Electricity Authority

Wholesale Information and Trading System

Functional specification

February 2023
Version 12.0

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Revision History

Version	Release Date	Description
1.0	September 2006	First version released
2.0	May 2007	Application of Code changes: RC#41 regarding initial offer information to be given to the Pricing Manager. RC#43 regarding the publication of temporary constraints. Inclusion of new process TC-010. RC#48 regarding the inclusion of co-generators in the offer process.
3.0	June 2007	Correction of information. Addition of publication of demand half-hour metering information. Clarification of upper limit of prices.
3.1	June 2008	Additional variable reserves information to real-time prices (RT-010)
3.2	January 2009	Added Risk management contract disclosure requirements.
4.0	February 2012	Updated with Code references.
4.1	May 2012	Updated for DSBF Code changes that include: 1. Removal of 'valid till cancelled' and the 1300 hours deadline. Replaced with the requirement that submissions must be provided within 71 trading periods before the start of the trading period; 2. Two new types of bids – nominated and difference; 3. Change to the overnight rollover process and the requirement to send bids and offers to the System Operator for the current and next 2 trading days; 4. Replacement of the Pre-Dispatch, SWS, SDS and Dispatch (SDPQ) schedules with NRSS, NRSL, PRSS, PRSL schedules as including their additional information requirements. 5. Removal of requirement to permit offer and bid submission for any future trading period (as is not a Code requirement) and

Version	Release Date	Description
		replaced with ability to submit for any trading period in the next 7 trading days. 6. Replacement of the Dispatch schedule process (PD-030) with the WDS process, for completeness, even though not a Code requirement. 7. Inclusion of the submission of FK offers, for completeness, even though not a code requirement. 8. Merged the publication of provisional, interim and final prices into one process which now includes final prices (that was accidentally missed off when interim prices were introduced).
4.2	July 2012	Updated with must-run dispatch auction automation. Relabelled sub-processes for publishing to System Operator, price manager, Clearing Manager and the Authority for greater consistency.
4.3	May 2013	Scarcity pricing updates to SO-010 and SO-030.
4.4	December 2013	Updates as a result of the Functional Specification review: Addition of actual file formats and csv examples.
4.5	April 2014	Dispatchable demand updates
4.6	July 2014	Change to the selection of the publication of DCLS dispatch notifications based on publication time and an additional interface to the System Operator for published DCLS dispatch notifications.
4.7	November 2015	Changes for WITS-CR50 concerning when a purchaser is able to submit nominated dispatch bids.
4.8	September 2016	Red Current Phase 1 changes. New WITS Data hub (EA-011) running concurrently with Free to Air (non-confidential data made available to the public)
4.9	October 2016	Changes for WITS-CR54 concerning additional validations to nominated dispatch bids
4.10	May 2017	Changes for WITS-CR53 concerning new instantaneous reserve data
4.11	June 2017	Changes for WITS-CR51 concerning one-hour gate closure and NRSS block security constraint information

Version	Release Date	Description
5.0	September 2017	Document branch to cover the new WITS system front end only. The previous user interface is covered in 4.x Addition of offers stack graph (using data from the Pricing Manager) PM-025 Addition of Straight Through order Processing (allowing orders to be loaded via webservices) News items from service providers (News items can be created by other MOSP and published on WITS.) EA-015 Removal of CM-030 Receive and publish invoices and supporting documentation and CM-060 Publish prudential reports.
5.1	November 2017	Support for Capped Futures Products (SI-020, VR-020)
5.2	May 2018	Final price publication alerts, enhanced market alerting (AL-010, AL-020, AL-030) Enhanced order validation (Maximum prices offered) (SD-020)
5.3	June 2018	Manage tokens (SD-040)
6.0	August 2019	Wind Offer Arrangement changes to intermittent offers (UN-010). General grammar and syntax amendments Minor changes to SI-010, SI-020 and VI-010.
7.0	December 2020	WITS-CR62 Hedge Disclosure Website Apex Transition
8.0	January 2022	In the table of contents: • Re-ordered process maps; • Re-ordered document sections so they appear in the same order as process maps; • Removal of duplicate section headings for 'Publish information from the pricing manager; and • Added sub-process titles 'PM-025 Energy offers from final pricing schedules' and 'CM-

Version	Release Date	Description
		040 Receive and publish available MRDA rights' to reference these sub-processes. In the introductory sections 1-10: • references to 'the information system' have been updated to the 'approved system' in line with the Electricity Industry Participation Code definition; • previous paragraph 2 'This document' has been merged into paragraph 1, with consequent renumbering throughout this section; • previous paragraph 3 'Interaction with the market systems' has been changed to 'Interaction with the market systems' and has been rewritten; • previous paragraph 5 'Systems that form part of the information system' has been deleted; • references to FTP have been removed (e.g. in paragraph 8 'Download mechanism') or been replaced by references to SFTP; • WITS Data and WITS Trader replace WITS Browser and WITS FTA in a single logical system. • Invoices are no longer received from CHASM for publication and the information flow diagram has been updated accordingly. In the process maps section 9: • The process maps 'Maintenance of reference and security data' and 'Disclosure of risk management contracts' have been reordered logically to come after the process map 'Must-run dispatch auction bid submission'; • In the process map 'Publication of information from the pricing manager' , sub-process PM-030 Receive and publish price index information has been changed to yellow indicating an automated sub-process; and • Process map 'Publication of historical information' including (HI-010 and HI-020)

Version	Release Date	Description
		has been deleted as these sub-processes no longer exist; • Process map 'Publication of information of information to or on behalf of the Authority' has been augmented by new sub-processes EA-016 and EA-025; • Process map 'Publish alerts' has been amended by deleting sub-process AL-020 Allow users to modify and delete alerts, previous AL-030 has been renumbered as AL-020 and previous AL-040 has been renumbered as AL-030. In the sub-processes section: • Added to sub process NB-030 to include the Business requirements, the three reports generated and the Data output format of the bid report; • Added the Description, Business requirements and Data inputs sections to the first part of PM-025 'Energy offers from final pricing schedules' which were previously missing; • Removed subprocess HI-010 'Publish historical bids and offers' as this sub-process no longer exists; • Added new subprocess EA-010 (previously HI-010) as this was a more logical place for this process to be located; • Added new subprocess EA-016 'Publish historical prices'; • Added EA-025 'Send weekly risk management report to the Authority'. General formatting changes, including removal of references to HI-020 which no longer exists.
9.0	March 2022	WITS API added
10.0	April 2022	Enabling energy storage systems to offer instantaneous reserve (UN-040, SO-010, EA-010)
11.0	October 2022	Real time pricing project changes.

Version	Release Date	Description
		Reference: RTP - Business Requirements Document V2.0 Final
12.0	Feb 2023	Real time pricing project phase four changes, --Dispatch notification purchaser (DNL)/dispatch notification generator (DNG) bid/offer. --WITS-CR77 Publish the island residual value

Wholesale Information and Trading System Functional Specification

1 Introduction

The Electricity Industry Participation Code 2010 (Code) requires participants to make information available using the 'approved system'. Currently approved systems can be found in the Approved Systems Document published on the Authority website. The Wholesale Information and Trading System (WITS) website is included as an approved system.

This document describes the responsibilities and functions related to wholesale trading of energy and reserves, and the publication of related information to and from participants and service providers, as described in parts 13 and 14 of the Code.

2 Overview of the Wholesale Information and Trading System

The purpose of WITS is to act as a central facility for the receipt and publication of information between and on behalf of the various parties involved in the wholesale electricity market.

Purchasers and generators send their bids and offers for energy and reserves to WITS, which validates them and sends them to the system operator for use in their scheduling and dispatch process. When the resulting prices and quantities have been calculated, the system operator sends these to WITS for publication to generators and purchasers. WITS receives dispatch schedule and calculates the interim prices from dispatch prices derived from the dispatch schedule and then send for publication.

WITS does not prevent participants from revising orders for the current and next trading periods even the ones in the applicable gate closure period (30 minutes and 1 hour). It leaves the responsibility to participants to provide the reasons for the TPs in the gate closure period for gateway compliance logging and reporting to the EA. WITS assists participants manage their compliance obligations by providing gateway compliance upload validation options that stops revisions of orders being accepted if they are within the gate closure period or purposefully overrides the system validation preventing price changes within the gate closure period.

The clearing manager validates interim and publishes final prices, sends constrained on/off amounts and block settlement differences to WITS for publication to the market. WITS itself compiles compliance information and sends it to the Authority. It also keeps track of bids and offers throughout the day so that

it can publish real-time information and the final bids and offers to the public domain.

Publication involves the downloading of data files and presentation of selected data in graphical format.

WITS is a 24x7 system because bids and offers can be submitted round the clock and information is published at least every 5 minutes. Bids and offers can be revised within the trading period (half hour). Bids and offers form part of the supply and demand data required by the system operator to forecast the scheduling of generation and reserves. Schedules are published every half hour. Some participants have developed automated systems to submit and receive information from WITS automatically.

Part 13 provisions require that, if a particular approved system or other means of providing information is unavailable, the relevant participant must follow backup procedures specified by the WITS manager (or in the case of clause 13.81, specified by the system operator) to make the relevant information available.

3 Interaction with the market systems

WITS is one of several systems that support the wholesale electricity market. Other service providers own and operate related bespoke systems and websites.

The service provider responsible for the delivery of WITS must develop relationships and arrangements with all parties that require their information to be submitted and 'published' under the Code. The aim is to provide user interfaces that will allow all parties to submit and access all their relevant information in an intelligent, reliable and efficient manner.

WITS is required to keep up to date with technological advances to ensure that it delivers its functions securely and reliably and can communicate effectively with the participants' and other service providers' systems.

To summarise, WITS is where all wholesale electricity market trading information can be viewed and downloaded by participants and other interested parties. It is mainly used for the display and transfer of data files to and from participants and service providers. Other information, usually notices and reports, are published to participants either via email or via the service provider's (and the Authority's) own website.

4 References

The following sources are referenced in this document and can be downloaded from the Authority webpage: www.ea.govt.nz/code-and-compliance/the-code/

Electricity Industry Participation Code 2010:

- part 1;
- part 8;
- part 13;

- part14.

Approved Systems Document.

Electricity Industry (Enforcement) Regulations.

Part 1 of the Code contains a glossary, the terms of which are used in this document.

If there are any conflicts between this document and the Code, the Code takes precedence.

5 Upload mechanism

WITS employs a number of mechanisms for participants to be able to load bids and offers into the system:

- Browser upload function. This is a browser function that permits participants to transfer files in csv format from the participants system to WITS. SSL is the secure transfer protocol used. Once the transfer is complete, the system automatically validates the information. Valid data is stored and automatically transferred to either
    - the System Operator's system for confirmation, in the case of bids and offers for energy and reserves; and
    - Clearing Manager's system, in the case of MRDA bid and Grid Owners' historical load information.

  Confirmations from the System Operator are transferred to WITS from where they can be viewed and downloaded by participants.

  Upload errors are rejected and can be viewed by participants via the browser.
- Browser Wizard. This browser facility permits participants create bids and offers within the system rather than creating them externally and transferring them.
- SFTP. This function permits participants to transfer files in csv format from the participants system to WITS. Once uploaded via SFTP, the function is the same as described for the browser upload function above.
- Webservices/HTTP. This function permits participants to transfer bids and offers in HTTP post format from the participants system to WITS. Once uploaded using HTTP, the function is the same as described for the browser upload function above.

6 Download mechanism

- Browser download function. This is a secure browser facility that permits participants to transfer/download information, published in WITS, to the participant's system. The information is transferred using SSL in CSV file format.

- Secure file transfer protocol (SFTP). This secure facility is used by WITS to automatically deliver private and public information using CSV formatted files to participants' SFTP folders. The files are, GZIP'd to reduce the file sizes.
- WITS API. This facility permits approved consumers to access some real time market data that is currently available to the public via the WITS browser interface. It allows them to develop their own systems by obtaining market information programmatically.

7 Publication mechanisms

WITS primary function to publish information is performed using the following mechanisms:

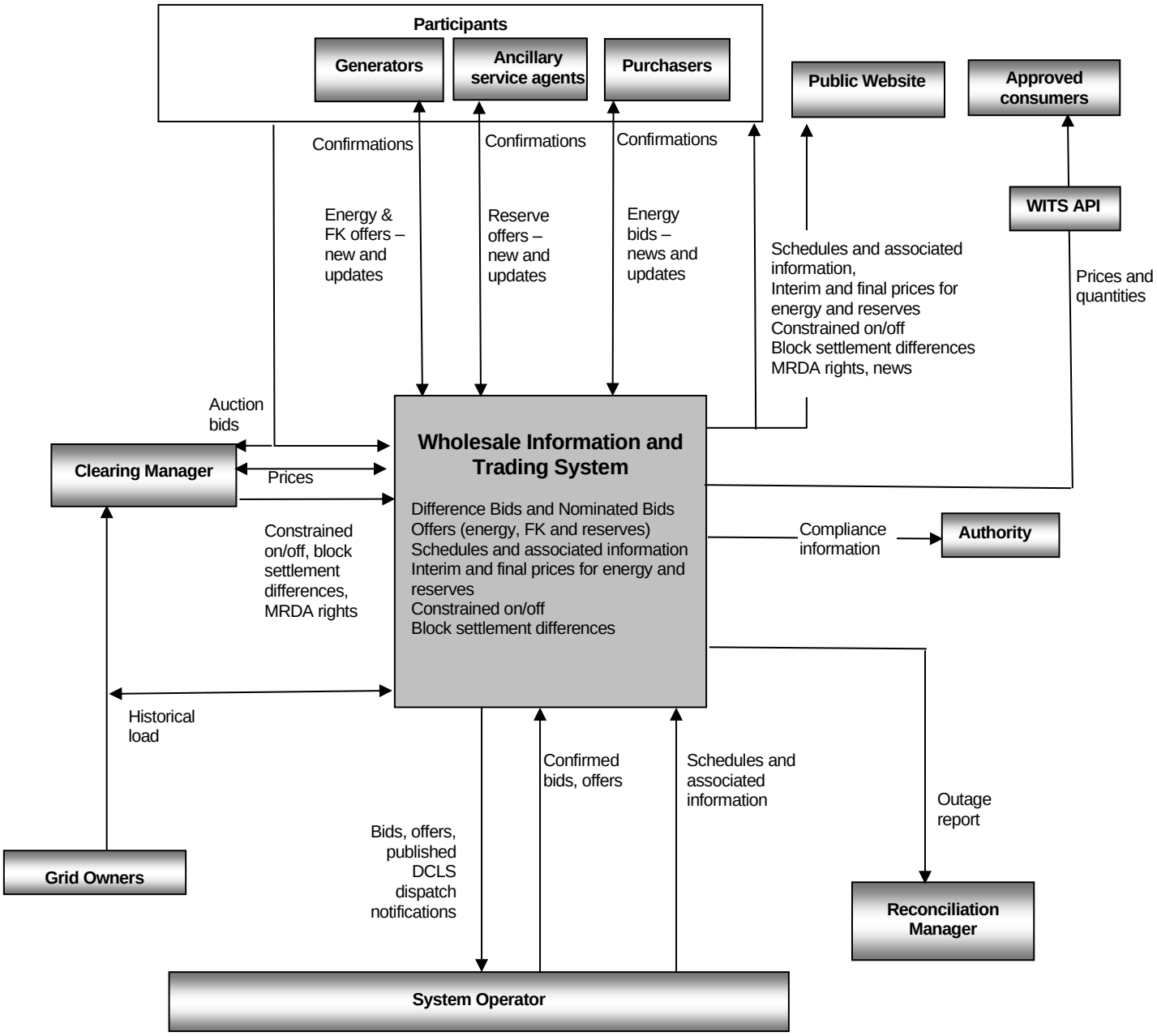
- WITS Trader. The WITS browser delivers private and participant-only information to approved users (subscribers). The information is displayed and can be downloaded in CSV formatted files.
- WITS SFTP. Each participant has a set of folders into which WITS delivers their private and participant-only information in CSV formatted files.
- WITS Data. This is a website that delivers a selection of WITS information to the public. The information is displayed and can be downloaded in CSV formatted files.
- The following information is made available via this website without requiring a login, as described in EA-011:
    a) Historical bids and offers (EA-010)
    b) NRS, PRS WDS and Dispatch schedule information (SO-010)
    c) Supply and demand curves (SO-020)
    d) Security constraints (OI-020)
    e) Interim and final pricing information (CM-010)
- WITS Alerts. This facility allows users to receive notifications from WITS for a number of events. These include scheduled prices exceeding thresholds, prices changing in consecutive schedules, price separation between two nodes. When a notification is triggered, the user will be notified via screen alert, email and/or SMS.
- WITS API. This application allows approved consumers to retrieve specified pricing and energy/reserve quantity data, that is available on WITS Data, automatically without logging into the WITS system. The information currently available is:
    a) NRS, PRS, WDS and Dispatch schedule information (SO-010)

b) Interim and final pricing information (CM-030)

c) Supply and demand curves for reserves and adjusted reserves (SO-020)

8 Current information flows between service providers and participants transferred via the approved systems

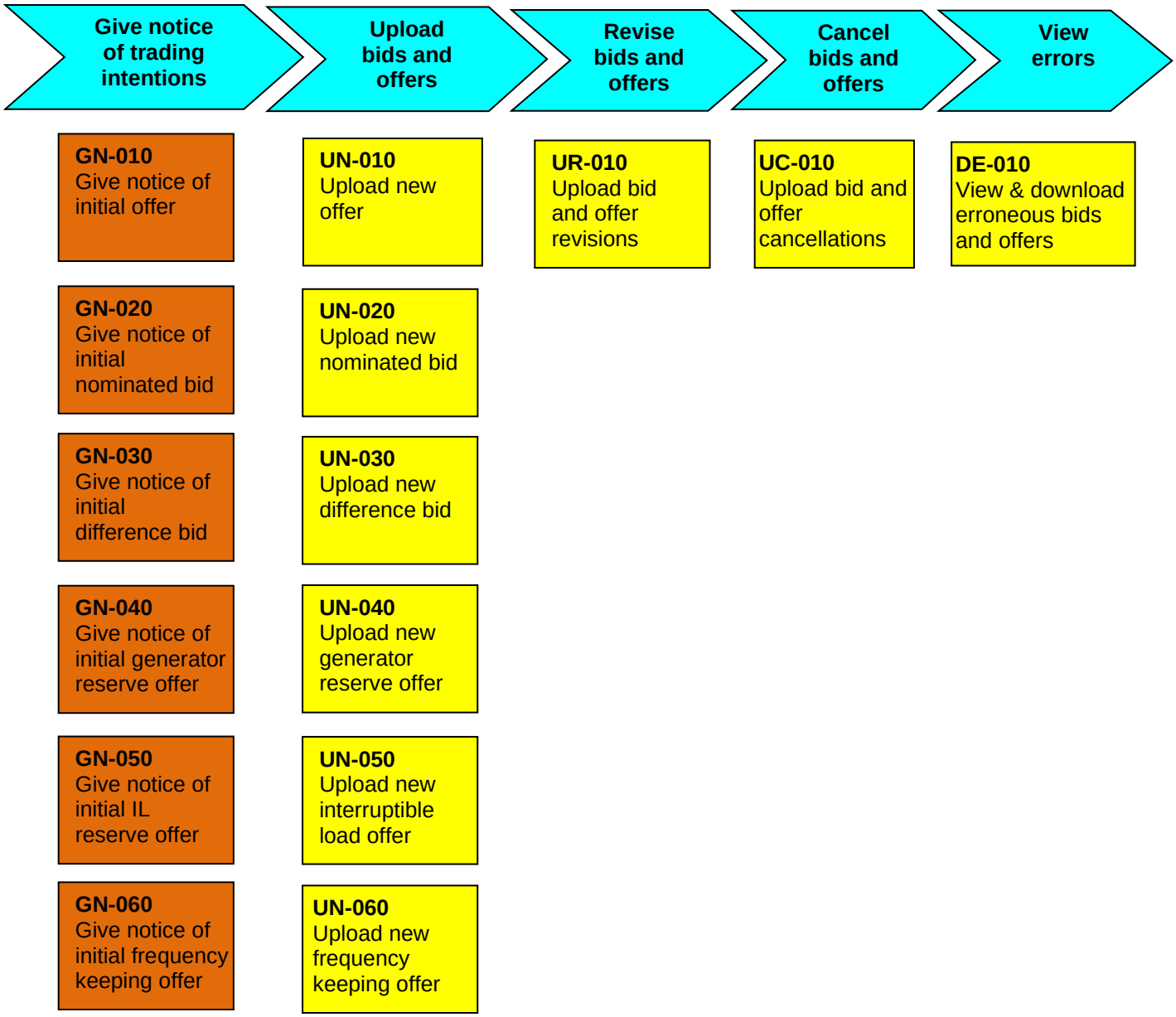
The processes described in this document are concerned with the management of the information flows in and out of the areas in the diagram highlighted in solid grey.



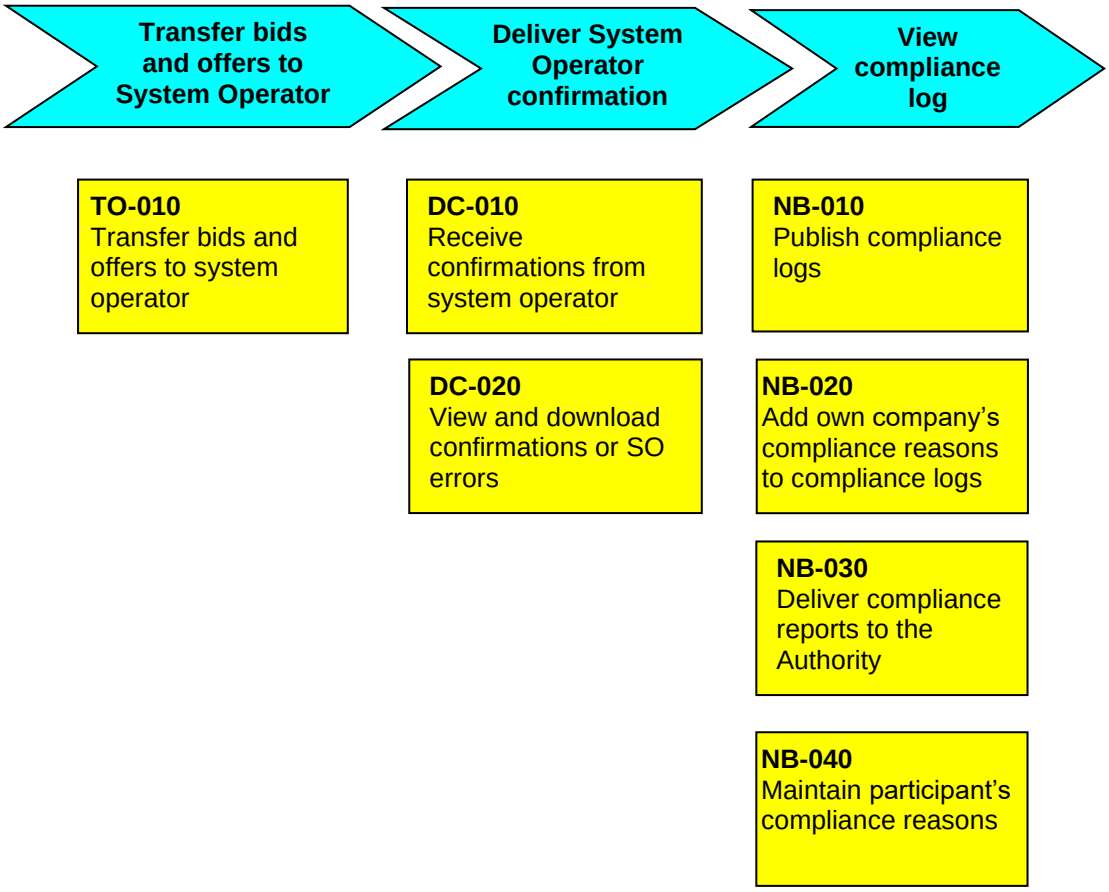
9 Process maps

In the diagrams below, processes performed by the system are shown in yellow and processes performed manually outside the system are shown in orange.

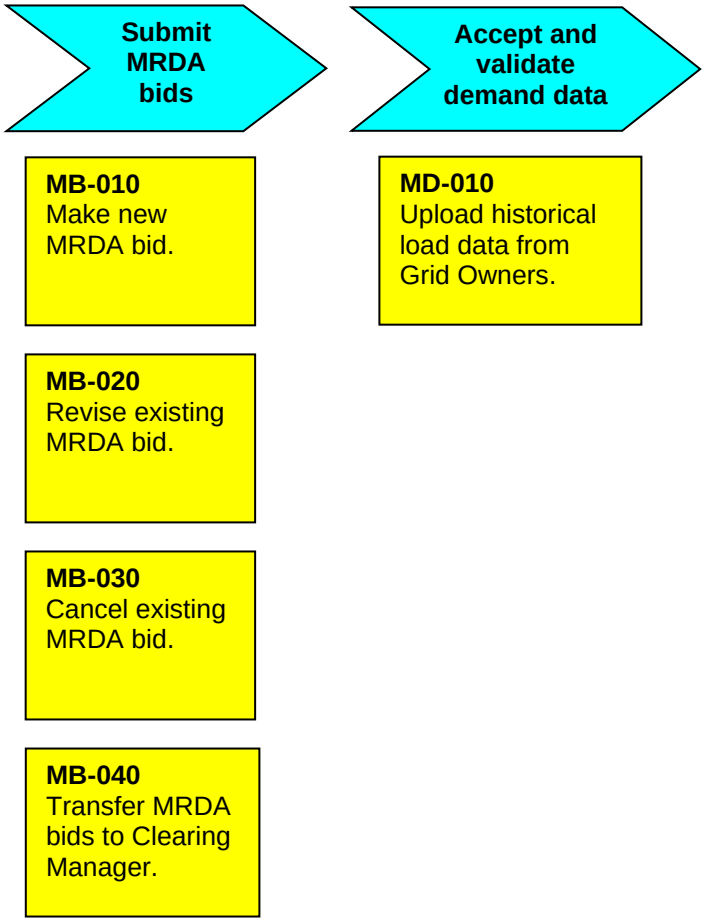
Process map –Bid and offer submission



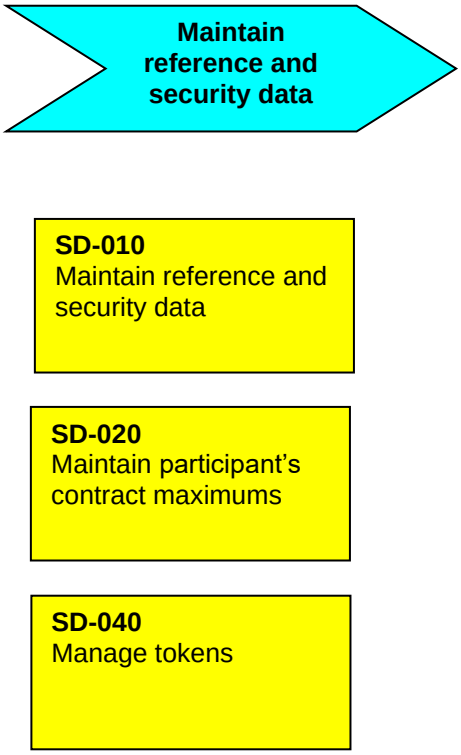
Process map –Bid and offer confirmation



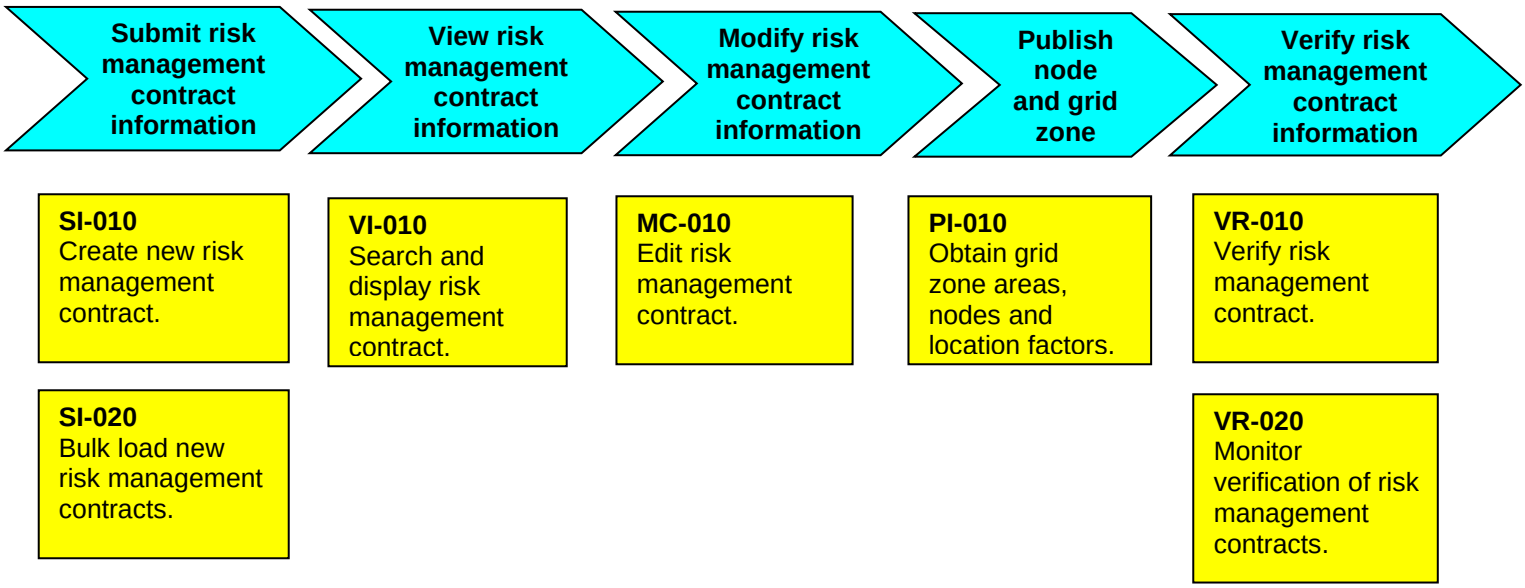
Process map – Must-run dispatch auction bid submission



