruction having SYNC Instruction Code as per normal.

**Table [5] – Validation Rules for Dispatch Instructions for all Generator Units**

Validation for all Generator Units		
Instruction Code	MWOF(x)	Action
MWOF	x > Registered Capacity	Set x to > Registered Capacity
MWOF	x in Restricted Range	Profile MWOF(x)
SYNC <sup>1</sup>	x > Registered Capacity	Set x to Registered Capacity
SYNC	x in Restricted Range	Profile MWOF(x)
MWOF	0 < x < Outturn Minimum Stable Generation	Profile MWOF(x)
SYNC	x = NULL	Set x = Outturn Minimum Stable Generation
DESY <sup>2</sup>	x = NULL	Set x = 0

**Table [6] – Validation Rules for Maximisation Instructions**

Validation rules for Maximisation Instructions			
Instruction Quantity	Instruction	MWOF(x)	Action
Any	MXON	x = NULL	Set Maximisation Flag for the equivalent Trading Period in Settlement. Profile to Short Term Maximisation Capability.
NULL	MWOF after MXON	x = ANY	Maximisation over. Profile to Target Instruction Level associated with new MWOF Instruction Code.
NULL	MXOF	x = NULL	Set Maximisation for all Trading Periods covered. Profile back to Target Instruction Level associated with last MWOF Instruction code at the latest Ramp Down Rate.

- a. A Dispatch Instruction having a MWOF or DESY Instruction Code which precedes a Dispatch Instruction having an Instruction Code MXOF will also deactivate the Maximisation Instruction.
- b. A Dispatch Instruction having a GOOP Instruction Code Instruction having a SCP Instruction Combination Code must precede a Dispatch Instruction having a GOOP Instruction Code and a PUMP Instruction Combination Code.

## PROFILE OPERATING MODES

- P.14 The normal operating modes for a Synchronised Generator Unit are load up mode, ramp up mode, ramp down mode and deload mode. Each operating mode of a Generator Unit is described by a piecewise linear Operating Trajectory that describes the theoretical Output of a Generator Unit over time.
- P.15 The load up trajectory of a Generator Unit is a piecewise linear curve that describes the theoretical Output of a Generator Unit over time from Start Up to the End Point of Start Up Period .

<sup>1</sup> A Dispatch Instruction with a SYNC Instruction Code is accompanied by a Dispatch Instruction having a MWOF Instruction Code and an Instruction Quantity greater than or equal to Outturn Minimum Stable Generation.

<sup>2</sup> A Dispatch Instruction with a DESY Instruction Code is accompanied by a Dispatch Instruction having a MWOF Instruction Code and an Instruction Quantity of 0MW

1. The load up trajectory is determined by:
  - a. Block Load Cold, Block Load Warm and Block Load Hot
  - b. Loading Rate Hot 1, 2 & 3
  - c. Loading Rate Warm 1, 2 & 3
  - d. Loading Rate Cold 1, 2 & 3
  - e. Load Up Break Point Hot 1 & 2
  - f. Load Up Break Point Warm 1 & 2
  - g. Load Up Break Point Cold 1 & 2
  - h. Soak Time Hot 1 & 2
  - i. Soak Time Warm 1 & 2
  - j. Soak Time Cold 1 & 2
  - k. Soak Time Trigger Point Hot 1 & 2
  - l. Soak Time Trigger Point Warm 1 & 2
  - m. Soak Time Trigger Point Cold 1 & 2

2. Each segment of the piecewise linear load up trajectory for the Generator Unit is identified by start MW, end MW, rate in MW/min and the time from start MW to end MW.

P.16 The ramp up trajectory of a Generator Unit is a piecewise linear curve that describes the theoretical Output of a Generator Unit over time from Outturn Minimum Stable Generation to the Registered Capacity of the Generator Unit.

1. The ramp up trajectory is determined by:
  - a. Registered Capacity
  - b. Outturn Minimum Stable Generation
  - c. Ramp Up Rates 1, 2, 3, 4 & 5
  - d. Ramp Up Break Point 1, 2, 3 & 4
  - e. Dwell Time 1, 2 & 3
  - f. Dwell Time Trigger Point 1, 2 & 3

2. Each segment of the piecewise linear ramp up trajectory for the Generator Unit is identified by start MW, end MW, rate in MW/min and the time from start MW to end MW.

