

SCHEDULE 4

ADDITIONAL REQUIREMENTS

1. The **Provider** must meet the following additional requirements.

RFP Ref	Base Enhancement	Fee
CM 1	RV-020: Unoffered generation submissions	\$29,000
CM 2	RV-040: Ancillary service submission	\$29,000
CM 3	RV-050: Reconciliation data automation	\$56,000
CM 4	AS-030: Publishing prudential	\$56,000
CM 5	AS-030: Automated prudential security notifications	\$12,000
CM 7	MF-020: Initial margin automation	\$86,000
CM 9	MR-050: Digital letters of credit	\$12,000
CM 10	MR-050: Document management system	\$29,000
CM 11	CH-020: Automated notification of HSA lodgement	\$14,000
CM 12	DI-030: Additional constrained information	\$5,000
CM 13	DI-030: Supporting information for participants with multiple identifiers	\$26,000
CM 14	DI-060: Publishing invoices and statements	\$48,000
CM 15	PP-010: Automated payment notifications	\$12,000
CM 17	HD-020: Default notification automation	\$12,000
CM 18	PB-010-020: Publishing clearing reports	\$43,000
CM 19	DF-040: FTR data publishing	\$7,000
CM 20	MR-010: Reference data user interface	\$20,000
CM 21	MR-020: FTR auction set-up automation	\$58,000
CM 22	Upgrade WITS interfaces	\$86,000
CM 23	Authority prudential summary report	\$22,000
CM-AR 1	Updating the analyst user interface	\$471,000
CM-AR 7	MarketConnect set up, shared	\$83,000
	Total:	\$1,216,000
	Plus audit pass through	At cost

2. Explanation of mandatory enhancements

The following section summarises the mandatory enhancements contained in the table in paragraph 1.

2.1. CM 1: RV-020 – Unoffered generation submissions

2.1.1. Description

NZX will develop a web based file upload facility or provide for SFTP as a more efficient and secure means of submitting this information.

2.1.2. Deliverable

- Either a web interface (akin to that available for reconciliation users) or
- An SFTP facility similar to that being currently implemented for reconciliation or
- Both of the above.

2.2. CM 2: RV-040 – Ancillary service submission

2.2.1. Description

NZX will develop a web based file upload facility, or provide for SFTP, as a more efficient and secure means of submitting this data. Acceptance of ancillary service information into the clearing manager system will be controlled by a 'gate', similar to that currently used for reconciliation. This will allow the analyst to control which data has been used for a given invoice run.

2.2.2. Deliverable

- Web and/or SFTP facilities as outlined in CM1 (above)
- A gate mechanism complete with supporting screens and programs to allow the analyst.

2.3. CM 3: RV-050 – Reconciliation data automation

2.3.1. Description

Reconciliation data will be automatically retrieved by the clearing manager system via a web services request. This will eliminate manual analyst intervention. Acceptance of data into the clearing manager system will be controlled by a gate, similar to that currently used for reconciliation, allowing the analyst to control what data has been used for a given invoice run.

2.3.2. Deliverable

- An automated web services call from CHASM
- A web services end point provisioned for this purpose in reconciliation.

2.4. Enhancement 4: AS-030 – Publishing prudential

2.4.1. Description

Prudential security reports will be published in a both PDF and a convenient CSV format. Prudential information will be available to

participants via SFTP or web services as well as through a web based download facility.

2.4.2. Deliverable

- CSV format security reports in addition to the existing PDF Reports
- SFTP and/or web services download facilities for both PDF and CSV prudential security report types.

2.5. CM 5: AS-030 – Automated prudential security notifications

2.5.1. Description

An automated email notification will be sent to participants where either the minimum security required exceeds security lodged with the clearing manager, or any one of the next three days forward security estimates exceeds security lodged with the clearing manager.

2.5.2. Deliverable

- An automated process to detect participants whose current or future security estimates exceed lodged security
- Automated emails sent to the participants identified.

2.6. CM7: MF-020 – Initial margin automation

2.6.1. Description

This entails automation of the FTR initial margin calculation to reduce risk of operational error and future proof for FTR product development.

2.6.2. Deliverable

- A module to create initial margins based on historical price data
- A report to allow visual identification of potential arbitrage opportunities.

2.7. CM 9: MR-050 – Digital letters of credit

2.7.1. Description

This enables participants to submit digital letters of credit using the SWIFT banking system. This will reduce the time required for participants to lodge a letter of credit with the clearing manager.

2.7.2. Deliverable

- Provide the necessary fields and screen changes in the Clearing system to allow analysts to record SWIFT references.

2.8. CM 10: MR-050 – Document management system

2.8.1. Description

This will utilise the clearing manager system as a document management system for key legal security documents such as specific security deeds and letters of credit as well as for AML check documentation. The system already stores signed HSAs.

2.8.2. Deliverable

- A document storage facility allowing secure storage of legal documents
- Integration with existing participant record data
- User interface to allow analysts to access stored documents.