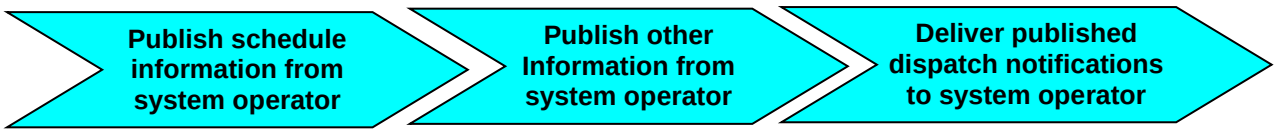
Process map – Maintenance of reference and security data



Process map – Disclosure of risk management contracts



Process map – Publication of information to and from the system operator



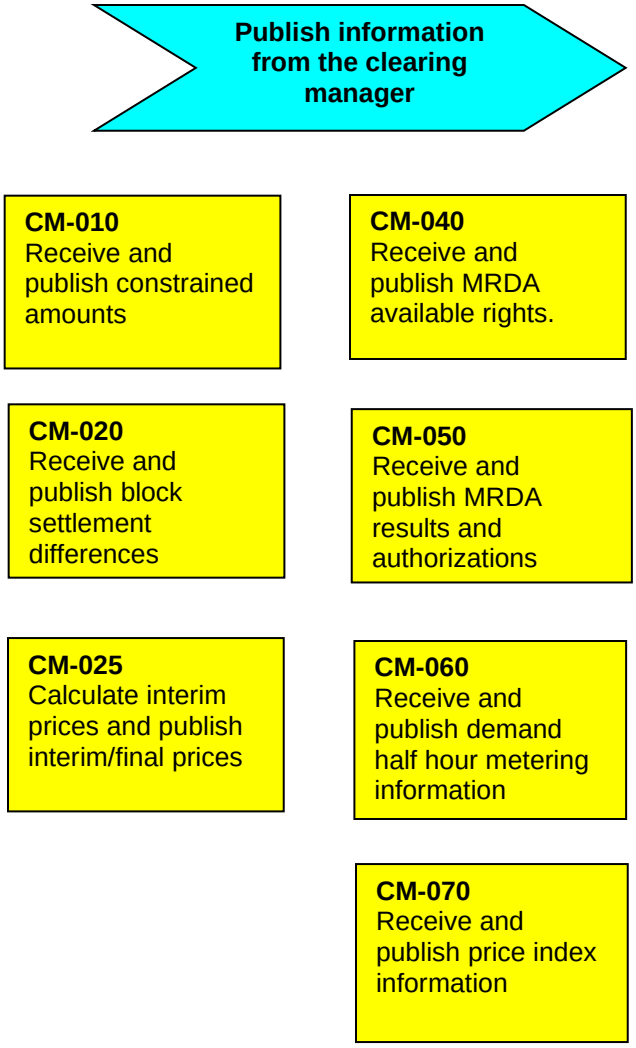
SO-010
Receive and publish PRS, NRS WDS and Dispatch schedule information.

SO-020
Calculate and publish supply and demand curves for energy.

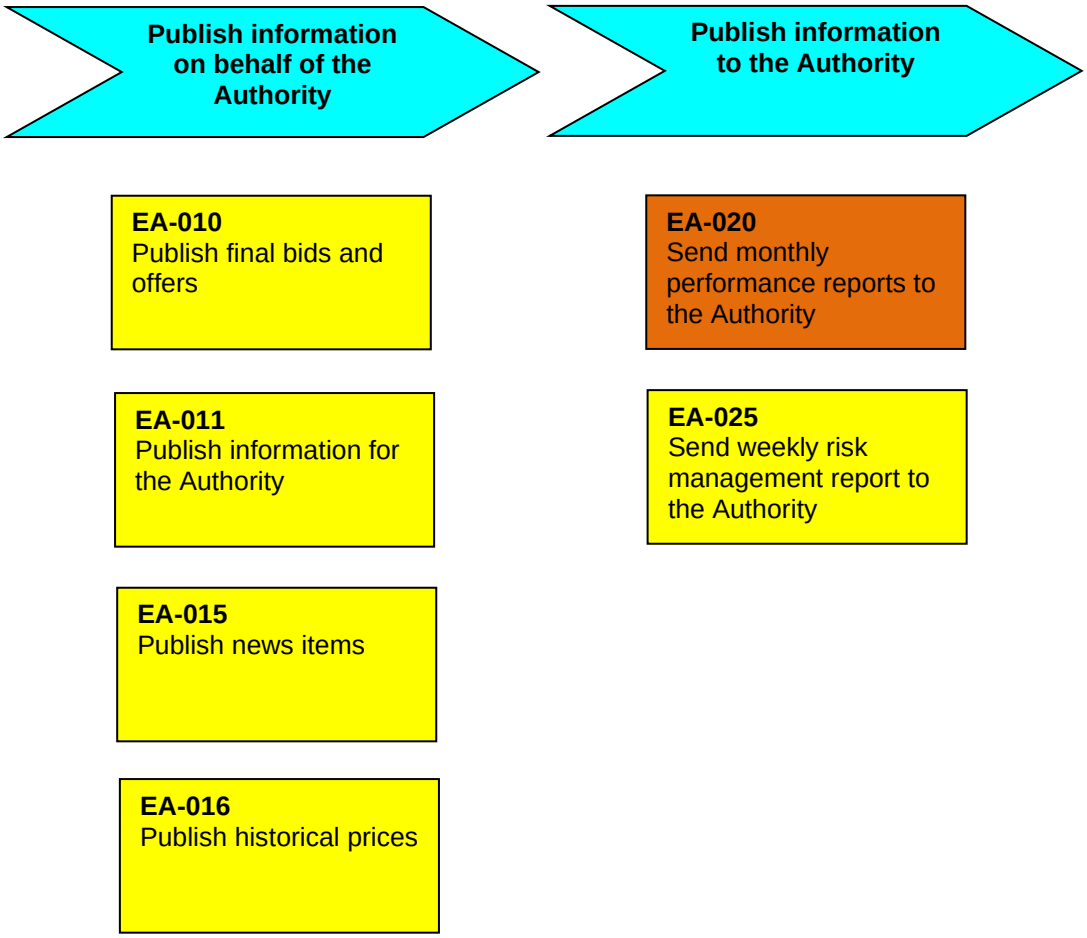
OI-020
Receive and publish temporary security constraints.

SN-010
Deliver published dispatch notifications

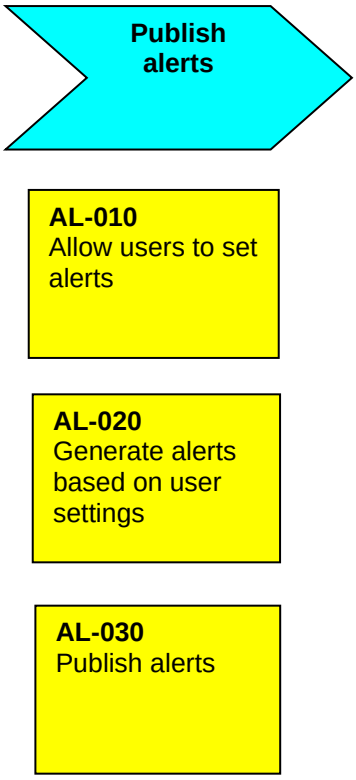
Process map – Publication of information for the clearing manager



Process map – Publication of information to or on behalf of the Authority



Process map – Publish alerts



10 SYSTEM PROCESSES

The processes described in this section are those which are implemented as part of the WITS software system and as such are subject to software audit requirements.

Definitions

In this section, the sub-processes contain a Destination descriptor in the header section that describes the intended recipients of the output. This Destination descriptor also indicates the delivery/publication method:

- Destination *public*. This means the information is delivered via WITS Data and the WITS API.
- Destination *participants.* As well as having access to the same delivery methods as the public have, information to participants is delivered via WITS Trader and WITS SFTP.

Where the Destination is to the Authority or another Service Provider such as the *System Operator* and *Clearing Manager,* there is no publication method per se. The communication mechanism between WITS and other Service Providers use bespoke system-to-system interfaces.

10.1 Bid and offer submission

Sub-process:	**UN-010 Make new offer**
Process:	Upload bids and offers
Source:	Generators
Destination:	System operator
Code references:	13.6(1), (2), and (3), 13.8, 13.9, 13.10, 13.11, 13.12, 13.15, 13.16, 13.22(1), forms 1, 2 and 3 schedule 13.1
Dependencies:	GN-010

Description:

Generators, embedded generators, intermittent generators, dispatch notification generators and co-generators submit offers to the system operator via WITS.

The submission mechanism (browser only) allows participants to instruct the system to accept or reject offers where the trading period of the offer commences within the next 30 minutes, in the case of embedded generators, or one hour for other generators that are neither embedded or intermittent.

Business requirements:

1. Offers must be submitted to the system operator at least 71 trading periods before the beginning of the trading period.

2. Offers must only be made once the approval process has been completed and the reference data relating to the generator and its generating plants has been stored by the system operator, clearing manager and WITS.

3. The Code deems that the offers for the current trading day apply to any missing offers for the corresponding trading period(s) for the trading date after tomorrow.

   N.B. The system implements this requirement by creating offers for any missing trading period in the next 2 trading days using the information (a copy) from the corresponding trading period's offer of the current trading date (today). This is performed just after midnight every day. Immediately on completion of this "*rollover*" process, all the created offers are sent to the system operator for confirmation. See appendix I for details on which trading period's offers apply on daylight saving trading dates.

4. Generators must not be able to offer more than the maximum quantity that can be generated by the generating plant in a trading period (as notified to the system operator in GN-010).

5. Generators must be able to offer by unit or by station but only after prior agreement with the system operator (as notified to the system operator in GN-010). Intermittent generators and co-generators, however, must only be able to offer by station.

6. Offers for generators and embedded generators must be able to contain up to 5 price bands for any trading period i.e. five prices and five quantities.

7. Offers for intermittent generators, identified by station identifier in the reference data, must include a forecast of generation potential (FOGP) value expressed in MW. The FOGP value must not exceed the total quantity that can be generated for the generating plant in a trading period, as stored in the reference data.

8. Offers for co-generators must be able to offer two price bands i.e. two prices and two quantities.

9. Prices must be expressed in NZ dollars and cents, i.e. to 2 decimal places per MWh.

10. The minimum allowable price must be zero. There must be no upper limit (however, in practice, a limit of at least $999,999.99 is acceptable), except for co-generators whose upper limit must be $0.01 per MWh.

11. The quantity per price band must be in expressed in MW and be to 3 decimal places.

12. The minimum allowable quantity must be 0.000MW.

13. For the first band, the quantity and price must indicate that the offer is 'for the first *quantity of* MWs at the first *price* per MWh'. For subsequent bands, the offer indicates that it is the price 'for the **next** *quantity* of MWs'.

14. The total quantity offered in all bands (i.e. the sum of all 5 bands) must not exceed the total quantity that can be generated for the generating plant as stored in the reference data.

15. Prices must increase from band to band, i.e. the band 2 price must be more than the band 1 price etc.

16. Trading dates combined with the trading period must not be in the past. Submissions for trading periods that ended before the submission time must be rejected.

17. If the submission is via the browser, the system must accept or reject offers in accordance with the participant's gateway compliance processing instructions provided with the submission.

18. The following offers must be logged in the gateway compliance log:

    - A Valid offer for which the time of submission is within the trading period to which the offer relates.
    - A valid offer from an embedded generator or a dispatch notification generator, if the trading period it relates to commences within 30 minutes from the time of submission.
    - A valid offer from a generator that is neither an embedded generator nor a dispatch notification generator, if the trading period it relates to commences with one hour from the time of submission.

    A valid offer is where it passes all other validation checks

19. Offers must be allowed to be input for any trading period for the next 7 trading days; however, the system operator only requires transmission of offers for the current day and the next 2 trading days.

20. Offers must remain strictly private and confidential to the organisation concerned (and the system operator).

21. Participants must only be able to view their own offers.

22. Participants must be able to download their own offers into their own systems.

23. All offers must generate an audit trail.

Data inputs:
Gateway compliance processing instructions: • Discard quantity changes within 30 minutes. • Allow price changes within 30 minutes. • Discard entire file if orders are within 30 minutes. • Discard quantity changes within one hour. • Allow price changes within one hour. • Discard entire file if orders are within one hour.

- **Offer**

Field Name	Format	Mandatory/ optional	Comments
GIP	Char (8)	M	Grid Injection Point
Station	Char (3)	M/O	Mandatory if no unit.
Unit	Number (2)	M/O	Mandatory if no station.
Trading date	Date DD/MM/YYYY	M	Trading date to which the offer applies
Trading period	Number (2)	M	Trading period to which the offer applies 1 to 48 for standard day 1 to 50 for daylight saving end 1 to 46 for daylight saving start.
Generator maximum output (including overload)	Number (4)	M	MW Must be less than or equal to the maximum that can be generated by the plant as recorded in the reference data.
Maximum generator ramp up rate	Number (4)	M	MW/hr.
Maximum generator ramp down rate	Number (4)	M	MW/hr.
Band 1 price	Number (8,2)	M	MW.
Band 1 quantity	Number (10,3)	M	
Band 2 price	Number (8,2)	O	MW.
Band 2 quantity	Number (10,3)	O	
Band 3 price	Number (8,2)	O	MW.
Band 3 quantity	Number (10,3)	O	
Band 4 price	Number (8,2)	O	MW.
Band 4 quantity	Number (10,3)	O	
Band 5 price	Number (8,2)	O	MW.
Band 5 quantity	Number (10,3)	O	
Participant code of generator	Char (4)	M	Code allocated by the reconciliation manager to the participant.
Free text	Char (16)	O	Enables the Generator to attach a unique marker to each offer, which will be carried

			through the scheduling process and appear in the pre-dispatch schedule.
Compliance reason	Char (4000)	M/O	Reason for offer submitted within one hour/30mins of the trading period start. This is enclosed with quotation marks (ASCII character 34) and takes precedence over the one entered on the screen. Mandatory when offer is submitted within one hour/30mins.
Forecast of generation potential	Number (10,3)	M/O	MW. It is mandatory for wind generation offers. The value must be greater than or equal to zero. Must not exceed the total quantity that can be generated for the generating plant, as stored in the reference data.

Example

ARA2201,,,14/07/2004,12,250,20,20,12.23,100,12.75,50,13.75,50,0,0,0,0,EMCO,,"bonafide change"
ARA2201,,,14/07/2004,13,250,20,20,12.23,100,12.75,50,13.75,50,0,0,0,0,EMCO,

Processing:

The system:

1. Validates the offer against gateway compliance processing instructions, validation criteria and reference data.
2. Displays (browser) or delivers (automation) the summary results of the upload.
3. Notifies users of any errors requiring correction.
4. Appends additional audit information to each offer – a unique order ID, user ID of the inputting user, method of submission, submission filename, the upload timestamp and the timestamp when received by the system operator. For offers that are rejected an additional attribute – error message – is appended.
5. Stores the valid offers and makes them available for viewing and downloading by all permitted users of the participant company.

6. Transmits valid offers for the current and next trading date immediately to the system operator.

7. Logs the offer if it falls within the relevant gateway compliance criteria and the system stores it as a valid offer i.e.it passes all other validation checks, logs the offer (compliance gateway log). In addition to the offer details, the log also includes additional compliance log details.

Data outputs:

Valid and invalid offers. Format is the same as input but with the exclusion of the compliance reason field, and the addition of audit information generated by the system that includes:

- date and time the offer was received; and
- details of the user submitting the offer; and
- method of submission and submission filename; and
- error message; and
- date and time the offer was delivered to the system operator.

- **Gateway compliance log**

The following information is appended to the input format after the participant code i.e. excludes the free text and compliance reason fields:

Field Name	Format	Comments
User reference from	Char (16)	Free text value of the original bid or offer being revised.
User reference to	Char(20)	Free text value of the revised bid or offer.
Order ID	Number(10)	The order ID given by WITS to the original bid or offer being revised. Null for unconfirmed bids or offers.
Succeed order ID	Number(10)	The order ID given by WITS to the revised bid or offer. Null for unconfirmed bids or offers.
Created date from	Date/time DD/MM/YYYY HH:MI:SS	Creation timestamp of the original bid or offer being revised.
Created date to	Date/time DD/MM/YYYY HH:MI:SS	Creation timestamp of the revised bid or offer.
Last amended date from	Date/time DD/MM/YYYY HH:MI:SS	Last amendment timestamp of the original bid or offer being revised.

Last amended date to	Date/time DD/MM/YYYY HH:MI:SS	Last amendment timestamp of the revised bid or offer.
Trading company code	Char (4)	Participant id of the trading company.
User ID from	Char (8)	User ID of the inputter of the original bid or offer being revised.
User ID to	Char (8)	User ID of the inputter of the revised bid or offer.
Name from	Char (20)	Name of the user that last amended the original bid or offer being revised.
Name to	Char (20)	Name of the user that last amended the revised bid or offer.
Change type	Char (1)	P – price change, O – other change i.e. quantity.
Status from	Char(1)	Status of the original bid or offer being revised. Valid values are: u - Unconfirmed c - Confirmed t - At STACS
Status to	Char (1)	Status of the revised bid or offer. Valid values as above.
Gateway type	Char (5)	"1HR" or "30MIN"
Compliance reason	Char (4000)	Initially copied from the input file but can be updated via NB-020.

- **Valid offer download file**

  The following information is appended to the input offer format but with the exclusion of the compliance reason field:

Field Name	Format	Comments
Order ID	Number (10)	An ID given to the bid or offer by WITS. Null for unconfirmed orders.
Username	Char (20)	The WITS username for the trader who entered the bid or offer.
Order status	Char (1)	u – Unconfirmed (entered into WITS but not yet confirmed by Scheduler) c – Confirmed (confirmed by Scheduler) t – at STACS v – General Validation Error l – Limit error (quantity exceeds contracted limit)

		n – No trading contract exists for the node z – Node decommissioned for the Trading Period
Error message	Char (50)	Error message explaining why this line was rejected by the Scheduler.
Upload time stamp	Date/time DD/MM/YYYY HH:MI:SS	Timestamp indicates upload time of the bid/offer file.
Forecast of generation potential	Number (10,3)	This field is populated only where the offer relates to wind generation.

- **Upload summary results**

  CSV file format available only via Automation. For browser the information is displayed

Field Name	Format	Comments
Filename	Char (250)	Name of upload file, up to 250 Chars long
Company	Char (4)	Company that uploaded the file
File type	Char (5)	BID/DIFF/OFFER/PCMP/GCMP/FK
Time started	Date/time 'DD/MM/YYYY hh24:mi:ss'	
Time finished	Date/Time 'DD/MM/YYYY hh24:mi:ss'	
Good rows	Number	The number of good rows
Bad rows	Number	The number of bad rows
Errors files	Char (30)	The file which contains errors relating to this upload file
File status	Char (200)	The status of the upload file - up to 200 Chars "Finished" indicates successful completion. All other messages indicate errors.

Example of the CSV file

Bids20031105.csv,EMCO,BID,05/11/2003 23:11:46,05/11/2003 23:12:04,566,4,Bids20031105.csv.errors,Finished

Sub-process:	**UN-020 Make new nominated bid**
Process:	Upload bids and offers
Source:	Purchasers
Destination:	System operator
Code references:	13.7(2), 13.7AA, 13.7AB, 13.8(A), 13.13(1), 13.13(1A) 13.14 to 13.16, 13.19A, 13.22(1), form 4 schedule 13.1
Dependencies:	GN-020

Description:

Purchasers submit nominated bids to the system operator via WITS. Nominated bids include:

- Nominated dispatch bids for a dispatch-capable load station (DCLS). These bids are available for dispatch by the system operator;
- Nominated non-dispatch bids for DCLS. These bids are not available for dispatch by the system operator; and,
- Nominated non-dispatch bids for non-dispatch-capable load at a non-conforming GXP. All purchasers who purchase non-dispatch capable load at a non-conforming GXP must submit nominated non-dispatch bids.

A purchaser must gain approval from the system operator for a device or group of devices at a GXP to be a DCLS. The Authority determines whether a GXP is non-conforming on its own initiative.

A purchaser must not submit a nominated dispatch bid for a DCLS in the trading period immediately before the trading period to which the nominated bid applies. In this instance, the nominated bid should be submitted as a nominated non-dispatch bid for a DCLS.

Business requirements:

1. Nominated bids must be submitted to the system operator at least 71 trading periods before the beginning of the trading period.

2. Nominated bids must only be submitted once the approval process has been completed and the reference data relating to the purchaser has been stored.

3. A purchaser must gain approval from the system operator for a device or group of devices at a GXP to be a DCLS.

4. The Code deems that the nominated bids for the current trading day apply to any missing nominated bids for the corresponding trading period(s) for the trading date after tomorrow.

   N.B. The system implements this requirement by creating nominated bids for any missing trading period in the next 2 trading days using the information (a copy) from the corresponding trading period's nominated bid of the current trading date (today). This is performed just after midnight every day. Immediately on completion of this "*rollover*' process, all the created nominated bids are sent to the system operator for confirmation. See appendix I for details on which trading period's nominated bids apply on daylight saving trading dates.

5. A nominated bid for a DCLS must specify whether it is a nominated dispatch bid or a nominated non-dispatch bid.

6. Nominated bids must be able to contain up to 10 price bands for any trading period.

7. Prices must be expressed in NZ dollars and cents to 2 decimal places and per MWh.

8. The minimum acceptable price must be zero. There must be no upper limit (however, in practice, a limit of at least $999,999.99 is acceptable).

9. The quantity per price band must be expressed in MW to 3 decimal places.

10. The minimum acceptable quantity must be 0.000MW.

11. For the first band, the quantity and price must indicate that the bid is 'for the first *quantity of* MWs at the first *price* per MWh'. For subsequent bands, the bid indicates that it is the price 'for the **next** *quantity* of MWs'.

12. Prices must decrease from band to band, i.e.band 1 price must be more than band 2 price etc.

13. Trading dates combined with the trading period must not be in the past. Submissions for trading periods that ended before the submission time must be rejected.

14. If the submission is via the browser, the system must accept or reject nominated DCLS bids in accordance with the participant's gateway compliance processing instructions provided with the submission.

15. The following nominated dispatch bids must be logged in the gateway compliance log:

- A valid nominated dispatch bid for which the time of submission is within the trading period to which the bid relates.
- A valid nominated dispatch bid from a dispatch notification purchaser, if the trading period it relates to commences within 30 minutes from the time of submission.
- A valid nominated dispatch bid from a dispatchable load purchaser that is not a dispatch notification purchaser, if the trading period it relates to commences within one hour from the time of submission.

A valid nominated dispatch bid is where it passes all other validation checks.

16. Nominated bids must be allowed to be input for any trading period for the next 7 trading days; however, the system operator only requires transmission of bids for the current day and next 2 trading days.

17. Nominated bids must be strictly private and confidential to the organisation concerned (and the system operator).

18. Participants must only be able to view their own nominated bids.

19. Participants must be able to download their own nominated bids into their own systems.

20. All nominated bids must generate an audit trail.

Data inputs:

Gateway compliance processing instructions:

- Discard quantity changes within one hour.
- Allow price changes within one hour.
- Discard entire file if orders are within one hour.

- **Nominated non-DCLS Bids**

Field Name	Format	Mandatory/ optional	Comments
GXP	Char (7)	M	GXP must be a non-conforming GXP
Trading date	Date DD/MM/YYYY	M	Trading date to which the bid applies.

Trading period	Number (2)	M	Trading period to which the bid applies 1 to 48 for standard day 1 to 50 for daylight saving end 1 to 46 for daylight saving start.
Band 1 price	Number (8,2)	M	MWh.
Band 1 quantity	Number (10,3)	M	MW
Band 2 price	Number (8,2)	O	MWh.
Band 2 quantity	Number (10,3)	O	MW
Band 3 price	Number (8,2)	O	MWh.
Band 3 quantity	Number (10,3)	O	MW
Band 4 price	Number (8,2)	O	MWh.
Band 4 quantity	Number (10,3)	O	MW
Band 5 price	Number (8,2)	O	MWh.
Band 5 quantity	Number (10,3)	O	MW
Band 6price	Number (8,2)	M	MWh.
Band 6quantity	Number (10,3)	M	MW
Band 7price	Number (8,2)	O	MWh.
Band 7quantity	Number (10,3)	O	MW
Band 8price	Number (8,2)	O	MWh.
Band 8quantity	Number (10,3)	O	MW
Band 9price	Number (8,2)	O	MWh.
Band 9quantity	Number (10,3)	O	MW
Band 10price	Number (8,2)	O	MWh.
Band 10quantity	Number (10,3)	O	MW
Participant code of purchaser	Char (4)	M	Code allocated by the reconciliation manager to the participant
Free text	Char (16)	O	Enables the purchaser to attach a unique marker to each bid, which will be carried through the scheduling process and appear in the pre-dispatch schedule.
Compliance reason	Char (4000)	M/O	Reason if bid is submitted within one hour/30mins of the trading period start. This is enclosed with quotation marks (ASCII character 34) and takes precedence over the one

			entered on the screen. Mandatory when bid is submitted within one hour/30mins.

Example
ADD661,14/07/2004,12,14.23,100,14.05,50,13.75,50.05,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,EMCO,,
ADD661,14/07/2004,13,14.23,100,14.05,50,13.75,50.05,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,EMCO,

- **Nominated DCLS Bids**

Field Name	Format	Mandatory/ optional	Comments
GXP	Char (7)	M	GXP must be a non-conforming GXP
Trading date	Date DD/MM/YYYY	M	Trading date to which the bid applies.
Trading period	Number (2)	M	Trading period to which the bid applies 1 to 48 for standard day 1 to 50 for daylight saving end 1 to 46 for daylight saving start.
Band 1 price	Number (8,2)	M	MWh.
Band 1 quantity	Number (10,3)	M	MW
Band 2 price	Number (8,2)	O	MWh.
Band 2 quantity	Number (10,3)	O	MW
Band 3 price	Number (8,2)	O	MWh.
Band 3 quantity	Number (10,3)	O	MW
Band 4 price	Number (8,2)	O	MWh.
Band 4 quantity	Number (10,3)	O	MW
Band 5 price	Number (8,2)	O	MWh.
Band 5 quantity	Number (10,3)	O	MW
Band 6price	Number (8,2)	M	MWh.
Band 6quantity	Number (10,3)	M	MW
Band 7price	Number (8,2)	O	MWh.
Band 7quantity	Number (10,3)	O	MW
Band 8price	Number (8,2)	O	MWh.
Band 8quantity	Number (10,3)	O	MW
Band 9price	Number (8,2)	O	MWh.
Band 9quantity	Number (10,3)	O	MW

Band 10price	Number (8,2)	O	MWh.
Band 10quantity	Number (10,3)	O	MW
Participant code of dispatchable load purchaser	Char (4)	M	Code allocated by the reconciliation manager to the participant. Participant must be approved to be a dispatchable load purchaser by the System Operator
DCLS code	Char (6)	M	Identifier for the approved dispatch capable load station – allocated by the System Operator
Dispatchable_YN	Char (1)	M	Y – Nominated dispatch bid N – Nomindated non-dispatch bid
Free text	Char (16)	O	Enables the Purchaser to attach a unique marker to each bid, which will be carried through the scheduling process and appear in the pre-dispatch schedule.
Compliance reason	Char (4000)	M/O	Reason if bid is submitted within one hour/30mins of the trading period start. This is enclosed with quotation marks (ASCII character 34) and takes precedence over the one entered on the screen. Mandatory when bid is submitted within one hour/30mins.