P.17 The ramp down trajectory of a Generator Unit is a piecewise linear curve that describes the theoretical Output of a Generator Unit over time from the Registered Capacity of the Generator Unit to Outturn Minimum Stable Generation.

1. The ramp down trajectory is determined by:
  - a. Registered Capacity



- b. Outturn Minimum Stable Generation
  - c. Ramp Down Rate 1, 2, 3, 4 & 5
  - d. Ramp Down Break Point 1, 2, 3 & 4
  - e. Dwell Time 1, 2 & 3
  - f. Dwell Time Trigger Point 1, 2 & 3
2. Each segment of the piecewise linear ramp down trajectory for the Generator Unit is identified by start MW, end MW, rate in MW/min and the time from start MW to end MW.
- P.18 The deloading trajectory of a Generator Unit is a piecewise linear curve that describes the theoretical Output of a Generator Unit over time from Outturn Minimum Stable Generation to 0MW.
- 1. The deloading trajectory is determined by:
    - a. Outturn Minimum Stable Generation
    - b. 0MW
    - c. Deloading Rate 1 & 2
    - d. Deload Break Point
  - 2. Each segment of the piecewise linear deloading trajectory for the Generator Unit is identified by start MW, end MW, rate in MW/min and the time from start MW to end MW.

## **CREATE INSTRUCTION PROFILE**

- P.11 Each section of the piecewise linear Instruction Profile for Generator Unit is produced in sequence by stepping through the Dispatch Instructions for the Generator Unit as follows.
- 1. The MW/Time Co-ordinates from the previous segment of the Instruction Profile are retrieved. For the Initial segment of the Instruction Profile the MW/Time Co-ordinate is the end MW/Time Co-ordinate from the end segment of the Instruction Profile calculated for the previous Trading Day.
    - a. Where an initial MW/Time Co-ordinate is not available for the Generator Unit from the previous Instruction Profiling run, the Target Instruction Level for the latest Dispatch Instruction for the Generator Unit prior to 06:00 on the Trading Day should be used as the initial Instructed Quantity for the Generator Unit.
  - 2. The active Dispatch Instruction is identified using the MW/Time Co-ordinates from the previous segment of the Instruction Profile and the Instruction Effective Time that corresponds to that Dispatch Instruction.
  - 3. The active Dispatch Instruction is validated using the MW/Time Co-ordinates from the previous segment of the Instruction Profile, the Target Instruction Level, the Instruction Code and Instruction Combination Code using the rules specified in Tables [7]-[8]

**Table [7] – Instruction Profiling Validation Rules for Generator Units that are not Pumped Storage Units**

<b>Generator Units that are not Pumped Storage Units</b>			
<b>Instruction Quantity from previous segment of Instruction Profile</b>	<b>Instruction Code for active Dispatch Instruction</b>	<b>Target Instruction Level</b>	<b>Action</b>
ANY	SYNC	Null	Set Target Instruction Level of accompanying Dispatch Instruction having Instruction Code MWOFF to Outturn Minimum Stable Generation
0	SYNC	< Outturn Minimum Stable Generation	Set Target Instruction Level of accompanying Dispatch Instruction having Instruction Code MWOFF to Outturn Minimum Stable Generation
0	MWOFF	0	Ignore Dispatch Instruction
0	MWOFF	> 0	Use Cold Start Up Operating Characteristics
0	DESY		Ignore Dispatch Instruction
>0	SYNC		Ignore Dispatch Instruction
>0	MWOFF	0	Profile to zero.
>0	DESY	>0	Profile to MWOFF(0)
0	TRIP		Ignore Dispatch Instruction

**Table [8] – Instruction Profiling Validation Rules for Pumped Storage Units**

<b>Pumped Storage Units</b>			
<b>Instruction Quantity from previous segment of Instruction Profile</b>	<b>Instruction Code for active Dispatch Instruction</b>	<b>Instruction Combination code</b>	<b>Action</b>
0	SYNC	n/a	Ignore Dispatch Instruction
0	MWOFF(0)	n/a	Ignore Dispatch Instruction
0	DESY	n/a	Ignore Dispatch Instruction
0	GOOP	SCP	Ignore Dispatch Instruction
0	GOOP	SCT	Ignore Dispatch Instruction
0	GOOP	PUMP	Profile to MWOFF(Pumping Capacity)
> 0	SYNC	n/a	Ignore Dispatch Instruction
> 0	MWOFF(0)	n/a	Profile to zero
> 0	GOOP	PGEN	Ignore Dispatch Instruction
> 0	GOOP	PUMP	Profile to MWOFF(Pumping Capacity)
< 0	SYNC	n/a	Ignore Dispatch Instruction
< 0	MWOFF(0)	n/a	Profile to zero
< 0	GOOP	PUMP	Ignore Dispatch Instruction