2.9. CM 11: CH-020 – Automated notification of HSA lodgement

2.9.1. Description

An automated notification will be sent to the participants when an HSA is lodged in the system, containing the signed HSA and the fact that it has now been accepted.

2.9.2. Deliverable

- Email notifications including a signed HSA as an attachment
- Notifications to be sent to the participant when HSAs are lodged.

2.10. CM 12: DI-030 – Additional constrained information

2.10.1. Description

Supporting information for generator constrained amounts (contained within the CONS file) will include generator dispatched quantities. This will help participants check their constrained amounts.

2.10.2. Deliverable

- A modified CONS file including the generator amounts
- Updated system documentation and functional specification.

2.11. CM 13: DI-030 – Supporting information for participants with multiple identifiers

2.11.1. Description

Key invoice supporting information will be grouped together for participants with multiple identifiers.

2.11.2. Deliverable

- An invoice details file containing key settlement information included with the statement file bundle.

2.12. CM 14: DI-060 – Publishing invoices and statements

2.12.1. Description

Invoices, statements and supporting information will be able to be accessed from WITS using SFTP or web services as well as through a web based download facility.

2.12.2. Deliverable

- Access to clearing files via WITS automation services
- Updated system documentation and functional specification.

2.13. CM 15: PP-010 – Automated payment notifications

2.13.1. Description

An automated email notification will be sent out where the system records that payment has been fully received. This will provide

assurance to participants on settlement day and will assist in preventing settlement defaults.

2.13.2. Deliverable

- Automated email notification
- Updated system documentation and functional specification.

2.14. CM 17: HD-020 – Default notification automation

2.14.1. Description

NZX will develop automated emails for standard default related notifications, taking advantage of the participant contact details already in the system. This will free up analyst time to focus on other tasks during this time critical process.

2.14.2. Deliverable

- Automated email notification
- Updated system documentation and functional specification.

2.15. CM 18: PB-010-020 – Publishing clearing reports

2.15.1. Description

Accessing from WITS using SFTP or web services constrained amount and block dispatch settlement differences reports.

2.15.2. Deliverable

- Access to clearing files via WITS automation services
- Web based download facility.

2.16. CM 19: DF-040 – FTR data publishing

2.16.1. Description

Publication of further supporting information to assist participants in analysing their assessed spot market exposure levels.

2.16.2. Deliverable

- Report containing additional information on spot market exposure.

2.17. CM 20: MR-010 – Reference data user interface

2.17.1. Description

There is a large amount of reference data concerning participants, grid configuration, and generation plant configuration that have a limited user interface. Screens will be developed so that this information can be maintained. The system will also maintain an audit record of changes. This will reduce effort and risk of error when creating and updating this data.

2.17.2. Deliverable

- Screens to allow maintenance of reference data
- Audit record of changes for all reference data tables
- Screens to inspect audit record.

2.18. CM 21: MR-020 – FTR auction set-up automation

2.18.1. Description

The FTR auction set up process will be automated. This will reduce the risk of error and future proof the system to cater for an increased number of FTR products.

2.18.2. Deliverable

- Creation of new products, secondary auctions and enables other auction establishment activities.

2.19. CM 22: Upgrade WITS interfaces

2.19.1. Description

WITS database link interfaces with the clearing manager system will be replaced with a fully documented and loosely coupled integration such as using web services via an ESB. This will enhance the future contestability of the clearing manager role.

2.19.2. Deliverable

- Removal of database link interfaces
- New formalised, loosely-coupled interfaces.

2.20. CM 23: Authority prudential summary report

2.20.1. Description

A new prudential summary report will be developed in the clearing manager system and this will be published to the Authority via SFTP.

2.20.2. Deliverable

- Fully automated prudential summary report in CHASM
- SFTP Integration.

2.21. CM-AR 1: Updating the analyst user interface

2.21.1. Description

The analyst user interface will be designed with the overall strategy of embedding much of the know-how currently contained within the operating instructions into the system. All screens will be re-developed in the more user friendly and configurable Apex. This will have the added benefit of reducing the cost of future changes to back-end processes.

Additional screens and reports will be provided to allow analysts to efficiently check key process parameters.

In particular, tools to visualise changes in assessed prudential security, and invoice amounts will be developed.

2.21.2. Deliverable

- All functionality of the existing user interface replicated in Oracle Apex
- Decommissioning of all mod_plsql user interfaces
- Screens to check key process parameters

- Reports to check key process parameters
- Screens and/or reports to visualise changes in assessed prudential security and invoice amounts.

2.22. CM-AR 7: Private market connectivity options (shared across roles)

2.22.1. Description

To establish the connectivity interfaces between users and the clearing portal. This connectivity will be shared with other MOSP service provider roles.

2.22.2. Deliverable

- Main clearing portal functionality removed from the Internet
- Private market connectivity
- A choice of connectivity options available for various user types to be able to access Market Connect (this is dependent on consultation with individual participants).

3. Optional Enhancements

In addition to the range of mandatory enhancements, the **Provider's** RFP response also contained a suite of optional enhancements for consideration by the **Authority**.