Example
ADD661,15/05/2014,12,14.23,100,14.05,50,13.75,50.05,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,ABCD,DLS1,Y,,"bonafidechange"
ADD661,15/05/2014,13,14.23,100,14.05,50,13.75,50.05,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,ABCD,DLS1,Y,

Processing:

The system:

1. Validates the nominated bid against gateway compliance processing instructions, validation criteria and reference data.

2. Displays (browser) or delivers (automation) the summary results of the upload.
3. Notifies users of any errors for correction.
4. Appends additional audit information to each bid – a unique order ID, user ID of the inputting user, method of submission, submission filename and the upload timestamp. For offers that are rejected an additional attribute – error message – is appended.
5. Stores the valid nominated bids information and makes the stored information available to be viewed and downloaded by all permitted users of the participant company.
6. Transmits valid nominated bids for the current and next trading date immediately to the system operator.
7. Logs the bid if it falls within the relevant gateway compliance criteria and the system stores it as a valid bid i.e. it passes all other validation checks (compliance gateway log). In addition to the bid details, the log also includes additional compliance log details.

Data outputs:

Valid and invalid nominated bids. The same as the input but with the exclusion of the compliance reason, and the addition of audit information generated by the system that includes:

- date and time the nominated bid was received; and
- details of the user submitting the nominated bid; and
- method of submission and submission filename; and
- error message; and
- date and time the nominated bid was delivered to the system operator.

- **Gateway compliance log**

The following information is appended to the input format after the participant code i.e. excludes the free text and compliance reason fields:

Field Name	Format	Comments
User reference from	Char (16)	Free text value of the original bid or offer being revised.
User reference to	Char(20)	Free text value of the revised bid or offer.
Order ID	Number(10)	The Order ID given by WITS to the original bid or offer being revised. Null for unconfirmed bids or offers.

Succeed order ID	Number(10)	The order ID given by WITS to the revised bid or offer. Null for unconfirmed bids or offers.
Created date from	Date/time DD/MM/YYYY HH:MI:SS	Creation timestamp of the original bid or offer being revised.
Created date to	Date/time DD/MM/YYYY HH:MI:SS	Creation timestamp of the revised bid or offer.
Last amended date from	Date/time DD/MM/YYYY HH:MI:SS	Last amendment timestamp of the original bid or offer being revised.
Last amended date to	Date/time DD/MM/YYYY HH:MI:SS	Last amendment timestamp of the revised bid or offer.
Trading company code	Char (4)	Participant ID of the trading company.
User ID from	Char (8)	User ID of the inputter of the original bid or offer being revised.
User ID to	Char (8)	User id of the inputter of the revised bid or offer.
Name from	Char (20)	Name of the user that last amended the original bid or offer being revised.
Name to	Char (20)	Name of the user that last amended the revised bid or offer.
Change type	Char (1)	P – price change, O – other change i.e. quantity.
Status from	Char(1)	Status of the original bid or offer being revised. Valid values are: u - Unconfirmed c - Confirmed t - At STACS
Status to	Char (1)	Status of the revised bid or offer. Valid values as above.
Gateway type	Char (5)	“1HR” or “30MIN”
Compliance reason	Char (4000)	Initially copied from the input file but can be updated via NB-020.
Error message	Char (100)	
DCLS code	Char (6)	Code for the Dispatch Capable Load Station (if the bid is at a DCLS)
DispatchableYN from	Char (1)	Y or N (if the bid is at a DCLS)

Dispatchable YN to	Char (1)	Y or N (if the bid is at a DCLS)

- **Valid nominated bid (DCLS and non-DCLS) download file**

The following information is appended to the input format but with:

- the inclusion of the two additional 'DCLS' related columns even if the uploaded bid file the errors relate to was for non-DCLS bids; and
- the exclusion of the compliance reason field:

Field Name	Format	Comments
Order ID	Number(10)	An ID given to the bid or offer by WITS. Null for unconfirmed orders.
Username	Char(20)	The WITS username for the trader who entered the bid or offer.
File status	Char(1)	u - Unconfirmed (entered into WITS but not yet confirmed by Scheduler) c - Confirmed (confirmed by Scheduler) t - at STACS v – General Validation Error z – Node decommissioned for the Trading Period
Error message	Char(50)	Error message explaining why this line was rejected by the Scheduler.
Upload time stamp	Date/time DD/MM/YYYY HH:MI:SS	Timestamp indicates upload time of the bid/offer file.

- **Upload summary results**

CSV file format available only via automation. For browser the information is displayed.

Field Name	Format	Comments
Filename	Char(250)	Name of upload file, up to 250 Chars long
Company	Char(4)	Company that uploaded the file
File type	Char(5)	BID/DIFF/OFFER/PCMP/GCMP/FK
Time started	Date/Time 'DD/MM/YYYY hh24:mi:ss'	
Time finished	Date/Time 'DD/MM/YYYY hh24:mi:ss'	
Good rows	Number	The number of good rows
Bad rows	Number	The number of bad rows

Errors files	Char(30)	The file which contains errors relating to this upload file
File status	Char(200)	The status of the upload file - up to 200 Chars "Finished" indicates successful completion. All other messages indicate errors.

Example of the CSV file

Bids20031105.csv,EMCO,BID,05/11/2003 23:11:46,05/11/2003 23:12:04,566,4,Bids20031105.csv.errors,Finished

Sub-process:	**UN-030 Make new difference bid**
Process:	Upload bids and offers
Source:	Purchasers
Destination:	System operator
Code references:	13.7(1), 13.14A, form 5 schedule 13.1
Dependencies:	GN-030

Description:
Purchasers submit difference bids to the system operator via WITS.

Business requirements:

1. Difference bids must be submitted to the system operator at least 2 hours prior to the beginning of the trading period.
2. Difference bids must only be submitted once the approval process has been completed and the reference data relating to the purchaser and their GXPs has been stored.
3. Difference bids are not 'valid till cancelled' or 'rolled over'. If a difference bid is not made within 2 hours of any trading period, the Code deems that the bids for the current trading day for the missing trading period(s) **will not** be used by the system operator.
4. Difference bids must be able to contain up to 5 price bands for any trading period with an increase in the use of electricity.
5. Difference bids must be able to contain up to 5 price bands for any trading period with a decrease in the use of electricity.
6. Prices must be expressed in NZ dollars and cents to 2 decimal places and per MWh.
7. The minimum acceptable price must be zero. There must be no upper limit (however, in practice, a limit of at least $999,999.99 is acceptable).
8. The quantity per price band must be expressed in MW to 3 decimal places.
9. The minimum acceptable quantity must be 0.000MW.
10. For the first positive band, the quantity and price must indicate that the bid is 'for the first *quantity of* MWs at the first *price* per MWh'. The price in bands 2 to 5 must be in each case lower than the price in the preceding band.

11. For the first negative band, the quantity and price must indicate that the bid is 'for the first *quantity of* MWs at the first *price* per MWh'. The price in bands 2 to 5 must be in each case higher than the price in the preceding band.

12. Trading dates combined with the trading period must not be in the past. Submissions for trading periods that ended before the submission time must be rejected.

13. Difference bids must be allowed to be input for any trading period for the next 7 trading days; however, the system operator only requires transmission of bids for the current day and the next 2 trading days.

14. Bids must be strictly private and confidential to the organisation concerned (and the system operator).

15. Participants must only be able view their own bids.

16. Participants must be able to download their own bids into their own systems.

17. All difference bids must generate an audit trail.

Data inputs:

- **Difference bids**

Field Name	**Format**	**Mandatory/ optional**	**Comments**
GXP	Char (7)	M	Must be a conforming GXP
Trading date	Date DD/MM/YYYY	M	Trading date to which the bid applies
Trading period	Number (2)	M	Trading period to which the bid applies 1 to 48 for standard day 1 to 50 for daylight saving end 1 to 46 for daylight saving start.
Positive Band 1 price	Number (8,2)	M	MW.
Positive Band 1 quantity	Number (10,3)	M	
Positive Band 2 price	Number (8,2)	O	MW.
Positive Band 2 quantity	Number (10,3)	O	
Positive Band 3 price	Number (8,2)	O	MW.

Positive Band 3 quantity	Number (10,3)	O	
Positive Band 4 price	Number (8,2)	O	MW.
Positive Band 4 quantity	Number (10,3)	O	
Positive Band 5 price	Number (8,2)	O	MW.
Positive Band 5 quantity	Number (10,3)	O	
Negative Band 6price	Number (8,2)	M	MW.
Negative Band 6quantity	Number (10,3)	M	
Negative Band 7price	Number (8,2)	O	MW.
Negative Band 7quantity	Number (10,3)	O	
Negative Band 8price	Number (8,2)	O	MW.
Negative Band 8quantity	Number (10,3)	O	
Negative Band 9price	Number (8,2)	O	MW.
Negative Band 9quantity	Number (10,3)	O	
Negative Band 10price	Number (8,2)	O	MW.
Negative Band 10quantity	Number (10,3)	O	
Participant code of purchaser	Char (4)	M	Code allocated by the reconciliation manager to the participant.
Free text	Char (16)	O	Enables the Purchaser to attach a unique marker to each bid, which will be carried through the scheduling process and appear in the pre-dispatch schedule.
Compliance reason	Char (4000)	M/O	Reason if bid is submitted within one hours/30mins of the trading period start. This is enclosed with quotation marks (ASCII character 34) and takes precedence over the one entered on the screen. Mandatory when bid is submitted within one hours/30mins.

Example
ADD661,14/07/2004,12,14.23,100,14.05,50,13.75,50.05,0,0,0,0,0,0,0,0,0,0,0,0,0,0,EMCO,,"bonafide change"
ADD661,14/07/2004,13,14.23,100,14.05,50,13.75,50.05,0,0,0,0,0,0,0,0,0,0,0,0,0,0,EMCO,

Processing:
The system: 1. Validates the difference bid against gateway compliance processing instructions, validation criteria and reference data. Difference bids will always meet the gateway compliance criteria. 2. Displays (browser) or delivers (automation) the summary results of the upload 3. Notifies users of any errors for correction. 4. Appends additional audit information to each bid – a unique order ID, user ID of the inputting user, method of submission, submission filename and the upload timestamp. For offers that are rejected an additional attribute – error message – is appended. 5. Stores the valid difference bids and makes the stored information available to be viewed and downloaded by all permitted users of the participant company. 6. Transmits valid difference bids for the current and next trading date immediately to the system operator. 7. Logs the bid if it falls within the relevant gateway compliance criteria and the system stores it as a valid bid i.e. it passes all other validation checks (compliance gateway log). In addition to the bid details, the log also includes additional compliance log details.

Data outputs:
Valid and invalid difference bids. The same as input but with the exclusion of the compliance reason, and the addition of audit information generated by the system that includes: • date and time the difference bid was received; and • details of the user submitting the difference bid; and • method of submission and submission filename; and • error message; and • date and time the difference bid was delivered to the system operator.

- **Valid difference bid download file**

The following information is appended to the input format but with the exclusion of the compliance reason field:

Field Name	Format	Comments
Order ID	Number(10)	An ID given to the bid or offer by WITS. Null for unconfirmed orders.
Username	Char(20)	The WITS username for the trader who entered the bid or offer.
File status	Char(1)	u - Unconfirmed (entered into WITS but not yet confirmed by Scheduler) c - Confirmed (confirmed by Scheduler) t - at STACS v – General Validation Error z – Node decommissioned for the Trading Period
Error message	Char(50)	Error message explaining why this line was rejected by the Scheduler.
Upload time stamp	Date/Time DD/MM/YYYY HH:MI:SS	Time stamp indicates upload time of the bid/offer file.

- **Upload summary results**

CSV file format available only via automation. For browser the information is displayed.

Field Name	Format	Comments
Filename	Char(250)	Name of upload file, up to 250 Chars long
Company	Char(4)	Company that uploaded the file
File type	Char(5)	BID/DIFF/OFFER/PCMP/GCMP/FK
Time started	Date/time 'DD/MM/YYYY hh24:mi:ss'	
Time finished	Date/time 'DD/MM/YYYY hh24:mi:ss'	
Good rows	Number	The number of good rows
Bad rows	Number	The number of bad rows
Errors files	Char(30)	The file which contains errors relating to this upload file

File status	Char(200)	The status of the upload file - up to 200 Chars "Finished" indicates successful completion. All other messages indicate errors.
Example of the CSV file Bids20031105.csv,EMCO,BID,05/11/2003 23:11:46,05/11/2003 23:12:04,566,4,Bids20031105.csv.errors,Finished		

Sub-process:	**UN-040 Make new generation reserve offer**
Process:	Upload bids and offers
Source:	Ancillary service agents
Destination:	System operator
Code references:	13.38, 13.41, 13.42, 13.44, 13.46(4), 13.51(1), form 5 schedule 13.1
Dependencies:	GN-040

Description:

Ancillary service agents are required to submit generation reserve offers to the system operator through WITS. Generation reserve offers are for Partly Loaded Spinning Reserve and/or Non-Specific Generation Reserve.

The submission mechanism (browser only) allows participants to instruct the system to accept or reject reserve offers if their trading period commence within the next 30 minutes, in the case of embedded generators that are ancillary service agents, or one hour for all other ancillary service agents.

Business requirements:

1. Generation reserve offers must be submitted to the system operator at least 71 trading periods prior to the beginning of the trading period.

2. Generation reserve offers must only be submitted once there is a contract in place and the reference data relating to the ancillary service agent generator and its generating plants has been stored.

3. It must be possible to submit generation reserve offers for either Partly Loaded Spinning Reserve or Non-Specific Generation Reserve or both.

4. Generation reserve offers will be 'rolled over' in the same way as offers where a reserve offer is missing for any trading period for tomorrows trading date and the day after.

5. Ancillary service agents must offer by unit or by station but only after prior agreement with the system operator (as notified to the system operator in RO-010).

6. Generation reserve offers must allow up to three price bands for each type of instantaneous reserve (Partly Loaded Spinning Reserve and Non-Specific Generation Reserve), for fast and sustained response and for any trading period.

7. Prices must be expressed in NZ dollars and cents to two decimal places and per MW.

8. The minimum price must be zero and there must be no upper limit (however, in practice, a limit of at least $999,999.99 is acceptable).

9. For Partly Loaded Spinning Reserve offers, the quantity in each price band must be expressed as a percentage of electricity output up to a specific maximum. The percentage must be expressed to one decimal place. The maximum must be expressed in MWs to three decimal places. The lowest maximum quantity must be 0.001MW.

10. For Non-Specific Generation Reserve offers, the quantity in each price band must be expressed as a maximum quantity expressed in MWs to three decimal places. The lowest maximum quantity must 0.001MW.

11. The quantity in band 2 must indicate that it is additional to the quantity given in band 1. Likewise, the band 3 quantity must be regarded as additional to the quantities given in band 1 and band 2.

12. Prices must increase from band to band, i.e. the band 2 price must be more than the band 1 price etc.

13. Trading dates combined with the trading period must not be in the past. Submissions for trading periods that ended before the submission time must be rejected.

14. If the submission is via the browser, the system must accept or reject offers in accordance with the participant's gateway compliance processing instructions provided with the submission.

15. The following generation reserve offers must be logged in the gateway compliance log:

    - A valid generation reserve offer for which the time of submission is within the trading period to which the offer relates.

    - A valid generation reserve offer from an ancillary service agent that is an embedded generator or a dispatch notification generator if the trading period it relates to commences within 30 minutes from the time of submission.

    - A valid generation reserve offer from any other ancillary service agent if the trading period it relates to commences within one hour from the time of submission.

    A valid generation reserve offer is where it passes all other validation checks.

16. Reserve offers must be allowed to be input for any trading period for the next 7 trading days; however, the system operator only requires transmission of reserve offers for the current day and the next 2 trading days.

17. Generation reserve offers must be strictly private and confidential to the organisation concerned (and to the system operator). Participants must only be able to view their own offers.

18. Participants must be able to download their own generation reserve offers into their own systems.

19. All reserve offers must generate an audit trail.

Data inputs:

Gateway compliance processing instructions:

- Discard quantity changes within 30 minutes.
- Allow price changes within 30 minutes.
- Discard entire file if orders are within 30 minutes.
- Discard quantity changes within one hour.
- Allow price changes within one hour.
- Discard entire file if orders are within one hour.

- **Generation reserve offers**

Field Name	**Format**	**Mandatory/ optional**	**Comments**
GIP	Char (7)	M	
Station	Char (3)	M/O	Mandatory if no unit.
Unit	Number (2)	M/O	Mandatory if no station.
Trading date	Date DD/MM/YYYY	M	Trading date to which the offer applies.
Trading period	Number (2)	M	Trading period to which the offer applies 1 to 48 for standard day 1 to 50 for daylight saving end 1 to 46 for daylight saving start.
Band 1 PLSR 6 sec price	Number (8,2)	M	
Band 1 PLSR 6 sec maximum	Number (10,3)	M	MW.

Band 1 PLSR 6 sec percentage	Number (5,1)	M	
Band 1 PLSR 60 sec price	Number (8,2)	M	
Band 1 PLSR 60 sec maximum	Number (10,3)	M	MW.
Band 1 PLSR 60 sec percentage	Number (5,1)	M	
Band 1 NSGR 6 sec price	Number (8,2)	M	
Band 1 NSGR 6 sec maximum	Number (10,3)	M	MW.
Band 1 NSGR 60 sec price	Number (8,2)	M	
Band 1 NSGR 60 sec maximum	Number (10,3)	M	MW.
Band 2 PLSR 6 sec price	Number (8,2)	O	
Band 2 PLSR 6 sec maximum	Number (10,3)	O	MW.
Band 2 PLSR 6 sec percentage	Number (5,1)	O	
Band 2 PLSR 60 sec price	Number (8,2)	O	
Band 2 PLSR 60 sec maximum	Number (10,3)	O	MW.
Band 2 PLSR 60 sec percentage	Number (5,1)	O	
Band 2 NSGR 6 sec price	Number (8,2)	O	
Band 2 NSGR 6 sec maximum	Number (10,3)	O	MW.
Band 2 NSGR 60 sec price	Number (8,2)	O	
Band 2 NSGR 60 sec maximum	Number (10,3)	O	MW.
Band 3 PLSR 6 sec price	Number (8,2)	O	
Band 3 PLSR 6 sec maximum	Number (10,3)	O	MW.

Band 3 PLSR 6 sec percentage	Number (5,1)	O	
Band 3 PLSR 60 sec price	Number (8,2)	O	
Band 3 PLSR 60 sec maximum	Number (10,3)	O	MW.
Band 3 PLSR 60 sec percentage	Number (5,1)	O	
Band 3 NSGR 6 sec price	Number (8,2)	O	
Band 3 NSGR 6 sec maximum	Number (10,3)	O	MW.
Band 3 NSGR 60 sec price	Number (8,2)	O	
Band 3 NSGR 60 sec maximum	Number (10,3)	O	MW.
Participant code of generator	Char (4)	M	Code allocated by the reconciliation manager to the participant.
Free text	Char (16)	O	Enables the Generator to attach a unique marker to each offer, which will be carried through the scheduling process and appear in the pre-dispatch schedule.
Compliance reason	Char (4000)	M/O	Reason for offer submitted within one hour/30mins of the trading period start. This is enclosed with quotation marks (ASCII character 34) and takes precedence over the one entered on the screen. Mandatory when offer is submitted within one hour/30mins.

Example
ADD661,ADD,0,14/07/2004,24,0.04,12,10.7,0.10,12.5,10.8,13.02,11.15,10.8,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,EMCO,Free Text,"bonafide change"
ADD661,ADD,0,14/07/2004,25,0.05,12,11.7,0.12,12.5,10.8,13.02,11.15,10.8,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,EMCO,Free Text

Processing:

The system:

1. Validates the offer against gateway compliance processing instructions, validation criteria and reference data.

2. Displays (browser) or delivers (automation) the summary results of the upload.

3. Notifies users of any errors requiring correction.

4. Appends additional audit information to each reserve offer – a unique order ID, user ID of the inputting user, method of submission, submission filename and the upload timestamp. For reserve offers that are rejected an additional attribute – error message – is appended.

5. Stores the valid generation reserve offers and makes them available to be viewed and downloaded by all permitted users of the participant company.

6. Transmits valid reserve offers for the current and next trading date immediately to the system operator.

7. Logs the reserve offer if it falls within the relevant gateway compliance criteria and the system stores it as a valid reserve offer i.e. it passes all other validation checks, logs the reserve offer (compliance gateway log). In addition to the reserve offer details, the log also includes additional compliance log details.

Data outputs:

Valid and invalid generation reserve offers. The same as input but with the exclusion of the compliance reason, and the addition of audit information generated by the system that includes:

- date and time the reserve offer was received; and
- details of the user submitting the reserve offer; and
- method of submission and submission filename; and
- error message: and
- date and time the reserve offer was delivered to the System Operator.

- **Gateway compliance log**

The following information is appended to the input format after the participant code i.e. excludes the free text and compliance reason fields:

Field Name	Format	Comments
User reference from	Char (16)	Free text value of the original bid or offer being revised.
User reference to	Char(20)	Free text value of the revised bid or offer.
Order ID	Number(10)	The order ID given by WITS to the original bid or offer being revised. Null for unconfirmed bids or offers.
Succeed order ID	Number(10)	The order ID given by WITS to the revised bid or offer. Null for unconfirmed bids or offers.
Created date from	Date/time DD/MM/YYYY HH:MI:SS	Creation timestamp of the original bid or offer being revised.
Created date to	Date/time DD/MM/YYYY HH:MI:SS	Creation timestamp of the revised bid or offer.
Last amended date from	Date/time DD/MM/YYYY HH:MI:SS	Last amendment timestamp of the original bid or offer being revised.
Last amended date to	Date/time DD/MM/YYYY HH:MI:SS	Last amendment timestamp of the revised bid or offer.
Trading company code	Char (4)	Participant ID of the trading company.
User ID from	Char (8)	User ID of the inputter of the original bid or offer being revised.
User ID to	Char (8)	User ID of the inputter of the revised bid or offer.
Name from	Char (20)	Name of the user that last amended the original bid or offer being revised.
Name to	Char (20)	Name of the user that last amended the revised bid or offer.
Change type	Char (1)	P – price change, O – other change i.e. quantity.
Status from	Char(1)	Status of the original bid or offer being revised. Valid values are: u - Unconfirmed

		c - Confirmed t - At STACS
Status to	Char (1)	Status of the revised bid or offer. Valid values as above.
Gateway type	Char (5)	"1HR" or "30MIN"
Compliance reason	Char (4000)	Initially copied from the input file but can be updated via NB-020.

- **Valid generation reserve offers download file**

The following information is appended to the input format but with the exclusion of the compliance reason field:

Field Name	Format	Comments
Order ID	Number(10)	An ID given to the bid or offer by WITS. Null for unconfirmed orders.
Username	Char(20)	The WITS username for the trader who entered the bid or offer.
File status	Char(1)	u - Unconfirmed (entered into WITS but not yet confirmed by Scheduler) c - Confirmed (confirmed by Scheduler) t - at STACS v – General Validation Error z – Node decommissioned for the Trading Period
Error message	Char(50)	Error message explaining why this line was rejected by the Scheduler.
Upload time stamp	Date/time DD/MM/YYYY HH:MI:SS	Timestamp indicates upload time of the bid/offer file.

- **Upload summary results**

CSV file format available only via automation. For browser the information is displayed.

Field Name	Format	Comments
Filename	Char(250)	Name of upload file, up to 250 Chars long
Company	Char(4)	Company that uploaded the file
File type	Char(5)	BID/DIFF/OFFER/PCMP/GCMP/FK
Time started	Date/time 'DD/MM/YYYY hh24:mi:ss'	
Time finished	Date/time	

	'DD/MM/YYYY hh24:mi:ss'	
Good rows	Number	The number of good rows
Bad rows	Number	The number of bad rows
Errors files	Char(30)	The file which contains errors relating to this upload file
File status	Char(200)	The status of the upload file - up to 200 Chars "Finished" indicates successful completion. All other messages indicate errors.

Example of the CSV file

Bids20031105.csv,EMCO,BID,05/11/2003 23:11:46,05/11/2003 23:12:04,566,4,Bids20031105.csv.errors,Finished

Sub-process:	**UN-050 Make new interruptible load reserve offer**
Process:	Upload bids and offers
Source:	Ancillary service agents
Destination:	System operator
Code references:	13.38(1) and (2)(b), 13.40, 13.41, 13.43, 13.44, 13.46(4), 13.47, 13.51(1), form 6 schedule 13.1
Dependencies:	GN-050

Description:

An ancillary service agent submits interruptible load reserve offers to the system operator via WITS.

The submission mechanism (browser only) allows participants to instruct the system to accept or reject offers if their trading period commence within the next 30 minutes, in the case of embedded generators that are ancillary service agents, or one hour for all other ancillary service agents.

N.B: The minimum price is assumed to be zero (even though clause 13.43 says there is no lower limit) and there must be no upper limit. However, in practice, a limit of at least $999,999.99 is acceptable.

Business requirements:

1. Interruptible load reserve offers must be submitted to the system operator at least 71 trading periods prior to the beginning of the trading period.

2. Interruptible load reserve offers must only be offered once there is a contract in place and the reference data relating to the ancillary service agent's reserve GXPs or interruptible load group GXPs stored.

3. Interruptible load reserve offers will be ‘rolled over’ in the same way as offers where a reserve offer is missing for any trading period for tomorrows trading date and the day after.

4. Interruptible load reserve offers must contain no more than three prices for fast and sustained response and per trading period.

5. Prices must be expressed in NZ dollars and cents to two decimal places and per MW.

6. The minimum price must be zero (even though clause 13.43 says no lower limit) and there must be no upper limit. However, in practice, a limit of at least $999,999.99 is acceptable.

7. The quantity in each price band must be expressed as a maximum to three decimal places. The minimum quantity must be 0.001MW though there is no specific rule that states this.

8. Prices must increase from band to band, i.e. the band 2 price must be more than the band 1 price etc.

9. Trading dates combined with the trading period must not be in the past. Submissions for trading periods that ended before the submission time must be rejected.

10. If the submission is via the browser, the system must accept or reject offers in accordance with the participant's gateway compliance processing instructions provided with the submission.

11. The following interruptible load reserve offers must be logged in the gateway compliance log:

    - A valid interruptible load reserve offer for which the time of submission is within the trading period to which the offer relates.

    - A valid interruptible load reserve offer from an ancillary service agent that is an embedded generator if the trading period it relates to commences within 30 minutes from the time of submission.

    - A valid interruptible load reserve offer from any other ancillary service agent if the trading period it relates to commences in one hour from the time of submission.

    A valid interruptible load reserve offer is where it passes all other validation checks.

12. Reserve offers must be allowed to be input for any trading period for the next 7 trading days; however, the system operator only requires transmission of offers for the current day and the next 2 trading days.

13. Interruptible load reserve offers must be strictly private and confidential to the organisation concerned (and the system operator). Participants must only be able to view their own offers.

14. Participants must be able to download their own interruptible load reserve offers into their own systems.

15. All interruptible load reserve offers must generate an audit trail.

Data inputs:

Gateway compliance processing instructions:

- Discard quantity changes within 30 minutes.
- Allow price changes within 30 minutes.
- Discard entire file if orders are within 30 minutes.
- Discard quantity changes within one hour.
- Allow price changes within one hour.
- Discard entire file if orders are within one hour.