<b>Pumped Storage Units</b>			
<b>Instruction Quantity from previous segment of Instruction Profile</b>	<b>Instruction Code for active Dispatch Instruction</b>	<b>Instruction Combination code</b>	<b>Action</b>
< 0	MWOF(> 0)	n/a	Profile to zero, then profile to Target Instruction Level associated with MWOF Instruction Code.
0	MWOF(> 0)	n/a	Profile to Target Instruction Level associated with MWOF Instruction Code
< 0	GOOP MWOF (0)	PGEN	Set Target Instruction Level associated with MWOF Instruction Code to Outturn Minimum Stable Generation
< 0	GOOP MWOF(NULL)	PGEN	Set Target Instruction Level associated with MWOF Instruction Code to Outturn Minimum Stable Generation
< 0	GOOP MWOF( != (0 OR NULL))	PGEN	Profile to zero, then profile to Target Instruction Level associated with MWOF Instruction Code.
0	TRIP	n/a	Ignore Dispatch Instruction

4. The Last Status Change Time, Warm Cooling Boundary, Hot Cooling Boundary, the Instructed Quantity from the previous segment of the piecewise linear Instruction Profile and the Target Instruction Level for the current Dispatch Instruction are used to determine the appropriate operating mode of the Generator Unit. (The normal operating modes for a synchronised Generator Unit are load up mode, ramp up mode, ramp down mode and deload mode)
5. The appropriate segment from the piecewise linear Operating Trajectory is selected.
6. Where a Dispatch Ramp Up Rate is supplied with a Dispatch Instruction the Dispatch Ramp Up Rate will be used in place of the Ramp Up Rates submitted as part of Technical Offer Data in the Ramp Up Operating Trajectory for the Generator Unit.
7. Where a Dispatch Ramp Down Rate is supplied with a Dispatch Instruction the Dispatch Ramp Down Rate will be used in place of the Ramp Down Rates submitted as part of Technical Offer Data in the Ramp Down Operating Trajectory for the Generator Unit.
8. The MW/Time Co-ordinates for the current segment of the piecewise linear Instruction Profile are calculated based on the MW/Time Co-ordinates from the previous segment of the Instruction Profile, the Instruction Code, the Instruction Combination Code, the Target Instruction Level, the appropriate segment from the piecewise linear Operating Trajectory and the Trading Period Boundaries subject to the following rules.
  - a. The Instructed Quantity at the Instruction Effective Time specified with the Dispatch Instruction having a GOOP Instruction Code and PUMP Instruction Combination Code will equal the Target Instruction Level associated with the Dispatch Instruction. The Instructed Quantity for a Pumped Storage Unit will remain at the specified Target Instruction Level until a DESY Instruction Code is issued at which time the Instructed Quantity will go instantaneously to 0MW.
  - b. The MW/Time Co-ordinates for a Dispatch Instruction having a GOOP Instruction Code and SCT Instruction Combination Code will be determined in the same

manner as if a Dispatch Instruction having a MWOF Instruction Code and a very low positive Target Instruction Level were issued.

- c. A Dispatch Instruction having a GOOP Instruction Code and a SCP Instruction Combination Code has no actual effect on the Instruction Profile of the Generator Unit except that a PUMP Instruction Code may follow.
  - d. The Instructed Quantity at the Instruction Effective Time specified with the Dispatch Instruction having a TRIP Instruction Code will be zero. Ramp Rates, Deloading Rates and Dwell Times will be ignored in the calculation of the Instruction Profile.
  - e. The default Instructed Quantity for a Wind Power Unit is set to its Output based on its Meter Data. The Instructed Quantity for a Wind Power Unit having a WIND Instruction Code and a LOCL or CURL Instruction Combination Code is set to the minimum of the Outturn Availability of the Wind Power Unit and the Target Instruction Level of the Wind Power Unit.
  - f. The Target Instruction Level for a Generator Unit with a Dispatch Instruction having a MXON Instruction Code is the registered Short Term Maximisation Capability. The Instruction Profile is calculated from the last Ramp Up Rate specified for the Generator Unit.
  - g. The Target Instruction Level for a Generator Unit with a Dispatch Instruction having a MXOF Instruction Code is the Target Instruction Level associated with the last Dispatch Instruction having a MWOF Instruction Code. The Instruction Profile is calculated from Ramp Down Rate 1 for the Generator Unit.
9. A Lag Time is applied when defining the MW/Time Co-ordinates for all Dispatch Instructions except Dispatch Instructions having SYNC, TRIP or FAIL Instruction Codes. The Lag time is included in the Instruction Profile to account for the time required for an operator to make the control adjustments necessary to implement a Dispatch Instruction. The Lag Time is two minutes.