The **Provider** will, if the **Authority** elects at any time by notice in writing, provide the following optional system enhancements for the fees indicated in Schedule 1 (Fees):

RFP Ref	Optional Enhancement	Fee
Question 5:		
CM5-Opt 6	MF-010: Calculate reference price information	\$48,000
CM5-Opt 8	MR-050: Automate the management of cash security	\$48,000
CM5-Opt 16	PP-010: Payment processing using a banking interface	\$24,000
Question 7:		
CM7-Opt 1	Clearing portal enhancement in WITS	\$90,000
	Total:	\$206,000
	Plus audit pass through	At cost

Any optional enhancement so notified by the Authority will be documented in accordance with clause 7.

4. Explanation of Optional Enhancements

4.1. CM5-Opt 6: MF-010 – Calculate reference price information

4.1.1. Description

While largely automated already, there are operational efficiency benefits in further automating the reference prices and ratios processes. This would require integration with the Energy Link model used to obtain predictive pricing model results.

4.1.2. Deliverable

- New automated processing routines for calculating reference prices and ratios.

4.2. CM5-Opt 8: MR-05 – Automate the management of cash security

4.2.1. Description

The management of cash security deposits could be further automated using an accounting package such as Xero. The clearing manager's system will be automatically updated when funds are deposited or withdrawn from a participant's trust account. Bank batches for cash security deposits or withdrawals will be able to automatically generated and uploaded to the relevant banking system.

4.2.2. Deliverable

- Automated data feeds and processing routines for fund transfers.

4.3. CM5-Opt 16: PP-010 – Payment processing using a banking interface

4.3.1. Description

A bank interface such as Xero could be used monitor incoming payments and upload these to the clearing manager system. This will improve settlement day processing and allow the analyst to better focus on payment issues as they arise.

4.3.2. Deliverable

- Automated data feeds and processing routines for fund transfers on settlement day.

4.4. CM7-Opt 1: Clearing portal enhancement in WITS

4.4.1. Description

NZX proposes that the clearing manager participant user interface is redeveloped as an extension to the WITS user interface upgrade.

NZX proposes to create a clearing dashboard of data widgets in WITS to provide the front end display of data provided from the clearing manager system. The clearing manager will integrate with WITS in a decoupled way via the use of a messaging capability and an Enterprise Service Bus (ESB). When a clearing widget in WITS is being used, it will go to the clearing manager system micro-service for invoice data querying, and retrieve the latest data to pass back to WITS to display in the clearing widget.

There will be tight access control to ensure only authorised users can access their organisations clearing details.

An upgrade of the WITS clearing portal provides a secure, modular and decoupled integration capability, and provides a central facility for

participants to see more of their market information, with a common user experience.

4.4.2. Deliverable

A suite of widgets available in the redesigned WITS system to cover:

- Submissions
- Downloads
- News and announcements
- Data visualisations of clearing data.

5. Delivery Timeline

From 1 November, NZX will commence detailed planning to enable delivery of the full system enhancement program by 1 September 2018. This detailed planning will follow a standard project management approach and will be developed in consultation with the Authority and industry participants. This will cumulate into a finalised project plan for attachment to each role's respective System Delivery Agreement.

NZX is proposing a phased delivery approach across all MOSP roles to enable a more seamless transition for users between existing functionality and new functionality. This will also lead to a more streamlined audit process.

High-level indicative timeframe for implementation of the various phases is as follows:

Phase	Implementation Completed
1	1 October 2016
2	1 March 2017
3	1 July 2017
4	1 October 2017
5	30 June 2018
6	1 September 2018

Phase 1:

RFP Ref	Phase 1 Enhancements - Delivery by October 2016
CM 1	RV-020: Unoffered generation submissions
CM 4	AS-030: Publishing prudential
CM 19	DF-040: FTR data publishing

Phase 2:

RFP Ref	Phase 2 Enhancements - Delivery by March 2017
CM 5	AS-030: Automated prudential security notifications
CM 7	MF-020: Initial margin automation
CM 11	CH-020: Automated notification of HSA lodgment
CM 13	DI-030: Supporting information for participants with multiple identifiers
CM 14	DI-060: Publishing invoices and statements
CM 15	PP-010: Automated payment notifications

Phase 3:

RFP Ref	Phase 3 Enhancements - Delivery by July 2017
CM 3	RV-050: Reconciliation data automation
CM 12	DI-030: Additional constrained information
CM 21	MR-020: FTR auction set-up automation
CM 22	Upgrade WITS interfaces
CM 23	Authority prudential summary report

Phase 4:

RFP Ref	Phase 4 Enhancements - Delivery by October 2017
CM 9	MR-050: Digital letters of credit
CM 10	MR-050: Document management system

Phase 5:

RFP Ref	Phase 5 Enhancements - Delivery by June 2018
CM 2	RV-040: Ancillary service submission
CM 17	HD-020: Default notification automation
CM 18	PB-010-020: Publishing clearing reports
CM 20	MR-010: Reference data user interface
CM-AR 1	Updating the analyst user interface

CM-AR 7	MarketConnect set up, shared
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