- **Interruptible load reserve offers**

Field Name	Format	Mandatory/ optional	Comments
GXP or interruptible load group GXP	Char (14)	M	Station and unit number can be included when purchaser also bids dispatchable demand at this location. e.g. ABC2201 ABC0
Trading date	Date DD/MM/YYYY	M	Trading date to which the offer applies.
Trading period	Number (2)	M	Trading period to which the offer applies 1 to 48 for standard day 1 to 50 for daylight saving end 1 to 46 for daylight saving start.
Interruptible Load 6 seconds Flag	Char (1)	M	Y/N.
Interruptible Load 60 seconds Flag	Char (1)	M	Y/N.
Band 1 6 sec price	Number (8,2)	M	
Band 1 6 sec maximum	Number (10,3)	M	MW.
Band 1 60 sec price	Number (8,2)	M	
Band 1 60 sec maximum	Number (10,3)	M	MW.
Band 2 6 sec price	Number (8,2)	O	
Band 2 6 sec maximum	Number (10,3)	O	MW.
Band 2 60 sec price	Number (8,2)	O	
Band 2 60 sec maximum	Number (10,3	O	MW.

Band 3 6 sec price	Number (8,2)	O	
Band 3 6 sec maximum	Number (10,3)	O	MW.
Band 3 60 sec price	Number (8,2)	O	
Band 3 60 sec maximum	Number (10,3)	O	MW.
Participant code	Char (4)	M	Code allocated by the reconciliation manager to the participant.
Free text	Char (16)	O	Enables the participant to attach a unique marker to each offer, which will be carried through the scheduling process and appear in the pre-dispatch schedule.
Compliance reason	Char (4000)	M/O	Reason for offer submitted within one hour/30mins of the trading period start. This is enclosed with quotation marks (ASCII character 34) and takes precedence over the one entered on the screen. Mandatory when offer is submitted within one hour/30mins.

Example
ADD661,14/07/2004,24,Y,Y,12.4,50.05,12.75,20.145,12.9,20.145,13.02,20.145,,,,,EMCO,Free Text,"bonafide change"
ADD661,14/07/2004,25,Y,Y,12.4,50.05,12.75,20.145,12.9,20.145,13.02,20.145,,,,,EMCO,Free Text

Processing:

The system:

1. Validates the offer against gateway compliance processing instructions, validation criteria and reference data.
2. Displays (browser) or delivers (automation) the summary results of the upload.
3. Notifies users of any errors requiring correction.
4. Appends additional audit information to each reserve offer – a unique order ID, user ID of the inputting user, method of submission, submission filename and the upload timestamp. For reserve offers that are rejected an additional attribute – error message – is appended.

5. Stores the valid reserve offers and makes them available to be viewed and downloaded by all permitted users of the participant company.

6. Transmits valid reserve offers for the current and next trading date immediately to the system operator.

7. Logs the reserve offer if it falls within the relevant gateway compliance criteria and the system stores it as a valid reserve offer i.e. it passes all other validation checks, logs the reserve offer (compliance gateway log). In addition to the reserve offer details, the log also includes additional compliance log details.

Data outputs:

Valid and invalid interruptible load reserve offers. The same as input but with the exclusion of the compliance reason, and the addition of audit information generated by the system that includes:

- date and time the reserve offer was received; and
- details of the user submitting the reserve offer; and
- method of submission and submission filename; and
- error message; and
- date and time the reserve offer was delivered to the system operator.

- **Gateway compliance log**

The following information is appended to the input format after the participant code i.e. excludes the free text and compliance reason fields:

Field Name	Format	Comments
User reference from	Char (16)	Free text value of the original bid or offer being revised.
User reference to	Char(20)	Free text value of the revised bid or offer.
Order ID	Number(10)	The order ID given by WITS to the original bid or offer being revised. Null for unconfirmed bids or offers.
Succeed order ID	Number(10)	The order ID given by WITS to the revised bid or offer. Null for unconfirmed bids or offers.
Created date from	Date/time DD/MM/YYYY HH:MI:SS	Creation timestamp of the original bid or offer being revised.
Created date to	Date/time DD/MM/YYYY HH:MI:SS	Creation timestamp of the revised bid or offer.

Last amended date from	Date/time DD/MM/YYYY HH:MI:SS	Last amendment timestamp of the original bid or offer being revised.
Last amended date to	Date/time DD/MM/YYYY HH:MI:SS	Last amendment timestamp of the revised bid or offer.
Trading company code	Char (4)	Participant ID of the trading company.
User ID from	Char (8)	User ID of the inputter of the original bid or offer being revised.
User ID to	Char (8)	User id of the inputter of the revised bid or offer.
Name from	Char (20)	Name of the user that last amended the original bid or offer being revised.
Name to	Char (20)	Name of the user that last amended the revised bid or offer.
Change type	Char (1)	P – price change, O – other change i.e. quantity.
Status from	Char(1)	Status of the original bid or offer being revised. Valid values are: u - Unconfirmed c - Confirmed t - At STACS
Status to	Char (1)	Status of the revised bid or offer. Valid values as above.
Gateway type	Char (5)	"1HR" or "30MIN"
Compliance reason	Char (4000)	Initially copied from the input file but can be updated via NB-020.

- **Valid interruptible load reserve offers download file**

The following information is appended to the input format but with the exclusion of the compliance reason field:

Field Name	Format	Comments
Order ID	Number(10)	An ID given to the bid or offer by WITS. Null for unconfirmed orders.
Username	Char(20)	The WITS username for the trader who entered the bid or offer.
Order status	Char(1)	u - Unconfirmed (entered into WITS but not yet confirmed by Scheduler) c - Confirmed (confirmed by Scheduler)

		t - at STACS v – General Validation Error z – Node decommissioned for the Trading Period
Error message	Char(50)	Error message explaining why this line was rejected by the Scheduler.
Upload time stamp	Date/Time DD/MM/YYYY HH:MI:SS	Timestamp indicates upload time of the bid/offer file.

- **Upload summary results**

CSV file format available only via automation. For browser the information is displayed.

Field Name	Format	Comments
Filename	Char(250)	Name of upload file, up to 250 Chars long
Company	Char(4)	Company that uploaded the file
File type	Char(5)	BID/DIFF/OFFER/PCMP/GCMP/FK
Time started	Date/time 'DD/MM/YYYY hh24:mi:ss'	
Time finished	Date/time 'DD/MM/YYYY hh24:mi:ss'	
Good rows	Number	The number of good rows
Bad rows	Number	The number of bad rows
Errors files	Char(30)	The file which contains errors relating to this upload file
File status	Char(200)	The status of the upload file - up to 200 Chars "Finished" indicates successful completion. All other messages indicate errors.

Example of the CSV file

Bids20031105.csv,EMCO,BID,05/11/2003 23:11:46,05/11/2003 23:12:04,566,4,Bids20031105.csv.errors,Finished

Sub-process:	**UN-060 Make new frequency keeping offer**
Process:	Upload bids and offers
Source:	Generators
Destination:	System operator
Code references:	None
Dependencies:	GN-060

Description:
Generators submit frequency keeping offers to the system operator via WITS.

Business requirements:

1. Frequency keeping offers must only be able to be offered once the approval process has been completed and the reference data relating to the generator and its generating plants at which FK offers will be submitted has been stored by the system operator and WITS.

2. Frequency keeping offers for generators must be able to contain up to 5 price bands for any trading period i.e. five prices and five quantities.

3. Prices must be expressed in NZ dollars and cents, i.e. to 2 decimal places per MWh.

4. The minimum allowable price must be zero. There must be no upper limit.

5. The quantity per price band must be expressed in MW and be to 3 decimal places.

6. The minimum allowable quantity must be 0.000MW.

7. For the first band, the quantity and price must indicate that the frequency offer is 'for the *bandwidth of +/- Band1 quantity* MWs at the Band 1 *price* per MWh'. For subsequent bands, the offer indicates that it is the price 'for the **next** *bandwidth* of MWs'.

8. Prices must increase from band to band, i.e. the band 2 price must be more than the band 1 price etc.

9. Trading dates combined with the trading period must not be in the past. Submissions for trading period that ended before the submission time must be rejected.

10. Frequency keeping offers must remain strictly private and confidential to the organisation concerned (and the system operator).

11. Participants must only be able to view their own frequency keeping offers.

12. Participants must be able to download their own frequency keeping offers into their own systems.

13. All frequency keeping offers must generate an audit trail.

Data inputs:

Offers contain:

Field Name	Format	Mandatory/ optional	Comments
GIP	Char (13)	M	Can be a combination of GIP, station, block and/or unit
Trading date	Date DD/MM/YYYY	M	Trading date to which the offer applies
Trading period	Number (2)	M	Trading period to which the offer applies 1 to 48 for standard day 1 to 50 for daylight saving end 1 to 46 for daylight saving start.
Control minimum	Number (10,3)	M	MW Lower limit of FK range. Positive value.
Control maximum	Number (10,3)	M	MW Upper limit of FK range. Positive value. Must be >= Control minimum + sum of (2 x BandX MW) of all bands in the frequency keeping offer.
Band 1 price	Number (8,2)	M	NZ dollars.
Band 1 quantity	Number (10,3)	M	MW.
Band 2 price	Number (8,2)	O	Must be greater than Band 1 Price (must be a positive value)
Band 2 quantity	Number (10,3)	O	MW.
Band 3 price	Number (8,2)	O	Must be greater than Band 2 Price (must be a positive value).
Band 3 quantity	Number (10,3)	O	MW.

Band 4 price	Number (8,2)	O	Must be greater than Band 3 Price (must be a positive value)
Band 4 quantity	Number (10,3)	O	MW.
Band 5 price	Number (8,2)	O	Must be greater than Band 4 Price (must be a positive value)
Band 5 quantity	Number (10,3)	O	MW.
Participant code	Char (4)	M	Code allocated by the reconciliation manager to the participant.
Free text	Char (16)	O	Enables the user to attach a unique marker to each order, which will be carried through the scheduling process and appear in the schedule.

Example
An example of an FK offer in CSV format for BEN2201, unit 1 on 1 March 2004 for trading period 36 (17:30-17:59) operating between 80MW and 240MW, with a bandwidth of +/- 25MW @ $100 would be:

BEN2201 BEN1,01/03/2004,36,80,240,100,25,0,0,0,0,0,0,0,0,EMCO,

Processing:

The system:

1. Validates the frequency keeping offer against validation criteria and reference data.
2. Displays (browser) or delivers (automation) the summary results of the upload.
3. Notifies users of any errors requiring correction.
4. Appends additional audit information to each FK offer – a unique order ID, user ID of the inputting user, method of submission, submission filename and the upload timestamp. For FK offers that are rejected an additional attribute – error message – is appended.
5. Stores the valid frequency keeping offers and makes them available for viewing and downloading by all permitted users of the participant company.
6. Transmits valid frequency keeping offers for the current and next trading date immediately to the system operator.

Data outputs:

Valid and invalid frequency keeping offers. The same as that input but with the addition of audit information generated by the system that includes:

- date and time the offer was received; and
- details of the user submitting the offer; and
- method of submission and filename; and
- error message; and
- date and time the frequency keeping offer was delivered to the system operator.

- **Valid frequency offers download file**

The following information is appended to the input format:

Field Name	Format	Comments
Order ID	Number(10)	An ID given to the bid or offer by WITS. Null for unconfirmed orders.
Username	Char(20)	The WITS username for the trader who entered the bid or offer.
Order status	Char(1)	u - Unconfirmed (entered into WITS but not yet confirmed by Scheduler) c - Confirmed (confirmed by Scheduler) t - at STACS v – General Validation Error z – Node decommissioned for the Trading Period
Error message	Char(50)	Error message explaining why this line was rejected by the Scheduler.
Upload time stamp	Date/time DD/MM/YYYY HH:MI:SS	Timestamp indicates upload time of the bid/offer file.

- **Upload summary results**

CSV file format available only via Automation. For browser the information is displayed.

Field Name	Format	Comments
Filename	Char(250)	Name of upload file, up to 250 Chars long
Company	Char(4)	Company that uploaded the file
File type	Char(5)	BID/DIFF/OFFER/PCMP/GCMP/FK
Time started	Date/time	

	'DD/MM/YYYY hh24:mi:ss'	
Time finished	Date/time 'DD/MM/YYYY hh24:mi:ss'	
Good rows	Number	The number of good rows
Bad rows	Number	The number of bad rows
Errors files	Char(30)	The file which contains errors relating to this upload file
File Statusalso	Char(200)	The status of the upload file - up to 200 Chars "Finished" indicates successful completion. All other messages indicate errors.

Example of the CSV file

Bids20031105.csv,EMCO,BID,05/11/2003 23:11:46,05/11/2003 23:12:04,566,4,Bids20031105.csv.errors,Finished

Sub-process:	**UR-010 Revise existing bids and offers**
Process:	Revise bids and offers
Source:	Purchasers and Generators
Destination:	System operator
Code references:	13.17 to 13.19, 13.19A, 13.21, 13.46, 13.47, 13.49
Dependencies:	UN-010 to UN-060.

Description:
Participants may submit revised bids and offers for energy and reserve to the system operator via WITS.

Business requirements:

1. WITS permits the revisions of offers, bids and reserve offers, at any time before the end of the applicable trading period.

2. All revisions of offers (other than by intermittent generators), reserve offers and nominated dispatch bids made within the gate closure period must be logged for gateway compliance reporting purposes.

   The gate closure period, in relation to a trading period for which a generator or ancillary service agent has submitted an offer or reserve offer, or for which a dispatchable load purchaser has submitted a nominated dispatch bid, means,

   (a) the trading period and the trading period immediately preceding that trading period to which the offer or reserve offer relates, for an embedded generator and an ancillary service agent that is also an embedded generator; and

   (b) the trading period and the 2 trading periods immediately preceding that trading period to which the offer, reserve offer, or nominated dispatch bid relates, for any other generator, ancillary service agent and dispatch load purchaser.

3. The same validation and submission process must be used for all revised bids, offers and reserve offers as for the submission of new ones. The revisions must replace the existing ones and must be transmitted to the system operator.

Data inputs:
The same as the Upload New formats – UN-010 to UN-060.

Processing:
Processing is the same as described in UN-010 to UN-060with the following additions: 1. Revised offers replace any existing offers.

Data outputs:
The same as the Upload New formats – UN-010 to UN-060.

Sub-process:	**UC-010 Cancel existing bids and offers**
Process:	Cancel bids and offers
Source:	Purchasers and Generators
Destination:	System operator
Code references:	13.17 to 13.21, 13.46, 13.47
Dependencies:	UR-010

Description:
Participants may cancel bids and offers submitted previously to the system operator via WITS.

Business requirements:
1. The following two types of cancellation process must be allowed for: • withdrawal of a bid or offer for one or more trading periods; and • the permanent cessation of trading by the generating plant or purchaser. In the first case, a revised offer for zero quantity and price (in all bands) must be submitted as described under sub-process UR-010. In the second instance, the participant must submit revised bids, offers and reserve offers at zero price and quantity for all trading periods for one or more trading dates. The number of trading days must be agreed with the system operator to allow time for changes to their systems. Once the required number of trading days has passed, any bids, offers and reserve offers, must be removed from WITS and the participant must be prevented from submitting further offers. (This process is called “Zero Out” in the system).

Data inputs:
The same as the Upload New formats – UN-010 to UN-060.

Processing:
Processing is the same as described in UR-010 with the following additions: 1. Cancellation bids, offers and reserve offers replace any existing ones.

2. If the “Zero Out” process is initiated, the system stops cancelled bids and offers from being ‘rolled over’. See UN-010 to UN-060.
Data outputs:
The same as the Upload New formats – UN-010 to UN-060.

Sub-process:	**DE-010 View & download erroneous bids and offers**
Process:	Submit generator offer
Source:	Generator
Destination:	System operator
Code references:	
Dependencies:	UN-010 to UN-060, UR-010, UC-010

Description:
Participants can view their upload errors via WITS. Via the browser, the system provides a drill down facility in order to identify a particular invalid bid or offer and view its details, including the error message. For the automated system, the system delivers a file for each type of bid or offer containing details (including the error message) of each invalid bid or offer.

Business requirements:
1. Participants must be able to view information about their bids and offers that have validation errors via the browser. 2. Participants must be able to have information about their own bids and offers that have validation errors delivered to them via the automation facility. 3. Participants must only be able to view their own company's information about the bids and offers that have validation errors.

Data inputs:
Invalid nominated bids (DCLS and non-DCLS), difference bids, offers, generator reserve offers, interruptible load offers and frequency keeping offers uploaded with errors and appended with audit information. (UN-010 to UN-060, UR-010, UC-010). Selection criteria (browser only).

Processing:
The system: 1. Extracts the relevant invalid bids or offers, but only of participants own invalid bids and offer. 2. If requested via the browser, extracts only the bids and offers satisfying the selection criteria.

3. If using the automation system, delivers the details of all the participant's company(s) invalid bids and offers in a csv formatted file for each type of bid or offer to their FTP folder.

Data outputs:

For the browser, the display includes:

- All the fields of the submitted bid or offer: and
- the error message; and
- the timestamp of its submission.

For the automation system:

- DE-010 Download submission errors – Bids (DCLS and non-DCLS), Difference Bids, Offers, Retailer Reserves, Generator Reserves and Frequency Keeping

The file format for the download of errors is identical (excluding the Compliance Reason field) to the upload formats except that:

- the file will always contain the two additional 'DCLS' related columns even if the uploaded bid file the errors relate to was for non-DCLS bids; and
- three extra fields are added to the end of each line. The three additional columns are shown below:

Field Name	Format	Comments
Load time	Date/Time	The time of the start of the file load format 'DD/MM/YYYY hh24:mi:ss'
File name	Char (250)	Name of upload file, up to 250 Chars long
Error messages	Char (50)	Error message explaining why this line was rejected.
Forecast of generation potential (FOGP)	NUMBER (10,3)	This field is populated only where the offer relates to wind generation.

Examples of CSV files

Upload Errors DCLS Bids:
ADD0661,05/11/2003,12,14.23,100,14.05,50,13.75,50.05,0,0,0,0,0,0,0,0,0,0,0,0,0,0,EMCO,DLS1,Y,,05/11/2003 23:12:04,Bids20031105.csv,Order shut time has expired

Upload Errors non-DCLS Bids:
ADD0661,05/11/2003,12,14.23,100,14.05,50,13.75,50.05,0,0,0,0,0,0,0,0,0,0,0,0,0,0,EMCO,,,,05/11/2003 23:12:04,Bids20031105.csv,Order shut time has expired

Upload Errors Offers:
ARA2201,,,05/11/2003,12,250,20,20,12.23,100,12.75,50,13.75,50,0,0,0,0,
EMCO,,05/11/2003 23:12:04,Bids20031105.csv,Order shut time has expired

Upload Errors Retailer Reserves:
ADD661,05/11/2003,25,Y,Y,12.4,50.05,12.75,20.145,12.9,20.145,13.02,20.145,,,,,EMCO,,
05/11/2003 23:12:04,Bids20031105.csv,Order shut time has expired

Upload Errors Generator Reserves:
ABY0111,,,05/11/2003,1,0.05,3.35,10.3,0.98,3.32,9,1.17,3.27,5.63,25,3.91,18,100,1.61,18
,100,2.34,3.34,6.57,3.37,8.85,27,300,1.71,27,300,3.35,4.78,7.89,4.54,EMCO,, 05/11/2003
23:12:04,Bids20031105.csv,Order shut time has expired

Upload Errors FK Offers:
MCO2201,19/02/2004,1,100,200,99,5,0,0,0,0,0,0,0,0,EMCO,text,11/03/2004
14:12:24,EMCO.CSV,Invalid Trading Date

10.2 Bid and offer confirmation

Sub-process:	**TO-010 Transfer bids and offers to system operator**
Process:	Transfer bids and offers to system operator
Source:	WITS
Destination:	System operator
Code references:	13.22 and 13.51
Dependencies:	UN-010 to UN-060, UR-010, UC-010

Description:

WITS transmits trading information (new, revised and cancelled bids and offers for energy, frequency keeping and all types of reserves) to the system operator.

Business requirements:

1. Each nominated bid, difference bid, offer, frequency keeping offer and reserve offer must be transferred to the system operator's system immediately it has successfully passed all validation checks.

2. The format of the data, transfer mechanism and response time must first be mutually agreed between the WITS service provider and the system operator.

Data inputs:

Unprocessed (new and revised) but valid nominated bids, difference bids, offers, frequency keeping offers and reserve offers. (UN-010 to UN-060, UR-010, UC-010)

Processing:

The system:

Transmits unprocessed valid nominated and difference bids, offers, frequency keeping and reserve offers to the system operator, recording the date and time sent.

Data outputs:

Unprocessed valid nominated and difference bids, offers, frequency keeping and reserve offers, excluding the compliance reason field, with appended audit information of time sent.

Appended information:		
Field Name	**Format**	**Comments**
Order ID	Number(10)	An ID given to the order by WITS.
Username	Char(20)	The WITS username for the trader who entered the order
Upload Time Stamp	Date/Time	Upload time of bid/offer file. (DD/MM/YYYY HH:MI:SS)

Sub-process:	**DC-010 Receive confirmation from system operator**
Process:	Deliver system operator confirmation
Source:	System operator
Destination:	WITS
Code references:	13.22(2) and 13.51(2)
Dependencies:	TO-010

Description:
The system operator transmits confirmation of receipt of the nominated and difference bids, offers, frequency keeping offers and all types of reserve offers to WITS.

Business requirements:

1. Confirmation information for each (new, revised or cancelled) nominated and difference bid, offer, frequency keeping offer and reserve offer received by the system operator must be sent to WITS immediately the system operator has received the information.

2. The format of the data, transfer mechanism and response time must first be mutually agreed by the service provider and the system operator.

3. Confirmations must include:

    - copy of the nominated bid, difference bid, offer, frequency keeping offer or reserve offer (excluding the compliance reason field);
    - error reason if the system operator is unable to accept the nominated bid, difference bid, offer, frequency keeping offer or reserve offer;
    - date and time stamp of receipt by system operator; and
    - date and time of receipt of confirmation by WITS.

Data inputs:
Confirmed nominated and difference bids, offers, frequency keeping offer or reserve offers (new, revised or cancelled).

Processing:

The system:

1. Receives the confirmation details sent to it by the system operator and stores them for viewing by participants.

2. When storing the information, appends the receipt time from the system operator.

Data outputs:

Nominated (DCLS and non-DCLS) and difference bids, offers, frequency keeping and reserve offers (excluding the compliance reason field) with appended audit and confirmation information.

Appended information added to uploaded bids and offers, with:

- the inclusion of the two additional 'DCLS' related columns even if the uploaded bid file the errors relate to was for non-DCLS bids; and
- the exclusion of the compliance reason field:

Field Name	Format	Comments
Order ID	Number(10)	An ID given to the bid or offer by WITS. Null for unconfirmed orders.
Username	Char(20)	The WITS username for the trader who entered the bid or offer.
Order status	Char(1)	u – Unconfirmed (entered into WITS but not yet confirmed by system operator) c – Confirmed (confirmed by system operator) t – sent to system operator but not yet confirmed l – Limit error (quantity exceeds contracted limit) n – No trading contract exists for the node v – General Validation Error z – Node decommissioned for the Trading Period
Error message	Char(50)	Error message explaining why this line was rejected.
Time stamp	Date/time DD/MM/YYYY HH:MI:SS	Timestamp indicates upload time of the order file.
Forecast of generation potential	NUMBER (10,3)	This field is populated only where the offer relates to wind generation.

Examples of CSV files

Order Confirmation Bids**:**
BEN2201,08/07/2003,29,3000,0.486,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,EMCO,DLS1,N,text,1234591,emcotrdr,c,,08/07/2006 11:47:06

Order Confirmation Offers:
HAY2201,HAY,0,08/07/2003,32,170,4000,4000,0.4,91,30,24,38,28,50,27,95,0,EMCO,text,1230476,emcotrdr,c,,08/07/2006 11:47:06

Sub-process:	**DC-020 View and download confirmations or SO errors**
Process:	Deliver system operator confirmation
Source:	WITS
Destination:	Participants
Code references:	13.22(2) and (3), 13.51(2) and (3)
Dependencies:	DC-010

Description:
A participant checks whether a confirmation of their nominated bids, difference bids, offers, frequency keeping offers or reserve offers has been received from the system operator.

Business requirements:
1. Confirmation information for each nominated bid, difference bid, offer, frequency keeping offers and reserve offer received from the system operator must be viewable from WITS immediately it arrives.

Data inputs:
• The participant's selection criteria of which confirmed nominated bids, difference bids, offers, frequency keeping offers or reserve offers to check for confirmation. • Nominated and difference bids, offers, frequency keeping and reserve offers with appended audit and confirmation information. (DC-010)

Processing:
The system: Retrieves and displays the confirmations or errors received from the system operator for the nominated bids, difference bids, offers, frequency keeping offers or reserve offers selected by the user.

Data outputs:
Copy of the bid, offer, frequency keeping offer or reserve offer. (See DC-010 Outputs section for format). If the processing status is ‘error’ then the reason for that error is included.

Sub-process:	**NB-010 Publish compliance logs**
Process:	View compliance logs
Source:	WITS
Destination:	Participants
Code references:	
Dependencies:	UN-010 to UN-050, UR-010, UC-010

Description:
A participant reviews their own compliance logs held in WITS via the browser.

Business requirements:
1. Participants must only be able to view and download their own company's compliance logs, not those of others.

Data inputs:
Participant's selection criteria. Gateway compliance logs (UN-010 to UN-050, UR-010, UC-010).

Processing:
The system: 1. Finds the compliance logs selected by the participant. 2. Makes them available for display and download via the browser.

Data outputs:
Gateway compliance logs.

Sub-process:	**NB-020 Add own company's compliance reasons to compliance logs**
Process:	View compliance logs
Source:	Participants
Destination:	WITS
Code references:	13.21 or 13.49
Dependencies:	UN-010 to UN-050, UR-010, UC-010, NB-040

Description:
WITS provides a facility to allow participants to provide an explanation for an order revision within the gateway compliance criteria.

Business requirements:
1. Participants must be able to add and amend the explanation why the order revision was made within the one-hour or 30-minute gateway closure period by 1700 hours on the first business day following the trading day on which the revision was made.

Data inputs:
Participant's selection criteria. Gateway compliance logs (UN-010 to UN-050, UR-010, UC-010). Participant's list of valid gateway compliance reasons. (NB-040)

Processing:
The system: Finds the compliance logs selected by the participant and allows the participant to add the reason from a valid list of gateway compliance reasons - stored by the participant within WITS. (See NB-040)

Data outputs:
Gateway compliance logs updated with the new gateway compliance reason.

Sub-process:	**NB-030 Deliver compliance reports to the Authority**
Process:	View compliance logs
Source:	WITS
Destination:	Authority
Code references:	13.21 and 13.49
Dependencies:	UN-010 to UN-050, UR-010, UC-010, NB-020

Description:
WITS lists the compliance logs daily and delivers them to the Authority or its compliance representative. The log is sent to the Authority at 1700 hours on the next business day following an order's trading date. The bid and offer reports are sent to the Authority on the next calendar day following an order's trading date.

Business requirements:
1. All compliance logs must be delivered to the Authority at 1700 hours on the next business day following an order's trading date. Ideally, compliance personnel should have access to the same compliance logs as participants as described in NB-010. N.B. The format of the report, retention period of the compliance logs and the medium of transmission must be agreed with the Authority. 2. Bid and offer reports shall be delivered to the Authority on the next calendar day following an order's trading date.

Data inputs:
Gateway compliance logs (UN-010 to UN-050, UR-010, UC-010). Gateway compliance logs updated with the new gateway compliance reason. (NB-020).

Processing:
The system: 1. Generates a compliance report that contains, for each affected participant: • a copy of each nominated dispatch bid, offer or reserve offer logged; • audit information (particularly submission date timestamp);

- an indication of what information was changed (price and/or quantity);
- whether the one hour or 30-minute criterion applies

2. Generates a bid report that contains, for each affected participant
    - a copy of each bid logged;
    - audit information;
    - generator type; and
    - generator installed capacity.