## **CALCULATE INSTRUCTED QUANTITY**

- P.19 A time weighted MW value for the Generator Unit for each Trading Period is set equal to double the calculated area per Trading Period between the piecewise linear Instruction Profile for the Generator Unit and 0 MW. Areas calculated between the piecewise linear Instruction Profile with negative MW values, are negative.

## **CALCULATE INTERCONNECTOR RESIDUAL CAPACITY INSTRUCTION QUANTITY**

- P.20 In accordance with Appendix E, the System Operator shall submit information on SO Interconnector Trades by 14:00 on Trading Day + 1, including:
1. SO Interconnector Import Quantity; and
  2. SO Interconnector Export Quantity.
- P.21 For each interconnector a Target Instruction Level profile for an Interconnector Residual Capacity Unit will be created for the Trading Day by summing the SO Interconnector Import Quantity and SO Interconnector Export Quantity in each Trading Period.

## GLOSSARY

Instruction Issue Time	means the time of issue of the Dispatch Instruction.
Instruction Effective Time	means the time from which a Dispatch Instruction is effective,
Target Instruction Level	means the intended MW Output level for the Generator Unit to achieve which accompanies a Dispatch Instruction.
Instruction Combination Code	means a code issued with a Dispatch Instruction for Pumped Storage Units and Wind Power Units only indicating the mode of operation of the relevant Generator Unit.
Instruction Code	means a code issued with a Dispatch Instruction indicating the action to be taken by the Generator Unit.
Dispatch Ramp Up Rate	means the Ramp Up Rate specified in a Dispatch Instruction.
Dispatch Ramp Down Rate	means the Ramp Down Rate specified in a Dispatch Instruction.
Instruction Profile	means a piecewise linear curve of expected Generator Unit MW Output vs. time over a Trading Day in response to issued Dispatch Instructions.
Technical Capability	means the technical characteristics of a Generator Unit.
MW/Time Co-ordinate.	means a co-ordinate representing a combination of MW Instructed Quantity and time on the Instruction Profile.
Instructed Quantity	means MW quantity of a MW/Time Co-ordinate.
Dispatch Instruction	Instruction Issued to a Generator Unit
Operating Trajectory	means the theoretical Output of the Generator Unit over time. The Operating Trajectory of a Generator Unit depends on the operating mode of the Generator Unit (For the purposes of Appendix P, the normal operating modes for

	a Synchronised Generator Unit are load up mode, ramp up mode, ramp down mode and deload mode, as defined in Appendix P).
Last Status Change Time	means the last time at which the Generator Unit status changed from Synchronised to Desynchronised or Desynchronised to Synchronised
Trading Period Boundaries	means the boundaries between adjacent Trading Periods
Block Load Flag	means a flag to indicate that a Generator Unit has block loading characteristics
Pumped Storage Flag	means a flag to indicate that a Generator Unit is a Pumped Storage Generation Unit
Start of Restricted Range 1	means the start point in MW of the first restricted range of operation of a Generator Unit
End of Restricted Range 1	means the end-point in MW of the first restricted range of operation of a Generator Unit
Start of Restricted Range 2	means the start point in MW of the second restricted range of operation of a Generator Unit
End of Restricted Range 2	means the end-point in MW of the second restricted range of operation of a Generator Unit
Local Network Constraint	means a constraint due to local network conditions
All-Island Curtailment	means an all-island curtailment
Maximisation Flag	means a flag to indicate the Trading Periods for which a Generator Unit is in Maximisation mode
Lag Time	means the parameterized response time required for an operator to make the control adjustments necessary to implement an instruction
Fuel Type	Means the fuel type of the Generator Unit