3. Generates an offer report
    - a copy of each offer logged;
    - audit information;

Data outputs:

Bid report

Field Name	Format	Comments
Bid type description	Char	“Non-Conforming Bids” or “Conforming Bids”
Current flag	Char	Y - latest revision, N - previous revision
Conforming bid type	Char	“INC” or “DEC” for Conforming Bids, null otherwise
Band	Number	1-10
MW	Number(10,3)	
PNode name	Char	Grid point (+ DCLS code for DCLS bids)
Price	Number(8,2)	
SRC COMIT ID	Char	Order Id + Trading company code + User Id + User reference
Submission date	Date	Date order created DD/MM/YYYY HH24:MI:SS
Trader name	Char	Company code
Trading date	Date	YYYYMMDD
Trading period	Number(2)	
Dispatchable_YN	Char	Y or N (null for non-DCLS bids)

Offer report

Field Name	Format	Comments
Order type	Char	“ENOF” or “PLRO” or “TWRO” or “ILRO”
PNode name	Char	Grid point + Station + Unit
PNode type	Char	I - input, X - exit, B - both
Reserve type	Char	“FIR” or “SIR” (null for energy offers)
SRC COMIT ID	Char	Order Id + Trading company code + User Id + User reference
Submission date	Date DD/MM/YYYY HH24:MI:SS	
Trader	Char	Company code
Trading date	Date YYYYMMDD	
Trading period	Number (2)	
Max ramp up	Number (4)	
Max ramp down	Number (4)	
PLSR percent	Number (5,1)	
Max output	Number (4)	MW
Band	Number (1)	1-5
Price	Number (8,2)	
MW	Number (10,3)	
FOGP	Number (10,3)	Forecast generation potential (MW)
Generator type	Char	I - intermittent, N - non-intermittent
Generator installed capacity	Number(4)	MW

Sub-process:	**NB-040 Maintain participant's compliance reasons**
Process:	View compliance logs
Source:	Participants
Destination:	Participants
Code references:	
Dependencies:	

Description:
Participants are able to maintain their own list of valid gateway compliance reasons. These can be appended to each gateway compliance log before being reported to the Authority.

Business requirements:
Participants must be able to add/change/delete their own compliance reasons.

Data inputs:
Participant's current list of valid gateway compliance reasons.

Processing:
The system: Permits participants to add and maintain their private list of valid gateway compliance reasons.

Data outputs:
Participant's updated list of valid gateway compliance reasons.

10.3 Must-run dispatch auction bids

Sub-process:	**MB-010 Make new must-run dispatch auction bid**
Process:	Submit must-run dispatch auction bids
Source:	Generator
Destination:	WITS
Code references:	13.114, 13.117(3), 13.122, 13.123
Dependencies:	

Description:

Generators submit bids for auction rights in a particular time block in a given must-run dispatch auction.

Business requirements:

1. Only generators must be allowed to submit bids.
2. Generators must only be allowed to submit bids for themselves.
3. Bids for an auction must be allowed at any time up to 0900 hours on the day of the auction.
4. Only bids in the format specified by the clearing manager must be accepted.
5. Generators must be allowed to make up to five auction bids for each time block for any given auction.
6. Each bid must specify for the time block the quantity of auction rights sought and the price the generator is prepared to pay.
7. The quantities and prices expressed in bids must be positive numbers.
8. Generators must be able to submit bids that are valid for only a single auction and bids that are valid for all auctions until they are cancelled.
9. Generators must not be able to bid for more auction rights than are available in any given time block.

Data inputs:			
Bids			
Field Name	**Format**	**Mandatory/ optional**	**Comments**
Participant code of generator	Char 4	M	Code allocated by reconciliation manager to participant.
Trading date	Date	M	Trading date being auctioned (DD/MM/YYYY).
Time block	Char 1	M	Time block to which bids apply, day or night (D/N).
Valid until cancelled	Char 1	O	Y/N (defaults to N)
Bid 1 price	Number (8,2)	M	Price (all prices must be positive)
Bid 1 quantity	Number (10,3)	M	MW(all quantities must be positive)
Bid 2 price	Number (8,2)	O	Price
Bid 2 quantity	Number (10,3)	O	MW
Bid 3 price	Number (8,2)	O	Price
Bid 3 quantity	Number (10,3)	O	MW
Bid 4 price	Number (8,2)	O	Price
Bid 4 quantity	Number (10,3)	O	MW
Bid 5 price	Number (8,2)	O	Price
Bid 5 quantity	Number (10,3)	O	MW

Processing:

The system:

1. Validates the bid against validation criteria and reference data.
2. Displays (browser only) the summary results of the upload.
3. Notifies users of any errors requiring correction.
4. Adds a timestamp to valid bids indicating when they were received from the generator.
5. Stores valid auction bids.

Process:	**MB-020 Submit must-run dispatch auction bids**
Source:	Generator
Destination:	WITS
Code references:	13.122
Dependencies:	MB-010

Description:
Generators may revise, via WITS, bids for a must-run dispatch auction that were previously submitted to the clearing manager.

Business requirements:
1. Generators must only be able to amend bids for auctions that are yet to happen. 2. Generators must be able to revise auction bids up until 0900 hours on the day of the auction to which the bids relate. 3. Generators may revise bids by uploading another Bid file for the same trading date and block, or, change it via the browser edit function.

Data inputs:
Bid to be revised. (MB-010)

Processing:
The system: Processes the revised bid in the same manner as described in MB-010.

Data outputs:
Validated revised bid.

Sub-process:	**MB-030 Cancel existing must-run dispatch auction bid**
Process:	Submit must-run dispatch auction bids
Source:	Generator
Destination:	WITS
Code references:	13.122
Dependencies:	MB-010, MB-020

Description:
Generators may cancel, via WITS, bids for a must-run dispatch auction that were previously submitted to the clearing manager.

Business requirements:
1. Generators must only be able to cancel bids for auctions that are yet to take place. 2. Generators must be able to cancel bids up until 0900 hours on the day of the auction to which the bids relate. 3. Generators must be able to cancel both one-time bids and those marked as valid till cancelled. 4. To cancel a bid, generators must use the edit facility, provided via the browser, and chose the delete function.

Data inputs:
Bid to be cancelled. (MB-010, MB-020)

Processing:
The system: Processes the selected bid marking it for cancellation.

Data outputs:
Cancelled bid.

Sub-process:	**MB-040 Transfer must-run dispatch auction bids to clearing manager**
Process:	Submit must-run dispatch auction bids
Source:	WITS
Destination:	Clearing manager
Code references:	13.118, 13.126
Dependencies:	MB-010, MB-020, MB-030

Description:
WITS transmits must-run dispatch auction bids received from generators to the clearing manager.

Business requirements:
1. All bids that have been submitted and successfully validated, amended or cancelled must be transferred to the clearing manager's system within 10 minutes of receipt by WITS. 2. The format of the data, the transfer mechanism and the frequency of the transfer operation must be mutually agreed between the approved system's service provider and the clearing manager service provider.

Data inputs:
Valid MRDA bids.

Processing:
The system: Transmits valid bids to the clearing manager's system.

Data outputs:
Valid MRDA bids.

Sub-process:	**MD-010 Upload historical load data from grid owners**
Process:	Upload demand data
Source:	Grid owners
Destination:	Clearing manager
Transfer mechanism:	A secure fast data transfer facility
Code references:	13.118, 13.119
Dependencies:	

Description:

Grid owners upload historical load data to the clearing manager using the approved system.

Business requirements:

1. Grid owners must be able to upload historical load data for an auction up to 1100 hours two days before the day on which the auction is to take place.

2. The data for an auction must contain the total load for each trading period of the day following the auction in the preceding year.

3. The format of the data must be agreed between the clearing manager and the grid owners.

4. Data must only be accepted if it is in the correct format.

Data inputs:

- **Historical load data**

Field Name	Format	Mandatory/ optional	Comments
Historical date	Date DD/MM/YYYY	M	Preceding year day for the day following the auction
Trading date	Date DD/MM/YYYY	M	Trading date to which the load data is to be applied
Trading period	Number (2)	M	Trading period on the trading date to which the load data is to be applied 1 to 48 for standard day

			1 to 50 for daylight saving end 1 to 46 for daylight saving start.
MW demand	Quantity	M	MW (must be positive)

Processing:

The system:

1. Uploads the historical load data.
2. Validates that the data is in the correct format and that there are the required number of trading periods for the trading date.
3. Displays (browser only) the summary results of the upload.
4. Notifies user of any errors requiring correction.
5. Adds a timestamp to the valid data indicating when they were received from the grid owner.
6. Transfers valid data to the clearing manager.

Data outputs:

Valid historical load data. The same as the input data but with the addition of the date and time the data was received.

- **Upload summary results**

Field Name	Format	Comments
Filename	Char(250)	Name of upload file, up to 250 Chars long
Uploaded by	Char(8)	User ID of person that uploaded the file
Sender	Char(4)	Company code of user that uploaded the file
File type	Char(5)	DEMD
Percentage complete	Number(3)	
Upload time	Date/time 'DD/MM/YYYY hh24:mi:ss'	

10.4 Maintain reference and security data

Sub-process:	**SD-010 Maintain reference and security data**
Process:	Maintain reference and security data
Source:	Participants, system operator, grid operator, consumers
Destination:	WITS
Code references:	13.6, 13.13 and 13.189
Dependencies:	

Description:

WITS holds details about participants, participants' trading limits, grid points, authorised consumers and other operational information in order to:

- ensure only authorised users have access to the system;
- allow participant companies to assign agents to act on their behalf;
- ensure trading is undertaken within the limits set by the Code such as generators not being permitted to offer quantities more than can be generated by the generating plant; and
- validate that any information provided is correct and in the form specified by the Code.

Business requirements:

1. The system must maintain information about:
    - grid points i.e. the GIP/GXP code, whether it is an injection point/exit point or both, whether it is a conforming or non-conforming node, its network area and the reference point;
    - participants, i.e. their codes and roles such as standard generator, intermittent generator, embedded generator, dispatch notification generator, co-generator, ancillary service agent, purchaser, dispatch notification purchaseror a combination of roles;
    - participants' trading locations and limits, i.e. the grid points at which they are allowed to trade, what type of trades, e.g. bids, offers, FK offers, generator reserves or interruptible load reserves, whether they are permitted to offer by unit or station, whether the station is an intermittent generating station, their maximum bid and/or offer quantities and any difference bid absolute maximum quantity; and

- approved users per participant organisation, including agents.
- approved consumers who have access to WITS public data via WITS API.

2. It must be possible to restrict access to particular functions on a user-by-user basis; for instance, only specific users of a participant organisation will be authorised to submit bids and offers.
3. The maintenance of reference information must be a supervisor function, i.e. restricted to a limited number of personnel.
4. There must be a formal procedure for the approval of all users, with sign-off from higher management in a participant's organisation.
5. There must be a strong audit trail for all maintenance of reference information.
6. The system must incorporate industry standards for the management of passwords and lock-outs for unsuccessful attempts.
7. The system should be able to identify individual logon identities and log the identity against updates made via the browser and WITS API.
8. A participant may nominate another participant to act on their behalf (agent). The system must be able to identify the correct participant company a user is acting for when evaluating whether the user is allowed to perform an update.

Data inputs:
New reference and security data values.

Processing:
The system: Allows the WITS system administrator with supervisor authority to maintain reference and security data.

Data outputs:
Updated reference and security data.

Sub-process:	**SD-020 Maintain participant's contract maximums**
Process:	Maintain reference and security data
Source:	Generators and purchasers
Destination:	WITS
Code references:	
Dependencies:	

Description:
WITS permits generators and purchasers to update their own reference data in relation to the total quantities and maximum prices they can provide in their company's bids and offers for energy and reserves. These maximum quantities and prices are held per company, per GIP/GXP.

Business requirements:
1. The system must provide a facility via the browser to permit generators and purchasers to update only their own maximum bid and offer quantities (for energy and reserves) at GIP and GXPs where they have approved contracts with the clearing manager. 2. The system must provide a facility via the browser to permit generators and purchasers to update only their own maximum bid and offer prices at GIP and GXPs

Data inputs:
New maximum quantity at a GIP or GXP and order type – bid, difference bid, offer, generator reserve or purchaser reserve. New maximum price at a GIP or GXP.

Processing:
The system: 1. Permits generators and purchasers to update their maximum quantities. 2. Permits generators and purchasers to update their maximum price. 3. Stores an audit trail of each update.

Data outputs:
Updated maximum quantities. Updated maximum prices. Audit log of update activity.

Sub-process:	**SD-040 Manage tokens**
Process:	Maintain reference and security data
Source:	
Destination:	Participants
Code references:	
Dependencies:	SD-010

Description:
The system provides two-step authentication for user access to secondary application instances e.g. the backup WITS (IWT) and the Straight Through Processing (STP) application instances. Tokens are created and managed through the primary application instance. They are used to access the relevant secondary instance by first logging on using the appropriate token, then by logging on a second time using standard logon credentials. Tokens can be managed by users themselves or by a user from their organisation with administrator privileges. Tokens are delivered to users at the email address they have provided. Tokens can only be managed within the primary application instance.

Business requirements:
1. Users must be able to create and delete tokens for their own use. 2. A user with administrator privileges must be able to create and delete tokens on behalf of any user in their organisation. 3. Users must be sent their token details via email using the email address stored against their logon identifier. 4. Tokens must only be generated and managed in the primary application instance. 5. Each token must be restricted to a specific secondary application instance.

Data inputs:
User reference data (SD-010) User logon identifier

Processing:
The system: 1. Generates and displays an appropriate and unique token for the application specified by the user. 2. Allows a user to create, view and delete their own tokens. 3. Allows a user with administrator privileges to create and delete tokens for any and all users in their organisation. 4. Stores the token information with its associated audit trail information. 5. When a token is created, displays the token. 6. Generates an email containing the token details and sends it to the user at the user's stored email address. 7. Stores the token information and sends a copy to the appropriate application for storage.

Data outputs
Confirmation email. Token information per application.

10.5 Submit Risk Management Contract Information

Sub-process:	**SI-010 Create new risk management contract**
Process:	Submit risk management contract information
Source:	Participants
Destination:	WITS
Code references:	13.218, 13.219, 13.222, 13.228
Dependencies:	

Description:
A participant submits details for a risk management contract. Different types of contract require different information to be submitted.

Business requirements:
1. Only participants, as defined in the Code, may submit contract details. 2. If the seller of a risk management contract is a participant, the seller must submit the contract details. 3. If the buyer is a participant, and the seller is not, the buyer must submit the contract details. 4. The participant who submits the risk management contract information must receive a confirmation containing all the details of the contract plus the date and time when the information was submitted. 5. The participant submitting the contract information must provide their legal name and email address and the other party's legal name and email address. 6. The trade date of the contract must be on or after the date when the governing Code came into effect (2 February 2009). 7. The end date must be after the effective date. 8. The quantity for all contracts must be greater than or equal to 0.01MWh. 9. The contract price must be greater than or equal to $0.01. 10. Once validated, contracts must be stored on the system until at least 12 months after their end date.

Data inputs:
All fields are mandatory unless shown as optional.
<u>All contracts</u> party role, buyer's legal name, buyer's email address, seller's legal name, seller's email address.
<u>Contracts for difference (including capped contracts)</u> trade date, effective date, end date, quantity, whether or not contract applies to all trading periods in term, whether or not there is an adjustment clause, whether or not there is a force majeure clause, whether or not there is a suspension clause, whether or not there are any other clauses, whether or not there is a special credit clause, whether the volume per trading period is flat or varies, whether or not the contract has been traded on the Energy Hedge system, whether or not the contract is standardised whether or not the contract is traded on the ASX (optional). For contracts with a term of less than 10 years the following extra information is input: contract price, grid zone area.
<u>Option contracts</u> trade date, effective date, end date, quantity whether or not the contract is traded on the ASX (optional).

Fixed price physical supply contract

trade date,
effective date,
end date,
quantity,
whether or not contract applies to all trading periods in term,
whether or not there is an adjustment clause,
whether or not there is a force majeure clause,
whether or not there is a suspension clause,
whether or not there are any other clauses.

For contracts with a term of less than 10 years the following extra information is input:

contract price,
grid zone area.

Processing:

The system:

1. Validates the contract information.
2. Notifies the submitter of any errors requiring correction.
3. Generates a unique contract number for the contract.
4. Adds the participant's legal name associated with the user credentials, a timestamp and submitter details to the contract.
5. Stores the valid contract with a status of *unverified,*.
6. Sends an email to the submitter confirming the contract details and giving the date and time of their receipt.
7. Sends an email to the other party informing them that the contract has been loaded and is ready for them to verify.

Data outputs:

New risk management contract details.

Emails to both parties.

Exceptions:
For contracts for difference, it is a breach of the Code if the input date of the contract is more than 5 business days after the trade date. For other types of contract, it is a breach of the Code, if the input date is more than 10 business days after the trade date.

Sub-process:	**SI-020 Bulk load new risk management contracts**
Process:	Submit risk management contract information
Source:	Participants
Destination:	WITS
Code references:	13.218, 13.219, 13.222, 13.228
Dependencies:	

Description:
A participant submits details of one or more contracts in a single operation. The contracts may be of different types.

Business requirements:

1. Only participants, as defined in the Code, may submit contract details.
2. Contracts must be uploaded from a file in CSV format
3. If the seller of a risk management contract is a participant, the seller must submit the contract details.
4. If the buyer is a participant, and the seller is not, the buyer must submit the contract details.
5. The participant who submits the risk management contract information must receive a confirmation containing all the details each contract plus the date and time of the upload.
6. The participant submitting the contract information must provide their legal name and email address and the other party's legal name and email address.
7. The trade date of the contract must be on or after the date when the governing Code came into effect (2 February 2009).
8. The end date of each contract must be after its effective date.
9. Once validated, contracts must be stored on the system until at least 12 months after their end date.

Data inputs:

A file in CSV format with:

Header record

Columns names as shown below separated by commas

Header Record:

Field Name
Id
contract_type
party_code
party_email_address
party_role
party_external_reference
other_party_legal_name
other_party_is_participant
other_party_email_address
other_party_external_reference
trade_date
effective_date
end_date
quantity
adjustment_clause
force_majeure_clause
suspension_clause
special_credit_clause
other_clauses
traded_on_energyhedge
isda_schedule_used
for_all_trading_periods
volume_type
grid_zone_area
contract_price
traded_on_asx (NB: this is optional)

Detail Records

Column name	**Format**	**Comments**
id	Number (10)	The ID of the contract within the Hedge Disclosure System. Field should be left empty if this is a new contract. If the contract has already been uploaded to the Hedge Disclosure System and this record is updating it, then the field should contain the Id of the contract.
contract_type	Char (4)	CfD - for contract for differences, FPFV – for fixed-price fixed-volume,

		FPVV – for fixed-price variable volume, OPT – for option, C130 – for capped $130 option, C300 – for capped $300 option. Mandatory.
party_code	Char (4)	Mandatory.
party_email_address	Char (255)	The email address(s) for confirmations. If more than one, then they should be separated by a semi-colon or comma or space. If separated by a comma then the field should be enclosed in double quotes e.g. jbloggs@yahoo.com,bsmith@yahoo.com Mandatory.
party_role	Char (6)	Buyer, Seller. Mandatory.
party_external_reference	Char (30)	Optional identifier/reference for the contract within party's own system
other_party_legal_name	Char (255)	Mandatory.
other_party_is_participant	Char (1)	Y, N. If Y is specified, the other_party_legal_name value must exactly match a participant name held within the system.
other_party_email_address	Char (255)	Valid e-mail address(s). See above. Mandatory.
other_party_external_reference	Char (30)	Optional identifier/reference for the contract within other parties own system
trade_date	Date DD/MM/YYYY	Mandatory.
effective_date	Date DD/MM/YYYY	Mandatory.
end_date	Date DD/MM/YYYY	Mandatory.
quantity	Number (10,3)	Quantity in MWh. Mandatory. Must be >= 0.01MWh.
adjustment_clause	Char (1)	Y, N. Mandatory for CfD/Capped/FPFV/FPVV contracts otherwise null.
force_majeure_clause	Char (1)	Y, N. Mandatory for CfD/Capped/FPFV/FPVV contracts otherwise null.
suspension_clause	Char (1)	Y, N. Mandatory for CfD/Capped/FPFV/FPVV contracts otherwise null.
special_credit_clause	Char (1)	Y, N. Mandatory for CfD and capped contracts otherwise null.

other_clauses	Char (1)	Y, N. Mandatory for CfD/Capped/FPFV/FPVV contracts otherwise null.
traded_on_energyhedge	Char (1)	Y, N.
isda_schedule_used	Char (1)	Y, N. Mandatory for CfD/Capped contracts otherwise null.
for_all_trading_periods	Char (1)	Y, N. Mandatory for CfD/Capped/FPFV/FPVV contracts otherwise null.
volume_type	Char (1)	F – flat, V – variable. Mandatory for CfD and Capped contracts otherwise null.
grid_zone_area	Char (1)	A, B, C, D, E. Mandatory for CfD/Capped/FPFV/FPVV contracts with a term less than 10 years. Optional for CfD/Capped/FPFV/FPVV contracts with a term of 10 years or more. Null for option contracts.
contract_price	Number (8,2)	$ per MWh. Must be >= $0.01. Mandatory for CfD/Capped/FPFV/FPVV contracts with a term less than 10 years. Optional for CfD/Capped/FPFV/FPVV contracts with a term of 10 years or more. Null for option contracts.
traded_on_asx	Char (1)	Y, N. This is an optional field, and only relevant for CfD, Capped and OPT contracts.

Processing:

The system:

1. Validates each contract.
2. Notifies the submitter of any errors requiring correction. If there are any errors the file is rejected.
3. Generates a unique contract number for each new valid contract.
4. Adds the party legal name associated with the party code, a timestamp and submitter details to each valid contract.
5. Stores valid contracts with a status of *unverified*.

6. Sends an email to the submitter confirming the contract details and giving the date and time of their receipt for each valid contract.

7. Sends an email to the other party of each valid contract informing them that the contract has been loaded and is ready for them to verify.

Data outputs:
New risk management contracts. Emails to both parties.

Exceptions:
For contracts for difference, it is a breach of the Code if the input date of the contract is more than 5 business days after the trade date. For other types of contract, it is a breach of the Code, if the input date is more than 10 business days after the trade date.

Sub-process:	**VI-010 Search and display risk management contract**
Process:	View risk management contract information
Source:	Participants, non-participants
Destination:	WITS
Code references:	Part 13, subpart 5
Dependencies:	SI-010, SI-020

Description:
A participant or non-participant enters a set of selection criteria in order to search for a particular risk management contract. If the contract exists, the user can view and download the details of the contract.

Business requirements:
1. All users must be able to view all contracts held by the system. 2. The identity of the parties to all risk management contracts must be anonymous except to the parties themselves, the Electricity Authority and the system administrator.

Data inputs:
<u>Selection criteria</u>: contract Id, contract type, grid zone area, date range, exclusions.* *Both participants and non-participants may exclude, from selection, contracts: with clauses, in dispute, for all trading periods; while participants may additionally exclude, from selection, contracts: verified/not disputed, for their own party, for other parties.

Processing:
The system: 1. Finds all contracts matching the selection criteria. 2. Allows the user to select an individual contract from those found. 3. Retrieves and displays the information for that contract. 4. Enables the user to download the contract details, if required.

Data outputs:
Online The same information as input in SI-010, according to contract type, plus: contract id, contract status,
Downloaded The same information as input in SI-020 with the exception of other_party_is_participant (this is not present in the download file) plus: contract id, contract status, dispute notes, created at, created by, updated at, updated by.

Sub-process:	**MC-010 Edit risk management contract**
Process:	Modify risk management contract information
Source:	Participants
Destination:	WITS
Code references:	13.223, 13.224, 13.228
Dependencies:	

Description:
A participant selects an existing risk management contract and makes changes to the information.

Business requirements:
1. Only the submitting participants who are party to a risk management contract must be able to change information on that contract. 2. The other (non-editing) party to a risk management contract must be notified of all changes made to the contract. 3. Every change to a risk management contract must generate an audit trail entry recording the field changed, the original value, the new value, the identity of the person performing the change and the date and time when the change was made. 4. Both parties to a risk management contract, the Electricity Authority and the system administrator must be able to view the audit trail for the contract. 5. Submitting participants must have the option to delete a contract as part of the editing function. 6. A participant must be able to edit a contract on-line and by uploading changes from a file in CSV format (see SI-020).

Data inputs:
Selected contract to edit.

Processing:
The system: 1. Enables editing of all the data for the selected contract.

2. Verifies changes made.
3. Notifies the submitter of any errors requiring correction.
4. Stores the updated contract.
5. Creates an audit trail entry detailing the change.
6. Sends an email notifying the other party the contract has been changed.

Data outputs:
Updated contract details. New audit trail entry. Email to other party.

Sub-process:	**VR-010 Verify risk management contract**
Process:	Verify risk management contract information
Source:	WITS
Destination:	Participants
Code references:	13.227, 13.228
Dependencies:	

Description:
The verifier (i.e. the party which didn't submit the contract information to the system) selects a contract and verifies or disputes the correctness of its associated information.

Business requirements:
1. The contract status must be able to be set to either *verified* or *disputed*. 2. The submitter must be notified immediately whenever a contract, to which they are a party, is verified or disputed by the opposite party.

Data inputs:
Selected contract.

Processing:
The system: 1. Marks the selected contract to the status indicated by the input. 2. Sends an appropriate email to the opposite party informing them of whether the details of the contract are verified or disputed. (For disputed contracts see clause 13.227(5)(b)). 3. Creates an audit trail entry.

Data outputs:
Contract with updated status. Email notifying opposite party whether contract is verified or disputed. New audit trail entry.

Sub-process:	**VR-020 Monitor verification of risk management contracts**
Process:	Verify risk management contract information
Source:	WITS
Destination:	WITS
Code references:	13.227, 13.228
Dependencies:	

Description:
The system monitors whether contracts are verified within the required number of days and takes the appropriate action, according to the contract type and status, either automatically verifying, sending reminders or marking the contracts as in *long-term dispute*.

Business requirements:

1. If the other party to a contract for differences, an option contract or a capped product is a participant and fails to verify the contract within 2 business days of submission, the contract status must be set to *pending verification*.

2. If a contract has a status of *disputed* and this remains so for 10 business days then the contract status must be set to *long term dispute*.

3. If the other party to a contract for differences, an option contract or a capped product is not a participant and fails to verify the contract within 2 business days of submission, the contract status must be set to *not disputed*.

4. If the other party to a fixed-price physical supply contract has not verified the contract 2 business days after submission, the contract status must be set to *not disputed*.

5. Whenever a contract status is changed, the parties to the contract must be notified of the change by email so that they can take appropriate action.

Data inputs:
Contracts which are *unverified*, *disputed* or *pending verification*.

Processing:
The system: 1. Checks the days since the contract was submitted and the participant status of the other (non-submitting) party. 2. Processes the contract according to the business requirements. 3. Creates an appropriate audit trail entry.

Data outputs:
Contract with updated status. Email notifications. New audit trail entry.

Sub-process:	**PI-010 Obtain grid zone areas, nodes and location factors**
Process:	Publish node and grid zone information
Source:	WITS
Destination:	Participants
Code references:	13.221(1)
Dependencies:	

Description:
A participant accesses the current grid zone area, node and location factor information as provided by the Authority.

Business requirements:
1. The system must be able to accept annually the following information from the Authority: • a list of all nodes at which the clearing manager publishes final prices, • a corresponding location factor for each such node, • a corresponding grid zone area for each such node, • a list with one node for each grid zone area at which the clearing manager publishes final prices. 2. Participants must be able to access the current version this information at all times.

Data inputs:
Grid zone areas, nodes and location factors.

Processing:
System: Makes the latest grid zone areas, node and location factor information available for download.

Data outputs:
Grid zone areas, nodes and location factors.

10.6 Publish schedules and associated information from system operator

Sub-process:	**SO-010 Receive and publish NRS, PRS, WDS and Dispatch schedule information**
Process:	Publish schedule information from the system operator
Source:	System operator
Destination:	Participants
Code references:	13.59, 13.104 to 13.105A, 13.106
Dependencies:	

Description:

WITS publishes forecast information containing forecast prices and the schedules that contain the expected levels of generation, reserves and demand. In addition, WITS publishes other associated information with the various types of schedules, dispatch schedule, price-responsive schedule (PRS), the non- response schedule (NRS) and the weekly dispatch schedule (WDS)) that it receives from the system operator immediately after it is received.

There is a short and long version of each NRS and PRS schedule published, that includes the additional associated information:

- The non-response schedule short (NRSS) is published every half an hour and contains information for the next 8 trading periods.
- The non-response schedule long (NRSL) is published every two hours and contains information for the next 9 to 72 trading periods.
- The price-response schedule short (PRSS) is published every half an hour and contains information for the next 8 trading periods.
- The price-response schedule long (PRSL), is published every two hours and contains information for the next 9 to 72 trading periods.
- The Week-Ahead Dispatch Schedule (WDS) is published at 2am daily and contains data for 2-7 days ahead.
- The Dispatch Schedule is typically published every 5 mins, can be more than 6 prices or less for each trading period.

Dispatch instructions for nominated dispatch bids are incorporated into the NRS schedule as cleared dispatchable bid quantities. If the quantity is published through WITS before the start of the applicable trading period, the quantity is considered to be a dispatch instruction.

The same additional associated information is published with the WDS as for the NRS and PRS schedules except for the supply and demand curves, scheduled reserve

information per island and details of the scheduled frequency keeping generating stations.

WITS displays a time weighted running average of the dispatch prices for each GIP/GXP for each trading period via browser in the same format as interim prices.

Some of the information is confidential to the participant concerned and some applies to the market as a whole and is published for access by all participants.

NB: The system operator, for the long schedules, calculates 72 periods, however only publishes periods 9 to 72. This is due to the short schedules covering periods 1 to 8.

Business requirements:

1. PRS, NRS, WDS and Dispatch schedule and any additional associated information from the system operator must be published immediately whenever it is received. However, regarding the DCLS dispatch notifications included in the NRS schedules, notifications for the current trading period, based on the publication time, are not published.

2. PRS, NRS, WDS and Dispatch schedules and any additional associated information must be published both via the browser and the automation system.

3. Those parts of the NRS, PRS, WDS and Dispatch schedules as well as the additional associated information which are confidential to individual participants must only be accessible by those participants.

4. The system operator and the service provider must agree on the format and the mechanism for the transfer of NRS, PRS, WDS and Dispatch schedules and associated information provided by the former to the latter.

Data inputs:

Private File Formats

- Schedules without Prices
- Schedules with Prices
- Frequency Keeping Schedules
- Block Security Constraints File

Public File Formats

- Aggregate Quantities

- Arc Flows
- Reserve Offers and Adjusted Reserve Offers
- Instantaneous Reserve Offers
- Infeasibilities
- HVDC Component Flows
- HVDC Risk Offsets
- Standby Residual Check Data
- Forecast Demand File
- Supply and Demand Curves
- Instantaneous reserve sharing
- Forecast Prices for energy
- Forecast Prices for reserves
- Dispatch schedule reserve prices
- Dispatch schedule energy prices
- Dispatch schedule summary.
- Island residual information

Private File Formats

SO-010 NRSS, NRSL, PRSS, PRSL, WDS, Dispatch Schedules without Prices

Field Name	Format	Comments
Order ID	Number(10)	An ID given to the order by WITS Will be null if Power Type is ‘L’ or ‘R’
GIP/GXP	Char(8)	Grid point applicable
Station	Char(3)	A three-letter code for the station
Unit	Number(2)	A two-number code for the unit
Username	Char(20)	The WITS username for the trader who entered the order
Power type	Char(1)	‘G’ - Generation ‘L’ - Total Cleared Load ‘R’ - Forecast Load at conforming nodes ‘N’ - Cleared Load, Non-Conforming GXP ‘D’ - Cleared Load, Conforming GXP ‘T’ - NSGR, non-specific generation reserve including TWDR and injectable reserves from an energy storage system ‘P’ - PLSR, partly loaded spinning reserve ‘I’ - Interruptible Load Reserve ‘B’ - DCLS Dispatch Notification

Response time	Char(2)	6seconds or 60seconds or 0
Trading date	DD/MM/YYYY	Applicable trading date
Trading period	Number(2)	Trading periods from 1 to 50
Power	Number(10,3)	MW of power scheduled
Company code	Char(4)	A four-letter code identifying the company. Will be 'LOAD' for Power Type 'L' and 'R'.
Block ID	Char(5)	The identifier for a block dispatch group - this field will be blank/empty where not applicable
Schedulers constraints.	Char(1)	'Y' or 'N' - notifies if a constraint has been taken into account in preparing this schedule
MW armed	Number(4)	
Max power	Number(4)	Optional – for use when there is a constraint applied to a station or unit within a block dispatch group
Min power	Number(4)	Optional – for use when there is a constraint applied to a station or unit within a block dispatch group
Run time	Date/time DD/MM/YYYY HH:MI:SS	Solution run time
Free text	Char(100)	This allows the Scheduler to send a text message to an SMP
User text	Char(16)	Text entered by the user at time of input of the order
Energy shortfall	Number(15,3)	Quantity of load not met (energy scarcity) (MW) for the GXP
Market time	Char(5)	This additional field is for dispatch schedule only. It's the start of the 5 min interval for which the schedule applies, from 00:00 to 23:55.

SO-010 NRSS, NRSL, PRSS, PRSL, Dispatch Schedules with Prices

Field Name	Format	Comments
Order ID	Number(10)	An ID given to the order by WITS Will be null if Power Type is 'L' or 'R'
GIP GXP	Char(8)	Grid point applicable
Station	Char(3)	A three-letter code for the station
Unit	Number(2)	A two-number code for the unit
Username	Char(20)	The WITS username for the trader who entered the order

Power type	Char(1)	'G' - Generation 'L' - Total Cleared Load 'R' - Forecast Load at conforming nodes 'N' - Cleared Load, Non-Conforming GXP 'D' - Cleared Load, Conforming GXP 'T' - NSGR, Non-specific generation reserve, including TWDR and injectable reserves from an energy storage system 'P' – PLSR, Partly loaded spinning reserve 'I' - Interruptible Load Reserve 'B' - DCLS Dispatch Notification
Response time	Char(2)	6seconds or 60seconds or 0
Trading date	Date DD/MM/YYYY	Applicable trading date
Trading period	Number(2)	Trading Periods from 1 to 50
Power	Number(10,3)	MW of power scheduled
Forecast price	Number(8,2)	If power type is generation or load then the forecast price applicable to this POC for this trading period, otherwise blank
Company code	Char(4)	A four-letter code identifying the company. Will be 'LOAD' for Power Type 'L' and 'R'.
Block ID	Char(5)	The identifier for a block dispatch group - this field will be blank/empty where not applicable
Schedulers constraints.	Char(1)	'Y' or 'N' - notifies if a constraint has been taken into account in preparing this schedule
MW armed	Number(4)	Optional
Max power	Number(4)	Optional – for use when there is a constraint applied to a station or unit within a block dispatch group
Min power	Number(4)	Optional – for use when there is a constraint applied to a station or unit within a block dispatch group
Run time	Date/time DD/MM/YYYY HH:MI:SS	Solution run time
Free text	Char(100)	This allows the Scheduler to send a text message to an SMP
User text	Char(16)	Text entered by the user at time of input of the order
Energy shortfall	Number(15,3)	Ouantity of load not met (energy scarcity) (MW) for the GXP

Market time	Char(5)	This additional field is for dispatch schedule only. It's the start of the 5 min interval for which the schedule applies, from 00:00 to 23:55.

SO-010 Frequency Keeping Schedules

Field Name	Format	Comments
Island	Char(2)	Island applicable i.e. 'NI' - North Island, 'SI' - South Island
Trading date	DD/MM/YYYY	Applicable trading date
Trading period	Number(2)	Trading Periods from 1 to 50
Company code	Char(4)	A four-letter code for the SMP who is contracted by the order placed
Location	Char(13)	Can be a combination of GIP, station, block and/or unit
Band cleared	Number (10,3)	Cleared MW
Run time	Date/time DD/MM/YYYY HH:MI:SS	Solution run time
Data source	Char(1)	'N' - NRSS 'L' – NRSL

Example of the CSV file
NI,01/03/2004,23,EMCO,ABC,25599,01/03/2004 1300:23:03,N

SO-010 Block Security Constraints

Field Name	Format	Comments
Run time	Date/time DD/MM/YYYY HH:MI:SS	Solution run time
Run type	Char(1)	'N' - NRSS 'L' - NRSL
Trading date	DD/MM/YYYY	Applicable trading date
Trading period	Number(2)	Trading Periods from 1 to 50
Market time	Char(6)	5-minute interval HH24:MI(*)
Constraint name	Char(50)	Name of the binding constraint

Block ID	Char(3)	ID of the affected block For each binding SSC, there may be multiple affected blocks
Market node ID	Char(13)	ID of market node removed from the block For each affected block, there may be multiple market nodes removed
Sensitivity	Number	Sensitivity of the constraint to the market node removed
Reason	Char(1)	The reason that the SSC has been applied. C=Block security constraint

Example of the CSV File

28/11/2008 03:01:46,D,28/11/2008,7,03:00,,WTR,WTR,,C
28/11/2008 03:04:46,D,28/11/2008,7,03:05,,WTR,WTR,,C

Public File Formats

SO-010 Aggregate Quantities

Field Name	Format	Comments
GIP GXP	Char(8)	Grid Point applicable
Trading date	DD/MM/YYYY	Applicable trading date
Trading period	Number(2)	Trading Periods from 1 to 50
Total quantity (bid or load)	Number(10,3)	MW Quantity. Sum of the band quantities in bids.
Total quantity (offer or generation)	Number(10,3)	MW Quantity. Sum of the band quantities in offers which are capped at (reduced to equal) their FOGP value for intermittent generation offers.
Run time	Date/time DD/MM/YYYY HH:MI:SS	Solution run time
Data source	Char(2)	AO/GO/NO/LO - Total Offers vs. Cleared Bids from the PRSS/PRSL/NRSS/NRSL/WDS/DISPATCHA/G/N/L/W/D – Load forecast vs cleared generation from the PRSS/PRSL/NRSS/NRSL/WDS/ DISPATCH

Total (offer or generation) wind quantity	Number(10,3)	MW Quantity.

Example of the CSV file
BEN2201,10/08/2003,1,153.234,169.12,10/08/2003 13:05:30,A,
Scheduled Load/Generation - BEN2201,10/08/2003,2,345.567,321.432,10/08/2003 13:05:30,S,50.12

SO-010 Arc Flows

Field Name	Format	Comments
Run time	Char(20)	Solution run time
Trading date	Char(12)	Applicable trading date
Trading period	Char(2)	Trading Periods from 1 to 50
Branch group flag	Char(1)	B (branch) or G (group)
Branch group name	Char(50)	The branch id or group name
Limit MW	Number(10,3)	The limit MW
Solution MW	Number(10,3)	The solution MW
Formula	Char(240)	The formula string
Description	Char(240)	Description of the constraint For Final, Interim arc flows: if the value is 'Deleted', then it means this is no longer a constraint. If the value is 'Updated', then it means the values are subsequently updated.
Ambient temperature	Number(3)	
SFT status	Char(32)	Simultaneous Feasibility Testing Solve Type (e.g. AC or DC solve)

Example of the CSV file
08/06/2010 2:34:00,08/06/2010,26,G,MTI_Runback_W_O_1,328,328,MTI_WKM1.1*1.23 + MTI_WKM2.1*1.01 <=,,20,AC Solved with Violations

SO-010 Reserve Offers and Adjusted Reserve Offers

Field Name	Format	Comments
GIP GXP full	Char(8)	Grid point applicable – HAY2201(NI), BEN2201(SI)
Reserve type	Char(20)	Reserve type indicators – Fast (F), Slow (S)
Trading date	Date DD/MM/YYYY	Applicable trading date
Trading period	Char(2)	Trading Periods from 1 to 50

Price	Number(9,2)	Reserve Price in NZ$
Reserve MW	Number(10,3)	Reserve MW Quantity
Run time	Date/time DD/MM/YYYY HH:MI:SS	Solution run time

Example of the CSV File
HAY2201, F, 21/12/2003,43,30,30,21/12/2003 21:03
HAY2201, S, 21/12/2003,43,0,39.47,21/12/2003 21:03

SO-010 Instantaneous Reserve Offers

Field Name	Format	Comments
GIP GXP full	Char(8)	Grid point applicable – HAY2201 (NI), BEN2201(SI)
Reserve type	Char(20)	Reserve type indicators – Fast (F), Slow (S)
Trading date	DD/MM/YYYY	Applicable trading date
Trading period	Char(2)	Trading Periods from 1 to 50
Price	Number(9,2)	Reserve Price in NZ$
Reserve MW	Number(10,3)	Reserve MW Quantity
Risk MW	Number(10,3)	Risk MW Quantity
RAF	Number(10,3)	Reserve Adjustment Factor (MW)
Run time	Date/time DD/MM/YYYY HH:MI:SS	Solution run time
Risk count	Number (3)	Scheduled number of reserve risks for each island
Risk shortfall count	Number (3)	Scheduled number of reserve risks subject to contingent event risk violation for this island/reserve class

Example of the CSV File
HAY2201,F,17/12/2003,20,0,220.935,395,1,17/12/2003 7:03
HAY2201,S,17/12/2003,20,0,398,380,1,17/12/2003 7:03

SO-010 Infeasibilities

Field Name	Format	Comments
GIP/GXP	Char (8)	Point of connection applicable
Trading date	DD/MM/YYYY	Applicable trading date
Trading period	Number (2)	Trading Periods from 1 to 50
Infeasibility	Char (4)	Infeasibility Code

		DSBP
Power	Number (10,3)	The infeasibility power in MW
Run time	Date/time DD/MM/YYYY HH:MI:SS	Infeasibility solution run time
Run type	Char (1)	A - PRSS G - PRSL N - NRSS L - NRSL W - WDS D - Dispatch

Example of the CSV File
PRSS Infeasibility - BEN0161, 15/12/2003, 32, DSBP, 0, 15/12/2003 12:11, A

SO-010 HVDC Component Flows

Field Name	Format	Comments
Trading date	Char (10)	Applicable trading date
Trading period	Number (2)	Trading Periods from 1 to 50
Pole	Char (2)	Pole (2,3,)
Direction	Char (1)	North or South (N or S)
Sent MW	Number (15,3)	MW's sent
Received MW	Number (15,3)	MW's received
Bipole capacity	Number (15,3)	Directional bipole transfer capacity limit[1]
Run time	Char (19)	Solution run time
HVDC BiPole removed	Number (1)	Whether the HVDC Link is out of service[2] 0= In service 1 = Out of service This value applies to Pole 2 and Pole 3 and is produced for NRSS, NRSL, PRSS, PRSL and WDS schedules

[1] The BiPole Capacity limit published does not reflect DC outages or pole limits, it is just an indication of the capacity of the BiPole at that time. It is the maximum capacity of the BiPole if both poles are in operation. Therefore for a DC outage the pole limits are affected but the BiPole limits are not.

[2] HVDC_BIPOLE_REMOVED is only based on outages (availability). If DC link is removed (i.e. both poles on outage) then HVDC_BIPOLE_REMOVED = 1. In schedule time, if DC is available (HVDC_BIPOLE_REMOVED = 0), then it is in use.

Example of the CSV File
29/04/2005,44,1,N,78.273,77.521,123.123,29/04/2005 20:40:58,1

SO-010 HVDC Risk Offsets

Field Name	Format	Comments
Trading date	Char (10)	Applicable trading date
Trading period	Number (2)	Trading Periods from 1 to 50
Island	Char (2)	NI -- North Island SI -- South Island
Reserve class	Char (3)	The Reserve Product, 6s for Fast, 60s for sustained
Risk	Char (5)	HVDC Contingent Event Risk Offset or Extended Contingent Event Risk Offset (DCCE or DCECE)
Risk offset MW	Number (10,3)	Risk Offset MW
RAF	Number (10,3)	The risk adjustment factor
Run time	Char (19)	Solution run time

Example of the CSV File
29/04/2005,43,NI,6s,DCCE,332.000,1.000,29/04/2005 20:40:58

SO-010 Standby Residual Check Data

Field Name	Format	Comments
Run time	Date/time DD/MM/YYYY HH:MI:SS	Solution run time
Run type	Char (1)	N - NRSS L - NRSL
Trading date	Date DD/MM/YYYY	Applicable trading date
Market time	Char (5)	Market time in HH24:MI(*) format NB: no *indicator for Daylight savings end
Trading period	Number (2)	Corresponding trading period
Risk scenario	Char (30)	A text string which refers to the result of the calculation: NI AC Risk NI AC Risk DCN Max NI DC Risk NI DC Risk DCN Max SI AC Risk SI AC Risk DCS Max

		SI DC Risk SI DC Risk DCS Max
Energy shortfall area	Char (2)	Identifies the energy shortfall area. If there is a shortfall, then one of NI, SI, or NZ. Empty if no shortfall.
Capacity shortfall area	Char (2)	Identifies the capacity shortfall area. If there is a shortfall, then one of NI, SI, or NZ. Empty if no shortfall.
Energy MW	Number (15,3)	Amount of surplus (+) or deficit (-) energy
Capacity MW	Number (15,3)	Amount of surplus (+) or deficit (-) capacity

SO-010 Forecast Demand File

Field Name	Format	Comments
Run time	Date/time DD/MM/YYYY HH24:MI:SS	Solution run time
Run type	Char (1)	'N' - NRSS 'L' - NRSL 'W' – WDS
Trading date	DD/MM/YYYY	Applicable trading date
Trading period	Number (2)	Trading periods from 1 to 50
Island	Char (2)	North Island or South Island (NI or SI)
Load forecast MW	Number (10,3)	The demand quantity in MW

Example of the CSV File

```
21/04/2008 00:00:00,W,21/04/2008,1,NI,1000
21/04/2008 00:00:00,W,21/04/2008,1,SI,1000
21/04/2008 00:00:00,W,21/04/2008,2,NI,1010
21/04/2008 00:00:00,W,21/04/2008,2,SI,1010
…
21/04/2008 00:00:00,W,21/04/2008,48,NI,1470
21/04/2008 00:00:00,W,21/04/2008,48,SI,1470
```

SO-010/SO-020Supply and Demand

Field Name	Format	Comments
GIP/GXP	Char (8)	Grid point applicable
Trading date	Date	Applicable trading date (DD/MM/YYYY)

Trading period	Number (2)	Trading periods from 1 to 50
Price	Number (9)	NZ$ - prices are rounded to the nearest dollar
Aggregate supply	Number (10,3)	MW
Aggregate demand	Number (10,3)	MW. NB: this will be 0 for the NRSS and NRSL schedules.
Run time	Date/time DD/MM/YYYY HH:MI:SS	Solution run time

Example of the CSV file
BEN2201,13/02/2003,1,0,1324.906,258.53,13/02/2003 11:11:11
BEN2201,13/02/2003,1,14,1324.906,258.5,13/02/2003 11:11:11

SO-010 Instantaneous Reserve Sharing

Field Name	Format	Comments
Trading date	Date	Applicable trading date (DD/MM/YYYY)
Trading period	Number (2)	Trading periods from 1 to 50
Market time	Char (5)	Equivalent (start) time for the trading period in HH24:MI format.
Run type	Char (1)	A – PRSS G – PRSL N – NRSS L – NRSL W – WDS D – Dispatch
Run Time	Date/time DD/MM/YYYY HH:MI:SS	Solution run time
Island	Char (2)	North Island or South Island (NI or SI)
Reserve sharing limit to 6s	Number (15,3)	Maximum amount of 6s reserves shared from the other island. In MW.
Reserve sharing limit to 60s	Number (15,3)	Maximum amount of 60s reserves shared from the other island. In MW.

Reserve sharing quantity to 6s CE	Number (15,3)	Amount of 6s reserves covered by shared reserves from the other island for a Contingent Event (CE). In MW.
Reserve sharing quantity to 60s CE	Number (15,3)	Amount of 60s reserves covered by shared reserves from the other island for a Contingent Event. In MW.
Reserve sharing quantity to 6s ECE	Number (15,3)	Amount of 6s reserves covered by shared reserves from the other island for an Extended Contingent Event (ECE). In MW.
Reserve sharing quantity to 60s ECE	Number (15,3)	Amount of 60s reserves covered by shared reserves from the other island for an Extended Contingent Event. In MW.
Binding risk type 6s	Char (1000)	Binding risk for the 6s reserves for the specified island
Bind risk type 60s	Char (1000)	Binding risk for the 60s reserves for the specified island
FKC enabled	Number (1)	1 = Frequency Keeping Control (FKC) enabled 0 = Frequency Keeping Control disabled
Round power status	Number (1)	1 = Round power enabled 0 = Round power disabled
Scheduled HVDC bipole MW (DCN, DCS)	Number (15,3)	Scheduled HVDC flow from the sent or upstream end of the HVDC
ENERGY_SHORTFALL	Number (15,3)	Required load not met (energy scarcity) (MW) for the island
FIR_DEFICIT_POWER	Number (15,3)	Fast Instantaneous Reserve (FIR, 6 second) Reserve deficit (MW) for the island
SIR_DEFICIT_POWER	Number (15,3)	Sustained Instantaneous Reserve (SIR, 60 second) Reserve deficit (MW) for the island
NET_FREE_FIR_AC_CE	Number (15,3)	Net Free Fast Instantaneous Reserve (FIR, 6 second) calculated for the AC Contingent Event risk (MW) for the island
NET_FREE_FIR_AC_ECE	Number (15,3)	Net Free Fast Instantaneous Reserve (FIR, 6 second) calculated

		for the AC Extended Contingent Event risk (MW) for the island
NET_FREE_FIR_CE	Number (15,3)	Net Free Fast Instantaneous Reserve (FIR, 6 second) calculated for the Contingent Event risk (MW) for the island
NET_FREE_FIR_ECE	Number (15,3)	Net Free Fast Instantaneous Reserve (FIR, 6 second) calculated for the Extended Contingent Event risk (MW) for the island
NET_FREE_SIR_AC_CE	Number (15,3)	Net Free Sustained Instantaneous Reserve (SIR, 60 second) calculated for the AC Contingent Event risk (MW) for the island
NET_FREE_SIR_AC_ECE	Number (15,3)	Net Free Sustained Instantaneous Reserve (SIR, 60 second) calculated for the AC Extended Contingent Event risk (MW) for the island
NET_FREE_SIR_CE	Number (15,3)	Net Free Sustained Instantaneous Reserve (SIR, 60 second) calculated for the Contingent Event risk (MW) for the island
NET_FREE_SIR_ECE	Number (15,3)	Net Free Sustained Instantaneous Reserve (SIR, 60 second) calculated for the Extended Contingent Event risk (MW) for the island
HVDC_RISK_SUBTRACTOR	Number (15,3)	Island HVDC Risk Subtractor (from the RMT solution)
MRCE	Number (15,3)	HVDC Modulation Risk Contingent Event (same value for both islands) (MW)
MRECE	Number (15,3)	HVDC Modulation Risk Extended Contingent Event (same value for both islands) (MW)

Example of the CSV file
14-Mar-17,40,19:30,N,14/03/17 16:03:01,NI,220.000,220.000,0.000,0.000,0.000,0.000,
HVDC_ECE,HVDC_ECE,1,1,719.694
14-Mar-17,40,19:30,N,14/03/17 16:03:01
,SI,220.000,220.000,59.767,150.450,30.561,0.000,
MANUAL_CE,MANUAL_CE,1,1,0.000

SO-010 Forecast Energy Prices

Field Name	Format	Comments
GIP/GXP	Char (8)	Grid point applicable
Trading date	Date	Applicable trading date (DD/MM/YYYY)
Trading period	Number (2)	Trading periods from 1 to 50
Price	Number (8, 2)	The dispatch price per MW
Run time	Date/time	Solution run time DD/MM/YYYY HH:MI:SS
Price type	Char (1)	A – PRSS G – PRSL N – NRSS L – NRSL W – WDS
Is Proxy Price	Number (1)	0 or 1 - 1 if a Proxy Price has been applied to the GXP. Proxy Prices are applied when a transmission asset outage has disconnected a GXP from the grid, and is the price at the next electrically nearest node.

SO-010 Forecast Reserve Prices

Field Name	Format	Comments
GIP/GXP	Char (8)	Grid point applicable
Trading date	Date	Applicable trading date (DD/MM/YYYY)
Trading period	Number (2)	Trading periods from 1 to 50
Price_6S	Number (8, 2)	The 6 second reserve price per MW in NZ$
Price_60S	Number (8, 2)	The 60 second reserve price per MW in NZ$
Run time	Date/time	Solution run time DD/MM/YYYY HH:MI:SS
Price type	Char (1)	A – PRSS G – PRSL N – NRSS L – NRSL W – WDS

SO-010 Dispatch Schedule Reserve Prices

Field Name	Format	Comments
GIP/GXP	Char (8)	Grid point applicable

Trading date	Date	Applicable trading date (DD/MM/YYYY)
Trading period	Number (2)	Trading periods from 1 to 50
Price_6S	Number (8, 2)	The 6 second reserve price per MW in NZ$
Price_60S	Number (8, 2)	The 60 second reserve price per MW in NZ$
Publish time	Date/time	Dispatch price publication time on WITS DD/MM/YYYY HH:MI:SS XXXX where XXXX is the time zone indicator. NZDT for NZ daylight time, or NZST for NZ standard time
Price type	Char(1)	D – Dispatch price
Market time	Char(5)	The start of the 5 min interval for which the price applies, from 00:00 to 23:55

SO-010 Dispatch Schedule Energy Prices

Field Name	Format	Comments
GIP/GXP	Char (8)	Grid point applicable
Trading date	Date	Applicable trading date (DD/MM/YYYY)
Trading period	Number (2)	Trading periods from 1 to 50
Market time	Char (5)	Market time from 00:00 to 23:55
Price	Number (8, 2)	The dispatch price per MW
Publish time	Date/time	Dispatch schedule publication time on WITS DD/MM/YYYY HH:MI:SS XXXX where XXXX is the time zone indicator. NZDT for NZ daylight time, or NZST for NZ standard time
Is Proxy Price	Number (1)	0 or 1 - 1 if a Proxy Price has been applied to the GXP. Proxy Prices are applied when a transmission asset outage has disconnected a GXP from the grid, and is the price at the next electrically nearest node.

SO-010 Dispatch Schedule Summary

Field Name	Format	Comments

Trading date	Date	Applicable trading date (DD/MM/YYYY)
Trading period	Number (2)	Trading periods from 1 to 50
Market time	Char (5)	Market time from 00:00 to 23:55
Ramp up const count	Number (3)	Number of energy offers ramp up constrained
Ramp down const count	Number (3)	Number of energy offers ramp down constrained
Branch const count	Number (3)	Number of branches constrained
Branch group const count	Number (3)	Number of branch groups constrained
MKN group const count	Number (3)	Number of binding market node equations constrained
Has unsupplied demand situation	Number (1)	0 or 1 – 1 if dispatch prices have been calculated based on an unsupplied demand situation (prices account for estimate of load that has been instructed to be disconnected)
Publish time	Date/time	Dispatch schedule publication time on WITS DD/MM/YYYY HH:MI:SS XXXX where XXXX is the time zone indicator. NZDT for NZ daylight time, or NZST for NZ standard time

SO-010 Island Residual Information

Field Name	Format	Comments
Date	Date	Applicable trading date (DD/MM/YYYY)
Trading period	Number (2)	Trading periods from 1 to 50
Market time	Char (5)	Market time from 00:00 to 23:55
Run Type	Char (1)	A – PRSS G – PRSL N – NRSS L – NRSL W – WDS D – DISPATCH

Run Time	Date/Time	DD/MM/YYYY HH:MI:SS XXXX where XXXX is the time zone indicator. NZDT for NZ daylight time, or NZST for NZ standard time
Location	Char (2)	NZ - New Zealand NI - North Island SI - South Island
Residual	Number (8,3)	In MW

Processing:

The system:

1. Receives the NRS, PRS, WDS and Dispatch schedule information from the system operator.

2. Selects and publishes the information according to whether it is confidential to individual participants or available to all participants. N.B. Participants only receive station security constraints for nodes where they have a contract. Also, regarding the DCLS dispatch notifications included in the NRS schedules, notifications for the current trading period, based on the publication time, are excluded.

3. Publishes both the confidential and non-confidential information via the browser and via automation. The information can also be downloaded from the browser.

Data outputs:

The same as input selected and formatted appropriately for publication.

Sub-process:	**SO-020 Calculate and publish supply and demand curves**
Process:	Publish schedule information from the system operator
Source:	WITS
Destination:	Participants
Code references:	13.104, 13.105A, 13.106
Dependencies:	

Description:

WITS calculates the forecast supply and demand curves from current bids and offers and publishes them at the same time as the NRS, PRS and dispatch schedule information, relating to those bids and offers, are published. This information is not confidential.

NB: The current system also incorporates HVDC flows into the calculation which is not mentioned in the Code.

Business requirements:

1. The forecast supply and demand curves for each trading period in the schedule period must be published.

2. There must be a forecast supply curve and a forecast demand curve for each schedule type - NRS, PRS and dispatch schedule, island, trading date and trading period covered by the schedule period.

3. The forecast supply curves must be calculated using the latest offers and sorted by ascending price. Offer quantities must first be capped at the forecast of generation potential (FOGP) value for intermittent generating stations.

4. The forecast demand curves must be calculated using the latest bids and sorted by descending price.

5. The supply and demand curves must be aggregated by island (Benmore, Haywards), trading date and trading period.

6. The supply and demand curves must also incorporate forecast HVDC flow and include this in the determination of the forecast supply curves.

Data inputs:

- Offers applicable at the time of the calculation of the NRS, PRS and dispatch schedule.
- Difference and nominated non-dispatch bids applicable at the time of the calculation of the PRS and dispatch schedule.
- Nominated dispatch bids at the time of the calculation of the PRS, NRS and dispatch schedule.
- Forecast prices.
- NRS, PRS and dispatch schedules

Processing:

The system:

1. For each of the latest schedules of type - NRS, PRS and Dispatch schedule, island, trading date and trading period calculates the forecast HVDC flows by:

   a) Calculating the total forecast load and total forecast generation.

      Forecast load is identified by the Power Type = L and the total forecast generation by the Power Type = G.

   b) Calculating the forecast HVDC flow.

      If the total forecast load is equal to or less than the total forecast generation then the delta is ignored (there is no HVDC flow forecast into this island).

      If the total forecast load is greater than the total forecast generation, (i.e. scheduled load is greater than scheduled generation in that island) then the additional generation required must be scheduled to be provided through the HVDC.

      Forecast HVDC quantity = total forecast load minus total forecast generation.

   c) Creating an additional offer for the HVDC quantity.

      The forecast HVDC quantity into each island is treated as an additional offer at zero price, at grid point either Haywards or Benmore (depending on which island the HVDC flow is going into).

2. Extracts the price/quantity pairs from the offers and bids that relate/apply to the latest schedules and island using the POC

reference data to identify the island associated with the POC. With respect to bids, for the PRS schedules all the price/quantity pairs are extracted from all the types of bids except that for difference bids only the positive increments are used (bands 1 to 5). For the NRS schedules only the nominated dispatch bids are used.

3. Calculates the supply curve for each type of schedule, island, trading date and trading period using the latest price/quantity pairs from their related offers (that includes the additional offers created to reflect the forecast HVDC flows) as follows:

    a) Obtains the forecast marginal location factor per POC, trading date and trading period from the PRS/NRS/Dispatch schedule;

    b) Adjusts the prices of each price/quantity pair by dividing by their forecast marginal location factors and rounded to the nearest whole dollar;

    c) Caps the offers for intermittent generating stations by their forecast of generation potential (FOGP) value, identified by their station identifier in the reference data. This is achieved by reducing the band quantities, by the difference between the (total quantity of all offer bands - FOGP), if this is a positive value. Band 5 is reduced first, then band 4 and so on until the sum of the quantities in all bands equals the FOGP value.

    d) Sorts the resultant adjusted price/quantity pairs into ascending price sequence; and

    e) Aggregates the quantities by schedule type, island, trading date, trading period and adjusted price. This is the aggregated list.

    f) The quantities of the aggregated list, proceeding in ascending (adjusted) price sequence, are summed cumulatively i.e. the previous aggregated quantity is added to the next. Example: if there is an offer for 10 MW at $12 and 5MW at $15, then the resultant cumulative list will contain10MW @ $12 and 15MW @ $15. This cumulative list is the supply curve.

4. Calculates the demand curve for each type of schedule, island, trading date and trading period using the latest price/quantity pairs from their associated bids (see point 2 above) as follows:

    a) Calculates an additional price/quantity pair for the ‘missing’ bids at conforming nodes by using the quantity of ‘Forecast Load at conforming nodes’ from the associated schedule with a Power Type of R. This forecast load quantity is treated as an additional bid at zero price at its scheduled POC and island (found by using

the POC reference data to identify the island associated with the POC).

b) Obtains the forecast marginal location factor per POC, trading date and trading period from the PRS/NRS/Dispatch schedule;

c) Adjusts the prices of each price/quantity pair by dividing by their forecast marginal location factors and rounded to the nearest whole dollar;

d) Sorts the resultant adjusted price/quantity pairs into descending price sequence; and

e) Aggregates the quantities by schedule type, island, trading date, trading period and adjusted price. This is the aggregated list.

f) The quantities of the aggregated list, proceeding in descending (adjusted) price sequence, are summed cumulatively i.e. the previous aggregated quantity is added to the next. Example: if there are bids for 10 MW at $20,22MW at $15 and 100@ $0, then the resultant cumulative list will contain10MW at $20,32MW at $15 and 132MW at $0. This cumulative list is the demand curve.

5. Amalgamates the supply curve and the demand curve of each schedule type, island, trading date and trading period, so that there is a table for each showing Price, MW Supply and MW Demand. The amalgamation is carried out as follows:

All the distinct prices from the supply and demand curves are extracted and sorted into ascending price sequence and included in the Price column. Any MW Supply and MW Demand quantities found at those prices are included in the table against their respective prices.

Where there is a MW Demand value at a particular price, but no MW Supply value at that same price, the system will fill in the MW Supply value by using the value for MW Supply from the prior lower priced table entry for which there is a MW Supply value.

For example, if the following represents the initial amalgamation:

Price $	MW Supply	MW Demand
10	62	528
12		523
14	102	520

Then the system will fill in the gap in the MW supply as follows:

Price $	MW Supply	MW Demand
10	62	528
12	**62**	523
14	102	520

Similarly, where there is a MW Supply value at a particular price, but no MW Demand value at that same price, the system will fill in the MW Demand value by using the MW Demand value from the prior lower priced table entry for which there is a MW Demand value.

For example, if the following represents the initial amalgamation:

Price $	MW Supply	MW Demand
22	259	506
25	294	
28	322	
30	352	494

Then WITS will fill in the gap in the MW Supply as follows:

Price $	MW Supply	MW Demand
22	259	506
25	294	**506**
28	322	**506**
30	352	494

6. Publishes the adjusted amalgamated data as the supply and demand curves.

Data inputs:

- Supply and demand curves per schedule type for PRS, NRS and dispatch, island, trading date and trading period.

Field Name	Format	Comments
GIP/GXP	Char (8)	Grid Point applicable
Trading Date	Date	Applicable trading date (DD/MM/YYYY)
Trading Period	Number (2)	Trading Periods from 1 to 50

Price	Number (9)	NZ$ - prices are rounded to the nearest dollar
Aggregate Supply	Number (10,3)	MW
Aggregate Demand	Number (10,3)	MW. NB: this will be 0 for the NRS schedules.
Run Time	Date/Time	Solution run time (DD/MM/YYYY HH:MI:SS)

10.7 Publish other information from system operator

Sub-process:	**OI-020 Receive and publish temporary security constraints**
Process:	Publish other information from the system operator
Source:	System operator
Destination:	Participants, Reconciliation Manager
Code references:	13.61, 13.65
Dependencies:	

Description:
WITS publishes temporary security constraints received from the system operator. Once the information has been received by WITS, it is made available to all participants and to the general public via a publicly accessible website. The information is not confidential. WITS sends the outage file to reconciliation manager on the first business day of the month with the information for the previous month.

Business requirements:
The system operator must endeavour to provide the information within ten minutes of the application of the constraint and WITS must publish the information immediately. The system operator must provide the following information relating to each constraint: – the form of the constraint, – the limit of the constraint or the name of the circuit with a limit of zero for an outage, – the duration of the constraint including the starting time and date and the ending time and date, – the time the constraint was applied, – the previous limit of the constraint if applicable. WITS delivers the outage information to the reconciliation manager on the first business day of the month.

Data inputs:
Temporary security constraints as received from the system operator.

OI-020 Outages File

Field Name	Format	Comments
Outage ID	Char(50)	Unique identifier for the outage including this component.
Outage block	Char(50)	High level grouping of components simultaneously affected by an outage which includes this component.
Component	Char(50)	Name/ID of outaged network component.
Component type	Char(10)	Code identifying whether the component is a Transformer, Circuit, Breaker etc.
Status	Char(7)	Status of component (Open, Closed, Removed). Some normally open breakers may be closed as part of an outage block.
Start time	Date	Date and time of beginning of outage.
End time	Date	Date and time of end of outage.
Last update	Timestamp DD/MM/YYYY HH24:MI:SS.FF3 (includes date, time and milliseconds)	Date and time that this outage record was updated.
Run time	Date DD/MM/YYYY HH24:MI:SS	
Event ID	Number	

Example of the CSV File

22496747,BPE_TWC_LTN_1,BPE_TWC_LTN1.3,LN,Remove,07/03/2009 07:00:00,07/03/2009 18:30:00,06/03/2009 15:42:39.000,06/03/2009 15:42:39
22496748,BRK_T1,BRK_582,CB,Open,07032009 07:00:00,07/03/2009 15:30:00,06/03/2009 15:42:40.000,06/03/2009 15:42:40

OI-020 Overrides File

Field Name	Format	Comments

Override ID	Char(50)	Unique identifier for the override of this branch rating.
Component ID	Char(50)	ID of branch with overridden rating.
Component type	Char(10)	Code identifying whether the component is a Transformer, Circuit etc.
Outage ID	Char(50)	Unique identifier for the outage which this override is related to, if any.
Outage type	Char(255)	The type of override – e.g. MW LIMIT, MW LIMIT 20, OUTAGE
Override value	Number	Branch rating after override applied.
Start time	Date	Date and time of beginning of override.
End time	Date	Date and time of end of override.
Last updated	Timestamp DD/MM/YYYY HH24:MI:SS.FF3 (includes date, time and milliseconds)	Date and time that this override record was updated.
Run time	Date DD/MM/YYYY HH24:MI:SS	

Example of the CSV File
15527537,WHL_T1.T1,XF,,,9,24/02/2009 14:30:00,30/04/2009 00:00:00,24/02/2009 14:23:22.000,27/02/2009 14:20:20
17528347,TKH_T1.T1,XF,,,1,25/02/2009 09:00:00,25/02/2009 09:30:00,27/02/2009 14:20:20.000,27/022/009 14:20:20

Processing:

The system:

1. Receives the temporary security constraint information from the system operator.

2. Formats it appropriately and publishes it via the browser and the automation system to market participants and to a publicly accessible website. It must also be downloadable from the browser.

3. Formats and delivers the outage report to the reconciliation manager.

Data outputs:

OI-020 Outage report for Reconciliation Manager

Field Name	Format	Comments
GIP/GXP	Char (7)	Grid point applicable
Start date	DD/MM/YYYY	Mandatory
Start period	Number (2)	Mandatory
End date	DD/MM/YYYY	Mandatory
End period	Number (2)	Mandatory

For participants, the format is the same as received from the system operator.

Sub-process:	**SN-010 Deliver published dispatch notifications**
Process:	Deliver published dispatch notifications to system operator
Source:	WITS
Destination:	System Operator
Code references:	
Dependencies:	SO-010

Description:
WITS must send back published dispatch notifications from the NRS schedules to the system operator so they can reconcile their data with what was actually published to participants. In some situations, e.g. due to system outages or an NRSS schedule being generated late in a trading period and not published until the next trading period, the system operator's dispatch notification data may be different to what was actually published through WITS.

Business requirements:
1. Process must run before the system operator runs the dispatch instruction interface to the clearing manager. 2. WITS must send DCLS dispatch notifications published through WITS in the previous 24hr period to the system operator.

Data inputs:
Published DCLS dispatch notifications included in the NRS schedules (SO-010).

Processing:
The system: Extracts the published DCLS dispatch notifications included in the NRS schedules and delivers them to the system operator using the standard interface.

Data outputs:
Published DCLS dispatch notifications.

10.8 Publish information from the clearing manager

Sub-process:	**CM-010 Receive and publish constrained amounts**
Process:	Publish information from the clearing manager
Source:	Clearing manager
Destination:	Participants
Code references:	13.199 and 13.208
Dependencies:	

Description:
WITS publishes constrained on and off amounts it receives from the clearing manager by 1600 hours on the 8th business day of each month.

Business requirements:
1. All constrained amounts must be published via the browser and automation. The information must also be available for download from the browser. 2. All constrained amounts must be published in a timely manner as soon as possible after receipt from the clearing manager. 3. The format and transfer mechanism for the delivery of these prices from the clearing manager will need to be agreed by the service provider.

Data inputs:
Constrained on and off amounts and the amount of constrained on and off that is attributable to the system operator, per: • Generator or dispatchable load purchaser ; • trading day; • trading period; • DCLS code or GIP or block or station dispatch group; and • whether constrained on or off.

Processing:
The system: 1. Receives the constrained amounts from the clearing manager. 2. Formats them appropriately and publishes them to market participants, via the browser, via automation and available for download from the browser.

Data outputs:
The constrained amounts received from the clearing manager, formatted for publication.

Sub-process:	**CM-020 Receive and publish block settlement differences**
Process:	Publish information from the clearing manager
Source:	Clearing manager
Destination:	Participants
Code references:	14.78
Dependencies:	

Description:
WITS publishes block settlement difference amounts it receives from the clearing manager by 0900 hours on the 2nd business day after the pro-forma invoices have been delivered each month.

Business requirements:
1. All block settlement difference amounts must be published via the browser and via automation. The information must be available to download from the browser. 2. All block settlement difference amounts must be published in a timely manner as soon as possible after receipt from the clearing manager. 3. The format and transfer mechanism for the delivery of these prices from the clearing manager will need to be agreed by the service provider.

Data inputs:
For the previous month per block: • the maximum block settlement difference; and • the total block settlement difference.

Processing:
The system: 1. Receives the block settlement difference amounts from the clearing manager. 2. Formats them appropriately and publishes them to market participants, via the browser, via automation and available for download.

Data outputs:
The block settlement difference amounts received from the clearing manager, formatted for publication.

Sub-process:	**CM-025 Calculate interim prices and publish interim and final prices**
Process:	Publish of information for the clearing manager
Source:	SO, Clearing Manager
Destination:	Public, SO and Clearing Manager
Code references:	13.131, 13.134A
Dependencies:	SO-010

Description:

WITS calculates interim energy/reserve prices and publishes interim and final energy/reserve prices on behalf of the clearing manager. Interim prices are calculated using time weighted average of dispatch prices derived from dispatch schedule at the end of each trading period, and then being published immediately at the end of each trading period. Final prices are published after receiving confirmation from the clearing manager. All prices in this session are referring to energy/reserve prices.

Business requirements:

1. Interim prices must be calculated using time weighted average of dispatch prices at the end of each trading period.
2. Interim prices must be published right after the calculation at the end of each trading period as soon as practicable.
3. PRS prices are used for calculation when there is no valid dispatch price available for all or part of the trading period.
4. Final prices for all trading periods with no PEC claims must be published by 14:00 the following business day.

Data inputs:

- The latest PRS forecast prices and dispatch RTD prices for energy and reserve prices from SO-010.
- Trading period being processed.
- Final prices confirmation file received from clearing manager.

Field Name	Format	Comments
Trading date	Date	
Trading period	Number (2)	Applicable trading date (DD/MM/YYYY)
Status	Char(4)	F: Finalised

		PEC: Pricing error claim PECU: Pricing error claim upheld
Publish time	DD/MM/YYYY HH24:MI:SS TZD	Publish time and time zone

Processing:

The system:

1. Calculates interim prices for each GIP/GXP, trading date and trading period for energy and reserves using a time weighted average calculation of the dispatch prices and PRS prices at end of each trading period.

   If the first dispatch price has a publish time prior to the start time of the trading period, the start time of the trading period is used as the publish time in the time weighted average calculation detailed as follows:

   For each dispatch price published in a trading period, the duration (weight) for each dispatch price is calculated, in seconds, from the publish time of the dispatch price to the publish time of the next dispatch price (for the same GIP/GXP, trading date and trading period) or to the end time of that trading period, whichever is the earliest. (NB: This is because dispatch schedules do not continue/apply into the next trading period.)

   If there is no dispatch price with a publish time before or equal to the start time of that trading period, then the latest PRS price (of the same GIP/GXP, trading date and trading period) applies for the duration from the start of the trading period up to the publish time of the next dispatch price or end time of that trading period, whichever is the earliest.

2. Publishes interim prices via the browser and via automation as soon as practicable at the end of each trading period and makes the information downloadable from the browser.

3. Sends the dispatch and interim prices to the SO which includes the publish time of when the dispatch prices used in calculation.

4. Sends PRS, dispatch and interim prices to the clearing manager for validation.

5. Creates final prices from interim prices and publishes the final prices for all trading dates and trading periods for which there are no PEC claims after receiving confirmation from the clearing manager.

Data outputs:

CM-025 PRS, RTD, Interim and Final Prices

Field Name	Format	Comments
GIP/GXP	Char (8)	Grid point applicable
Trading date	Date	Applicable trading date (DD/MM/YYYY)
Trading period	Number (2)	Trading periods from 1 to 50
Market time	Date/time	HH24:MI
Price	Number (8, 2)	The price per MW in NZ$
Run time	Date/time	DD/MM/YYYY HH24:MI:SS
Run type	Char (1)	A – PRS Short G – PRS Long D - RTD T – Interim F – Final
Time zone	Char (4)	NZST – New Zealand standard time NZDT – New Zealand daylight saving time
Publish time	Date/time	Dispatch schedule publication time on WITS DD/MM/YYYY HH:MI:SS

CM-025 PRS, RTD, Interim and Final Reserve Prices

Field Name	Format	Comments
GIP/GXP	Char (8)	Grid point applicable
Trading date	Date	Applicable trading date (DD/MM/YYYY)
Trading period	Number (2)	Trading periods from 1 to 50
Market time	Date/time	HH24:MI
Price 6S	Number (8, 2)	The 6 second reserve price per MW in NZ$
Price 60S	Number (8, 2)	The 60 second reserve price per MW in NZ$
Run time	Date/time	DD/MM/YYYY HH24:MI:SS
Run type	Char (1)	A – PRS Short G – PRS Long D - RTD T – Interim F – Final
Time zone	Char (4)	NZST – New Zealand standard time NZDT – New Zealand daylight saving time
Publish time	Date/time	Dispatch schedule publication time on WITS DD/MM/YYYY HH:MI:SS

Sub-process:	**CM-040 Receive and publish available MRDA rights**
Process:	Publish information from the clearing manager
Source:	Clearing manager
Destination:	Generators
Code references:	13.121
Dependencies:	

Description:

WITS provides the means whereby the clearing manager is able to publish the quantity of auction rights that will be available at a given auction.

Business requirements:

Generators must be informed by 1100 hours on the day before the auction of the quantity of auction rights available in each time block at the forthcoming auction.

Data inputs:

- Date of the auction or date range.
- Auction rights available for night demand in MW.
- Auction rights available for day demand in MW.

Processing:

The system:

1. Receives the auction results and authorisations from the clearing manager.
2. Displays all the auction rights for the selected date(s) and makes them available for download.

Data outputs:

- **Auction rights**

Field Name	Format	Comments
Auction date	Date	
Night demand MW	Number(10,3)	
Day demand MW	Number(10,3)	

Sub-process:	**CM-050 Receive and publish MRDA results and authorisations**
Process:	Publish information from the clearing manager
Source:	Clearing manager
Destination:	Generators and purchasers
Code references:	13.128, 13.129
Dependencies:	

Description:

WITS provides the means whereby the clearing manager:

- informs all those generators, who have bid in a given must-run dispatch auction, of the results of their individual bids;
- informs all generators and purchasers of the quantities and prices of all successful bids made at a given auction.

Business requirements:

1. Generators and purchasers must be informed by 1100 hours on the day of the auction of the quantity and price of all the successful bids that were made at the specified auction.
2. All generators whose bids are successful in an auction must receive authorisations setting out the auction rights they have won and the price they must pay for them.

Data inputs:

Date of auction

Price and quantity results of the auction.

Auction right authorisations.

Processing:

The system:

1. Receives the auction results and authorisations from the clearing manager.
2. Publishes the auction bid prices and quantities to generators and purchasers.

3. Publishes the results of their bids to each respective generator who took part in the auction.

4. Publishes authorisations to the successful generators.

Data outputs:

- **Auction results**

Field Name	Format	Comments
Company	Char (4)	Code of generator.
Trading date	Date	
Trading period	Number (2)	1 to 50.
Price	Number(8,2)	
Quantity	Number (10,3)	MW
Settlement amount	Number(8,2)	1 to 50.

- **Auction summary**

Field Name	Format	Comments
Auction ID	Number (10)	
Trading date	Date	
Night clearing price	Number(10,3)	
Day clearing price	Number(10,3)	

- **Cleared Summary**

Field Name	Format	Comments
Trading date	Date	
Block	Char (1)	D or N.
Price	Number(8,2)	
Quantity	Number (10,3)	MW
Cleared quantity	Number (10,3)	MW

Sub-process:	**CM-060 Receive and publish demand half-hour metering information**
Process:	Publish information from the clearing manager
Source:	Clearing manager
Destination:	Participants
Code references:	
Dependencies:	

Description:
WITS publishes demand half-hour metering information whenever it receives it from the clearing manager. Demand half-hour metering information will be available each trading day for all trading periods in the previous trading day.

Business requirements:
Demand half-hour metering information must be published when received from the clearing manager.

Data inputs:
Demand half-hour metering information and/or revised demand half-hour metering information as received from the clearing manager.

CM-060 Daily Demand Half-hour Metering Information File (Bus load data)

Field Name	Format	Comments
GIP GXP	Char (8)	Grid Point – also known as the Bus Name.
Trading date	Char (10)	Applicable trading date (DD/MM/YYYY)
Trading period	Number (2)	Trading periods from 1 to 50
Market time	Char (6)	Equivalent (start) time for the TRADING_PERIOD in HH24:MI format. May have a '*' appended to the time to indicate daylight savings change e.g. 02:00*, 02:30*.
Load	Number (10,3)	The demand quantity in MW.
Run time	Char (6)	HH:MI

Processing:
The system:

1. Receives daily demand half-hour metering information from the clearing manager.
2. Maps the island information accordingly to the GXPs/GIPs.
3. Formats it appropriately and publishes it to market participants, via the browser, via automation and available for download.

Data outputs:
The same information as input plus the island information (SI or NI).

Sub-process:	**CM-070 Receive and publish price index information**
Process:	Publish information from the clearing manager
Source:	Clearing Manager
Destination:	Participants
Code references:	
Dependencies:	

Description:

WITS publishes price index information that it receives from the clearing manager.

Price index information will be available for upper North Island, lower North Island, South Island and New Zealand for each trading day.

These prices are available to all participants and to the general public via a publicly accessible website.

Business requirements:

1. Price index information must be published daily.

Data inputs:

Price index received from the clearing manager.

Field Name	Format	Comments
Region code	Char (3)	UNI – Upper North Island LNI – Lower North Island SI – South Island NZ – New Zealand
Trading date	Date	Applicable trading date DD/MM/YYYY
Price	Num (8, 4)	Price in cents/kWh

Processing:

The system:

1. Receives price index information from the clearing manager.
2. Formats it appropriately and publishes it to market participants to be viewable and available for download via the browser and via automation.

Data outputs:
The same information as input.

10.9 Publish information to or on behalf of the Authority

Sub-process:	**EA-010 Publish final bids and offers**
Process:	Publish information on behalf of the Authority
Source:	WITS
Destination:	Participants, Clearing Manager
Code references:	13.55, 13.55A
Dependencies:	UN-010 to UN-060

Description:
WITS publishes the final bids and offers for energy and reserves for the past number of years, if available. Bids and offers for the last 4 weeks are available in daily zipped files. For earlier trading dates they are organised into monthly files (zipped). They are all downloadable. The daily files are published the following day.

Business requirements:
1. Final bids and offers for energy and reserves must be made available within 24 hours of the end of the trading day to which they apply. 2. Final bids and offers for energy and reserves must be made available on the publicly accessible website, for a period of at least 4 weeks. 3. Deliver the information to the Clearing Manger.

Data inputs:
See UN-010 to UN-060.

Processing:
The system: 1. Formats the information appropriately and publishes it to market participants via the browser and via the publicly available website. 2. Makes the information available to download. 3. Transfers the information to the Clearing Manger.

Data outputs:

The same information as input except the file will always contain the two additional 'DCLS' related columns even if the uploaded bid file the errors relate to was for non-DCLS bids.

Historical Bids

NB: for Difference Bids:-
Bands 1 - 5 is used for increases in the use of electricity
Bands 6-10 is used for the decreases in the use of electricity

Field Name	Format	Comments
Company code	Char(4)	Company trading code
GIP/GXP	Char(8)	Grid point applicable
Trading date	Char(12)	Applicable trading date
Trading period	Char(2)	Trading periods 1 to 50
Band1 Power	Number(10,3)	MW
Band1 Price	Number(8,2)	NZ$
Band2 Power	Number(10,3)	MW
Band2 Price	Number(8,2)	NZ$
Band3 Power	Number(10,3)	MW
Band3 Price	Number(8,2)	NZ$
Band4 Power	Number(10,3)	MW
Band4 Price	Number(8,2)	NZ$
Band5 Power	Number(10,3)	MW
Band5 Price	Number(8,2)	NZ$
Band6 Power	Number(10,3)	MW
Band6 Price	Number(8,2)	NZ$
Band7 Power	Number(10,3)	MW
Band7 Price	Number(8,2)	NZ$
Band8 Power	Number(10,3)	MW
Band8 Price	Number(8,2)	NZ$
Band9 Power	Number(10,3)	MW
Band9 Price	Number(8,2)	NZ$
Band10 Power	Number(10,3)	MW
Band10 Price	Number(8,2)	NZ$
DCLS code	Char(6)	Identifier for the dispatch capable load station

Dispatchable YN	Char(1)	Y or N, indicating whether the bid is dispatchable or not.
Created date	Char(19)	Date file was created (DD/MM/YYYYhh:mm:ss)
Last amended date	Char(19)	Date last amendments were made to the order (DD/MM/YYYYhh:mm:ss)

Example of the CSV File
Historic Bids –
EMCO,ABY0111,07/11/2003,1,1.56,2000,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,DLS1,Y,16/09/2003 7:44,06/11/2003 0:27

Historical Offers

Field Name	Format	Comments
Company code	Char(4)	Company trading code
GIP/GXP	Char(8)	Grid point applicable
Station	Char(3)	Three letters identifying the station
Unit	Number(2)	Unit
Trading date	Char(12)	Applicable trading date
Trading period	Char(2)	Trading periods from 1 to 50
Max output	Number(4)	Sum of all power in bands
Max ramp up rate	Number(4)	Maximum ramp up rate
Max ramp down rate	Number(4)	Maximum ramp down rate
Band1 Power	Number(10,3)	MW
Band1 Price	Number(8,2)	NZ$
Band2 Power	Number(10,3)	MW
Band2 Price	Number(8,2)	NZ$
Band3 Power	Number(10,3)	MW
Band3 Price	Number(8,2)	NZ$
Band4 Power	Number(10,3)	MW
Band4 Price	Number(8,2)	NZ$
Band5 Power	Number(10,3)	MW
Band5 Price	Number(8,2)	NZ$
Created date	Char(12)	Date file was created (DD/MM/YYYYhhmm:ss)
Last amended date	Char(12)	Date last amendments were made to the order (DD/MM/YYYYhhmm:ss)
Forecast of generation potential	Number (10,3)	MW. This field is populated only where the offer relates to wind generation.

Example of the CSV File

Historic Offers –
EMCO, TUI1101, KTW, 0, 09/11/2003, 30, 34, 384, 384, 0, 0.01, 0,
0.02, 34, 900, 0, 0, 0, 0, 09/11/2003 8:52, 09/11/2003 8:54,

Historical IL Reserves

Field Name	Format	Comments
Company code	Char(4)	Company trading code
GIP/GXP	Char(14)	Grid point applicable, including Station and Unit if purchaser also bids Dispatchable Demand at this location e.g.ABC2201 ABC0.
Trading date	Date	Applicable trading date (DD/MM/YYYY)
Trading period	Char(2)	Trading periods from 1 to 50
In load_6s	Char(1)	Interruptible Load 6 seconds Flag
Int load 60s	Char(1)	Interruptible Load 60 seconds Flag
Band1 6s price	Number(8,2)	Band 1 6 sec price. NZ dollars. Mandatory.
Band1 6s max	Number(10,3)	Band 1 6 sec maximum MW.
Band1 60s price	Number(8,2)	Band 1 60 sec price NZ dollars.
Band1 60s max	Number(10,3)	Band 1 60 sec maximum MW.
Band2 6s price	Number(8,2)	Band 2 6 sec price NZ dollars. Must be greater than Band 1 6 sec price.
Band2 6s max	Number(10,3)	Band 2 6 sec maximum (MW)
Band2 60s price	Number(8,2)	Band 2 60 sec price NZ dollars. Must be greater than Band 1 60 sec price.
Band2 60s max	Number(10,3)	Band 2 60 sec maximum (MW)
Band3 6s price	Number(8,2)	Band 3 6 sec price. NZ dollars. Must be greater than Band 2 6 sec price.
Band3 6s max	Number(10,3)	Band 3 6 sec maximum. (MW)

Band3 60s price	Number(8,2)	Band 3 60 sec price. NZ dollars. Must be greater than Band 2 60 sec price.
Band3 60s max	Number(10,3)	Band 3 60 sec maximum (MW)
Created Date	Date	Upload time
Last Amended Date	Date	Transpower confirm time

Example of the CSV File
EMCO,ISL0661,17/03/2007,1,N,Y,0,0,0,0,0,0,0,0,0,0,0,0,0,16/03/2007 13:38:30,16/03/2007 13:38:30

Historical Generator Reserves

Field Name	Format	Comments
Company code	Char(4)	Company trading code
GIP/GXP	Char(8)	Grid point applicable
Trading date	Date	Applicable trading date (DD/MM/YYYY)
Trading period	Char(2)	Trading periods from 1 to 50
Station	Char(3)	Three letters identifying the station
Unit	Number(2)	Unit
Band1 PLSR 6s price	Number(8,2)	Band 1 PLSR 6 sec price NZ dollars.
Band1 PLSR 6s max	Number(10,3)	Band 1 PLSR 6 sec maximum(MW)
Band1 PLSR 6s percent	Number(5,1)	Band 1 PLSR 6 sec percentage
Band1 PLSR 60s price	Number(8,2)	Band 1 PLSR 60 sec price NZ dollars.
Band1 PLSR 60s max	Number(10,3)	Band 1 PLSR 60 sec max
Band1 PLSR 60s percent	Number(5,1)	Band 1 PLSR 60 sec percentage
Band1 NSGR 6s price	Number(8,2)	Band 1 NSGR 6 sec price NZ dollars.
Band1 NSGR 6s max	Number(10,3)	Band 1 NSGR 6 sec max
Band1 NSGR 60s price	Number(8,2)	Band 1 NSGR 60 sec price NZ dollars.
Band1 NSGR 60s max	Number(10,3)	Band 1 NSGR 60 sec max
Band2 PLSR 6s price	Number(8,2)	Band 2 PLSR 6 sec price NZ dollars.
Band2 PLSR 6s max	Number(10,3)	Band 2 PLSR 6 sec maximum

Band2 PLSR 6s percent	Number(5,1)	Band 2 PLSR 6 sec percentage
Band2 PLSR 60s price	Number(8,2)	Band 2 PLSR 60 sec price NZ dollars.
Band2 PLSR 60s max	Number(10,3)	Band 2 PLSR 60 sec max
Band2 PLSR 60s percent	Number(5,1)	Band 2 PLSR 60 sec percentage
Band2 NSGR 6s price	Number(8,2)	Band 2 NSGR 6 sec price NZ dollars.
Band2 NSGR 6s max	Number(10,3)	Band 2 NSGR 6 sec max
Band2 NSGR 60s price	Number(8,2)	Band 2 NSGR 60 sec price NZ dollars.
Band2 NSGR 60s max	Number(10,3)	Band 2 NSGR 60 sec max
Band3 PLSR 6s price	Number(8,2)	Band 3 PLSR 6 sec price
Band3 PLSR 6s max	Number(10,3)	Band 3 PLSR 6 sec maximum
Band3 PLSR 6s percent	Number(5,1)	Band 3 PLSR 6 sec percentage
Band3 PLSR 60s price	Number(8,2)	Band 3 PLSR 60 sec price
Band3 PLSR 60s max	Number(10,3)	Band 3 PLSR 60 sec max
Band3 PLSR 60s percent	Number(5,1)	Band 3 PLSR 60 sec percentage
Band3 NSGR 6s price	Number(8,2)	Band 3 NSGR 6 sec price
Band3 NSGR 6s max	Number(10,3)	Band 3 NSGR 6 sec max
Band3 NSGR 60s price	Number(8,2)	Band 3 NSGR 60 sec price
Band3 NSGR 60s max	Number(10,3)	Band 3 NSGR 60 sec max
Created date	Date	Upload Time
Last amended date	Date	Transpower order confirm time.

Example of the CSV File

EMCO,HAY2201,21/05/2007,7,CYD,0,0,0

Sub-process:	**EA-011 Publish information for the Authority**
Process:	Publish information on behalf of the Authority
Source:	WITS
Destination:	Participants, reconciliation manager and public
Code references:	13.7A, 13.55, 13.55A, 13.90
Dependencies:	OI-020, SO-010, SO-020

Description:

WITS is required to publish the following information on a publicly accessible website:

- Historical final/interim prices for energy and reserves
- Temporary security constraints
- Daily demand
- NRS, PRS, WDS and Dispatch schedules (public data only)
- Supply and demand curves
- Interim and final pricing data
- Offer stack and cleared energy offers
- Price index information

Business requirements:

1. The last nominated bids, differences bids and offers (both energy and reserves) submitted for each trading period in each trading day must be published on a publicly accessible website two weeks after the trading day in question.
2. Four weeks' worth of final nominated bids, difference bids and offers for energy and reserves must be published, i.e., from the trading day six weeks prior to the trading day two weeks prior to today.
3. Dispatch prices, historical final/interim prices for energy and reserves, temporary security constraints and daily demand information must be published on a publicly accessible website.
4. Pricing index, constraints, outages, and HVDC flow must be published on a publicly accessible website.
5. Aggregated offers (price and quantities).
6. It must be possible to both view all the data and to download it.

Data inputs:

- Historical bids and offers (EA-010)
- NRS, PRS, WDS and Dispatch schedule information (SO-010)
- Supply and demand curves (SO-020)
- Security constraints (OI-020)
- Interim and final pricing information (CM-025)
- Price index information (CM-070)
- Daily demand (CM-060)

Processing:

The system:

1. Prepares the final nominated bids, difference bids and offers for energy and reserves from the trading day two weeks prior to today.
2. Publishes the nominated bids, difference bids and offers for energy and reserves, removing the bids and offers for the trading day six weeks plus one day ago and adding the new ones.
3. Extracts, formats and publishes the dispatch schedule pricing information, historical final/interim prices for energy and reserves, temporary security constraints and daily demand information on the publicly accessible website.
4. Publishes the offers selected by the user filters, aggregated by the power in the price bands selected by the user, along with the sum of the cleared energy offers.
5. Displays non-confidential data from the following sources:
    a. Historical bids and offers (EA-010)
    b. NRS, PRS WDS and Dispatch schedule information (SO-010)
    c. Supply and demand curves (SO-020)
    d. Security constraints (OI-020)
    e. Interim and final pricing information (CM-025)
    f. Price index information (CM-070)
6. Extracts the outage information from the dispatch schedules published in the previous month.

Data outputs:

Public webpage updated with:

- Historical bids and offers
- NRS, PRS, WDS and Dispatch schedule information
- Supply and demand curves
- Security constraints
- Interim and final pricing information
- Price index information
- Daily demand

Sub-process:	**EA-015 Publish news items**
Process:	Publish information on behalf of the Authority
Source:	WITS
Destination:	Participants and public
Code references:	
Dependencies:	CM-025

Description:
WITS publishes the following information on a publicly accessible website: News items

Business requirements:
1. WITS must publish a news item when events happen that are of interest to the market. 2. WITS must create a news item when final prices published by the clearing manager. 3. WITS must create a news item on pricing error claim(s). 4. WITS must publish news items provided by other service providers.

Data inputs:
• Final pricing information and pricing error claim details. (CM-025) • News records from other service providers.

Processing:
The system: 1. Creates a news item when final pricing is published. 2. Allows other service providers to supply news items in the agreed format. 3. Publishes news items (and any attachments provided). 4. Display news items on the browser interface.

Data outputs:
Public webpage updated with: • News items that have been created or provided to WITS. • Details about the new items (date and time published, service provider, news category assigned by the item creator, details of any attachments). • Ability to view the news item and download any attachments.

Sub-process:	**EA-016 Publish historical prices**
Process:	Publish information on behalf of the Authority
Source:	WITS
Destination:	Participants
Code references:	
Dependencies:	PM-010

Description:
WITS publishes the final prices for energy and reserves for the past number of years, if available. Historic prices for the last month are available in monthly files. For all months during a year, they are entered into an annual file. They are all downloadable.

Business requirements:
1. Final prices for energy and reserves must be made available no later than the 8th of the following month. 2. Final prices for energy and reserves must be made available on the publicly accessible website, for a period of at least 4 weeks.

Data inputs:
See PM-010.

Processing:
The system: 1. Formats the information appropriately and publishes it to market participants via the browser and via the publicly available website. 2. Makes the information available to download.

Data outputs:
The same information as input files.

Sub-process:	**EA-025 Send weekly risk management report to the Authority**
Process:	Publish information to the Authority
Source:	WITS
Destination:	Authority
Code references:	
Dependencies:	SI-010, SI-020, VI-010, MC-010, PI-010, VR-010, VR-020

Description:

WITS lists the risk management contracts that were created, edited or deleted in the system for the previous week and delivers them to the Authority.

Business requirements:

1. The WITS service provider shall submit a report to the Authority each week detailing the risk management contracts that were created, edited or deleted in the system for the previous week from Monday to Sunday.
2. The report shall be sent to the Authority on the next Monday of the following week.
3. The medium of transmission must be automated to the Authority.

Data inputs:

- Create new risk management contract (SI-010)
- Bulk load new risk management contracts (SI-020)
- Search and display risk management contract (VI-010)
- Edit risk management contract (MC-010)
- Obtain grid zone areas, nodes and location factors (PI-010)
- Verify risk management contract (VR-010)
- Monitor verification of risk management contracts (VR-020)

Processing:

The system:

1. Generates a report that contains information on risk management contracts
2. Transfers the report to the Authority

Data outputs:		
File generated:		
Column name	**Format**	**Comment**
id	Number(10)	The Id of the contract within the Hedge Disclosure System. Field should be left empty if this is a new contract. If the contract has already been uploaded to the Hedge Disclosure System and this record is updating it, then the field should contain the Id of the contract.
contract_type	Char (max. 4)	CfD - for contract for differences, FPFV – for fixed-price fixed-volume, FPVV – for fixed-price variable volume, OPT – for option, C130 – for capped $130 option, C300 – for capped $300 option. Mandatory.
party_code	Char (max.4)	Mandatory.
party_email_address	Char (max. 255)	The email address(s) for confirmations. If more than one, then they should be separated by a semi-colon or comma or space. If separated by a comma then the field should be enclosed in double quotes e.g. jbloggs@yahoo.com,bsmith@yahoo.com Mandatory.
party_role	Char (max. 6)	Buyer, Seller. Mandatory.
party_external_reference	Char (max. 30)	Optional identifier/reference for the contract within party's own system
other_party_legal_name	Char (max. 255)	Mandatory.
other_party_email_address	Char (max. 255)	Valid e-mail address(s). See above. Mandatory.
other_party_external_reference	Char (max. 30)	Optional identifier/reference for the contract within other parties own system
trade_date	Date DD/MM/YYYY	Mandatory.
effective_date	Date DD/MM/YYYY	Mandatory.
end_date	Date DD/MM/YYYY	Mandatory.

quantity	Number (3dp)	Quantity in MWh. Mandatory. Must be >= 0.01MWh
adjustment_clause	Char(1)	Y, N. Mandatory for CfD/Capped/FPFV/FPVV contracts otherwise null.
force_majeure_clause	Char(1)	Y, N. Mandatory for CfD/Capped/FPFV/FPVV contracts otherwise null.
suspension_clause	Char(1)	Y, N. Mandatory for CfD/Capped/FPFV/FPVV contracts otherwise null.
special_credit_clause	Char(1)	Y, N. Mandatory for CfD and capped contracts otherwise null.
other_clauses	Char(1)	Y, N. Mandatory for CfD/Capped/FPFV/FPVV contracts otherwise null.
traded_on_energy hedge	Char(1)	Y, N.
isda_schedule_used	Char(1)	Y, N. Mandatory for CfD/Capped contracts otherwise null.
for_all_trading_periods	Char(1)	Y, N. Mandatory for CfD/Capped/FPFV/FPVV contracts otherwise null.
volume_type	Char(1)	F – flat, V – variable. Mandatory for CfD and Capped contracts otherwise null.
grid_zone_area	Char(1)	A, B, C, D, E. Mandatory for CfD/Capped/FPFV/FPVV contracts with a term less than 10 years. Optional for CfD/Capped/FPFV/FPVV contracts with a term of 10 years or more. Null for option contracts.
contract_price	Number (2dp)	$ per MWh. Must be >= $0.01. Mandatory for CfD/Capped/FPFV/FPVV contracts with a term less than 10 years. Optional for CfD/Capped/FPFV/FPVV contracts with a term of 10 years or more. Null for option contracts.
contract_status	Char(max. 255)	
dispute_notes	Char(max. 4000)	

created_at	Date DD/MM/YYYY hh24:mi:ss	
created_by	Char(max. 30)	
updated_at	Date DD/MM/YYYY hh24:mi:ss	
updated_by	Char(max. 30)	
traded_on_asx	Char(1)	Y, N. This is an optional field, and only relevant for CfD, Capped and OPT contracts.

10.10 Publish alerts

Sub-process:	**AL-010 Create price alert settings**
Process:	**Publish alerts**
Source:	WITS
Destination:	Participants
Code references:	
Dependencies:	

Description:
Participants can choose to be informed of prices, price changes.

Business requirements:
1. Users will be able to create alerts of the following types: a. Price Range b. Price Node Separation c. Price Schedule Separation d. Price Change 2. User can select the delivery method for the alert 3. User can select to disable all alerts without deleting them

Data inputs:
1. Logged in user details 2. List of alert types 3. List of available delivery methods (Screen, Email, SMS)

Processing:
1. The system stores the user selected alerts 2. The system stores the selected delivery method 3. The system stores if the user has deactivated alerts

Data outputs
1. Table of user alerts 2. User alert disabled status.

Sub-process:	**AL-020 Generate alerts**
Process:	Publish alerts
Source:	WITS
Destination:	Participants
Code references:	
Dependencies:	AL-010

Description:
Alerts are created by rules and settings. The alerts can then be processed and published.

Business requirements:
1. Alerts that are created by users are generated when the trigger is matched. 2. Alerts that are created by events in WITS are generated.

Data inputs:
Prices from schedules PRS, NRS and Dispatch. User created alert values and types.

Processing:
When a price meets the criteria for a user, generate an alert.

Data outputs
Alerts formatted for each user that has a triggered alert created.

Sub-process:	**AL-030 Publish alerts**
Process:	Publish alerts
Source:	WITS
Destination:	Participants
Code references:	
Dependencies:	AL-010, AL-020

Description:
Alerts are created based on settings and rules in the system. These alerts are published based on the user created settings.

Business requirements:
When an alert is generated by the system, users that have created the alert or selected to receive an alert based on an event, receive the alert by the delivery method specified. If the user has selected to have alerts disabled, alerts are not published.

Data inputs:
Generated alerts (AL-020) Delivery methods for users (AL-010) Status of user disabled alerts (AL-010)

Processing:
For each alert that is generated, deliver the alert via the selected delivery method

Data outputs
Alerts sent to users based on the selected delivery method If alerts are disabled, alerts are not published.

11 MANUAL OR EXTERNAL PROCESSES

11.1 Bid and offer submission

Sub-process:	**GN-010 Give notice of initial offer**
Process:	Give notice of trading intentions
Source:	Generators
Destination:	System operator, clearing manager, WITS
Code references:	13.6(4), 13.10, 13.11, 13.60, 13.61, 13.64, 13.65, 13.66, 13.67(1), 8.25(5), forms 1, 2, and 3 schedule 13.1
Dependencies:	SD-010

Description:

Prior to making their first offer, generators are required to notify the system operator of their intention and to provide the system operator with information about their generating plants. A generator must request approval from the system operator to become a dispatch notification generator. This information is also required by the clearing manager and WITS for system set-up purposes. The information is to be transmitted to all parties.

Business requirements:

1. Provides the generator with the means to transmit the information to the system operator, clearing manager and WITS in a mutually acceptable format.

2. The information must be stored in WITS as part of the reference data used to validate bids and offers. Data input facilities are required (see SD-010). This information will reduce the need to provide some of the information required by the Code in schedule 13.1 in every offer such as generator name and block name.

Data inputs:

Participant code of generator.

Generator name.

Per generating plant:

Generator class – standard, embedded, intermittent, dispatch notification generator or co-generator.

Generating plant name.

Grid injection point (GIP).

Whether the offers will be provided by station or unit (intermittent generators and co-generators cannot offer by unit).

Whether the generating station is part of a block dispatch group (not applicable for intermittent generators or co-generators).

If offered by unit, the unit number.

If generating station is part of a block, the block name.

Maximum quantity, in MWs, that can be generated in a trading period.

Trading date and trading period of first offer.

For embedded generators, the method of transmitting output information, if not via the standard offer submission processes described in sub-processes UN-010, UR-010 and UC-010.

NB: The system operator may require additional information to the above list.

Processing:
The system: 1. Transmits the information to the system operator, clearing manager and WITS.

Data outputs:
Information stored as reference data.

Sub-process:	**GN-020 Give notice of initial nominated bid**
Process:	Give notice of trading intentions
Source:	Purchaser
Destination:	System operator, clearing manager, WITS
Code references:	13.7AC, form 4 schedule 13.1
Dependencies:	

Description:
Prior to making their first nominated bid, purchasers notify the system operator of their intention and provide the system operator with information about their proposed trading at a non-conforming grid exit points (GXPs). In the case of nominated dispatch bids, a dispatchable load purchaser must first request approval from the system operator for a station to be deemed a dispatch capable load station. A dispatchable load purchaser must request approval from the system operator to become a dispatch notification purchaser for a DCLS. This information is also required by the clearing manager and WITS for system set-up purposes. The information is to be transmitted to all parties.

Business requirements:
1. Provides the purchaser with the means to transmit the information to the system operator, clearing manager and WITS in a mutually acceptable format. 2. The information must be stored in WITS as part of the reference data used to validate nominated bids and offers. Data input facilities are required (see SD-010). This information will reduce the need to provide some of the information required by the Code in schedule 13.1 in every bid such as purchaser name.

Data inputs:
Participant code of purchaser. Purchaser name. DCLS code (DCLS bids only) and associated approved DNP code. Per non-conforming GXP: Trading date and trading period of first bid. NB: The system operator may require additional information to the above.

Processing:
The system:

Transmits the information to the system operator, clearing manager and WITS.

Data outputs:
Information stored as reference data.

Sub-process:	**GN-030 Give notice of initial difference bid**
Process:	Give notice of trading intentions
Source:	Purchaser
Destination:	System operator, clearing manager, WITS
Code references:	13.7(1), form 4 schedule 13.1
Dependencies:	

Description:
Prior to making their first difference bid, purchasers notify the system operator of their intention and provide the system operator with information about their proposed trading at conforming grid exit points (GXPs). This information is also required by the clearing manager and WITS for system set-up purposes. The information is to be transmitted to all parties.

Business requirements:
1. Provides the purchaser with the means to transmit the information to the system operator, clearing manager and WITS in a mutually acceptable format. 2. The information must be stored in WITS as part of the reference data used to validate bids and offers. Data input facilities are required (see SD-010). This information will reduce the need to provide some of the information required by the Code in schedule 13.1 in every bid such as purchaser name.

Data inputs:
Participant code of purchaser. Purchaser name. Per conforming GXP: Trading date and trading period of first difference bid. NB: The system operator may require additional information to the above.

Processing:
The system: Transmits the information to the system operator, clearing manager and WITS.

Data outputs:
Information stored as reference data.

Sub-process:	**GN-040 Give notice of initial generation reserve offer**
Process:	Give notice of trading intentions
Source:	Ancillary service agents
Destination:	System operator, clearing manager, WITS
Code references:	13.37, 13.38(2) and (3), 13.39, 13.64 to 13.66, 13.67(1), form 5 schedule 13.1
Dependencies:	

Description:
Prior to making their first-generation reserve offer, ancillary service agents are required to have a contract with the system operator. This information is also required by the clearing manager and WITS for system set-up purposes. The information is to be transmitted to all parties.

Business requirements:
1. Provides the ancillary service agent with the means to transmit the information to the system operator, clearing manager and WITS in a mutually acceptable format. 2. The information must be stored in WITS as part of the reference data used to validate generator reserve offers. Data input facilities are required (see SD-010). This information will reduce the need to provide some of the information required by the schedule 13.1 in every generator reserve offer.

Data inputs:
Participant code of ancillary service agent. Ancillary service agent. Per generating plant: Generating plant name. GIP. Whether the offers will be provided by station or unit. If offered by unit, the unit number. Trading date and trading period of first offer. Maximum capability of Partly Loaded Spinning Reserve for fast response (6 seconds) in MWs. Maximum capability of Partly Loaded Spinning Reserve for sustained response (60 seconds) in MWs.

Maximum capability of Non-Specific Generation Reserve for fast response (6 seconds) in MWs.

Maximum capability of Non-Specific Generation Reserve for sustained response (60 seconds) in MWs.

Maximum capability of generator effective reserve capacity for fast response (6 seconds) in MWs.

Maximum capability of generator effective reserve capacity for sustained response (60 seconds) in MWs.

NB: The system operator may require additional information to the above.

Processing:
The system: Transmits the information to the system operator, clearing manager and WITS.

Data outputs:
Information is stored as reference data.

Sub-process:	**GN-050 Give notice of initial interruptible load reserve offer**
Process:	Give notice of trading intentions
Source:	Ancillary service agents
Destination:	System operator, clearing manager, WITS
Code references:	13.37, 13.38(1) and (2)(b), 13.64 to 13.66, form 6 schedule 13.1
Dependencies:	

Description:
Prior to making their first interruptible load reserve offer, ancillary service agents are required to have a contract with the system operator. This information is also required by the clearing manager and WITS for system set-up purposes. The information is to be transmitted to all relevant parties.

Business requirements:
1. Provides the ancillary service agent with the means to transmit the information to the system operator, clearing manager and WITS in a mutually acceptable format. 2. The information must be stored in WITS as part of the reference data used to validate interruptible load reserve offers. Data input facilities are required (see SD-010). This information will reduce the need to provide some of the information required by the Code in schedule 13.1 in every interruptible load reserve offer.

Data inputs:
Participant code of ancillary service agent (who will also be a purchaser). Ancillary service agent full name. Per GXP or interruptible load group GXP: Trading date and trading period of first offer. Availability of fast response (in 6 seconds). Availability of sustained response (in 60 seconds). NB: The system operator may require additional information to the above.

Processing:
The system: Transmits the information to the system operator, clearing manager and WITS.

Data outputs:
Information stored as reference data.

Sub-process:	**GN-060 Give notice of initial frequency keeping offer**
Process:	Give notice of trading intentions
Source:	Generators
Destination:	System operator, WITS
Code references:	None
Dependencies:	SD-010

Description:

Prior to making their first frequency keeping offer, generators are required to notify the system operator of their intention. This information is also required by WITS for system set-up purposes. The information is to be transmitted to all parties.

Business requirements:

1. The generator must be provided with the means to transmit the information to the system operator and WITS in a mutually acceptable format.
3. The information must be stored in WITS as part of the reference data used to validate bids and offers. Data input facilities are required (see SD-010).

Data inputs:

Participant code of generator.

Generator name.

Per generating plant approved for energy submissions:

Whether the frequency keeping offers will be provided and whether by station or unit. If offered by unit, the unit number.

Trading date and trading period of first FK offer.

NB: The system operator may require additional information to the above list.

Processing:

The system:

Transmits the information to the system operator and WITS.

Data outputs:

Information stored as reference data.

11.2 Publish information to or on behalf of the Authority

Sub-process:	**EA-020 Send monthly performance report to Authority**
Process:	Publish information for the Authority
Source:	WITS
Destination:	Authority
Code references:	
Dependencies:	

Description:
The WITS service provider sends the Authority a performance report each month containing details of performance levels achieved in the preceding month.

Business requirements:
The WITS service provider must submit a report to the Authority each month detailing their performance according to the measures defined in their service provider agreement (SPA).

Data inputs:
Monthly performance statistics

Processing:
Each month the WITS service provider: 1. Compares the actual system performance figures against the target levels specified in the SPA. 2. Present the comparison as a report and sends it to the Authority.

Data outputs:
Monthly performance report.

Appendix I

Daylight saving conversions for rollover

On the day that daylight saving begins the clocks go forward, i.e. 1.59am moves on to 3.00am. Hence the 0200 hour is missed and there are only 46 trading periods.

On the day that daylight saving ends the clocks go back, the 0200 hour is repeated. Hence there are 50 trading periods that day.

Trading period conversions when daylight saving begins:

48 Trading periods Day 1		46 Trading periods Day 2		48 Trading periods Day 3
1	to	1	to	1
2	to	2	to	2
3	to	3	to	3
4	to	4	to	4
5	ignored	5	to	5
6	ignored	6	to	6
7	to	5	to	7
8	to	6	to	8
9	to	7	to	9
10	to	8	to	10
11	to	9	to	11
12	to	10	to	12
13	to	11	to	13
14	to	12	to	14
15	to	13	to	15
16	to	14	to	16
17	to	15	to	17
18	to	16	to	18
19	to	17	to	19
20	to	18	to	20
21	to	19	to	21
22	to	20	to	22
23	to	21	to	23
24	to	22	to	24
25	to	23	to	25
26	to	24	to	26
27	to	25	to	27
28	to	26	to	28
29	to	27	to	29
30	to	28	to	30
31	to	29	to	31
32	to	30	to	32
33	to	31	to	33
34	to	32	to	34
35	to	33	to	35
36	to	34	to	36
37	to	35	to	37
38	to	36	to	38
39	to	37	to	39
40	to	38	to	40
41	to	39	to	41
42	to	40	to	42
43	to	41	to	43
44	to	42	to	44
45	to	43	to	45
46	to	44	to	46
47	to	45	to	47
48	to	46	to	48

Trading period conversions when daylight saving ends:

48 Trading periods Day 1		50 Trading periods Day 2		48 Trading periods Day 3
1	to	1	to	1
2	to	2	to	2
3	to	3	to	3
4	to	4	to	4
5	to	5	ignored	
6	to	6	ignored	
5	to	7	To	5
6	to	8	to	6
7	to	9	to	7
8	to	10	to	8
9	to	11	to	9
10	to	12	to	10
11	to	13	to	11
12	to	14	to	12
13	to	15	to	13
14	to	16	to	14
15	to	17	to	15
16	to	18	to	16
17	to	19	to	17
18	to	20	to	18
19	to	21	to	19
20	to	22	to	20
21	to	23	to	21
22	to	24	to	22
23	to	25	to	23
24	to	26	to	24
25	to	27	to	25
26	to	28	to	26
27	to	29	to	27
28	to	30	to	28
29	to	31	to	29
30	to	32	to	30
31	to	33	to	31
32	to	34	to	32
33	to	35	to	33
34	to	36	to	34
35	to	37	to	35
36	to	38	to	36
37	to	39	to	37
38	to	40	to	38
39	to	41	to	39
40	to	42	to	40
41	to	43	to	41
42	to	44	to	42
43	to	45	to	43
44	to	46	to	44
45	to	47	to	45
46	to	48	to	46
47	to	49	to	47
48	to	50	to	48