



Reserve Bank
of New Zealand
Te Pūtea Matua

Assessment of Observance of Principles for Financial Market Infrastructures

Reserve Bank of New Zealand | Exchange Settlement Account
System (ESAS)

2021

Document Control

Change History

This is the third assessment for the ESAS against the Principles for Financial Market Infrastructures.

Related Documents

Document	Reference
ESAS Terms and Conditions	https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Markets-and-payments/esas/Exchange-Settlement-Account-Terms-and-Conditions.pdf?la=en&revision=e43a5d06-e866-49c4-a272-64dc7b9447a5
Overview of ESAS	https://www.rbnz.govt.nz/markets-and-payments/esas
Annual Report for ESAS - 2021	https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Markets-and-payments/esas/ESAS-Annual-Report-2021.pdf?revision=1d155001-9507-405d-af10-8867077ba77c&la=en
Reserve Bank of New Zealand (Designated Settlement System—ESAS) Order 2004	https://www.legislation.govt.nz/regulation/public/2004/0376/latest/DLM295625.html?src=qs

Glossary

Account	Exchange Settlement Account
Accountholder	Exchange Settlement Accountholder [(and a Participant in the System)]
A-ORFF	Automated Overnight Reverse Repo Facility
BCP	Business Continuity Plan
BLF	Bond Lending Facility
CCP	Central Counterparty
CLS	Continuous Linked Settlement
CSD	Central Securities Depository
CPMI	Committee on Payments and Market Infrastructures
CSP	Customer Security Programme
CVSS	Common Vulnerability Scoring System
Datacom	Datacom Systems Limited
DVP	Delivery versus Payment
ESAS	Exchange Settlement Account System
FMA	Financial Market Authority
FMI	Financial Market Infrastructure
Governor	RBNZ Governor
GCSB	Government Communications Security Bureau
GMRA	Global Master Repurchase Agreement
HVCS	High Value Clearing System
IOSCO	International Organisation of Securities Commissions
ISO	International Organisation for Standardization

ISDA	International Swaps and Derivatives Association
NZCDC	New Zealand Depository and Corporation Limited
NZCSD	New Zealand Central Securities Depository
NZX	New Zealand's Exchange
ORFF	Overnight Reverse Repo Facility
PFMI	Principles for Financial Market Infrastructures
PNZ	Payments New Zealand Limited
PSD	Payment Services Department
PSR	Payment System Replacement
RBNZ	Reserve Bank of New Zealand
RECS	RTGS Extreme Contingency Solution
RTGS	Real Time Goss Settlement
SIA	SIA S.p.A (società per azioni)
SOC	Security Operations Centre
System	Exchange Settlement Account System
System Operator	RBNZ as the System Operator of ESAS
SWIFT	Society for Worldwide Interbank Financial Telecommunication
The Reserve Bank Act	Reserve Bank of New Zealand Act 1989
2021 Reserve Bank Act	Reserve Bank of New Zealand Act 2021

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Introduction

This document is the self-assessment of Financial Market Infrastructures (FMI)-ESAS in New Zealand against the Committee for Payments and Market Infrastructures (CPMI) and International Organization of Securities Commission (IOSCO) Principles for Financial Market Infrastructures (PFMIs).

This assessment uses the methodology presented in the CPMI-IOSCO publication – “Assessment Methodology and Disclosure Framework for PFMI (December, 2012)” and takes into account the considerations related to the FMIs operated by central banks, outlined in the CPMI publication “Application of PFMIs for central bank operated FMIs” (August 2015).

The assessment has been prepared by the Payment Services Department (PSD) of the Reserve Bank of New Zealand (RBNZ). The RBNZ is the system operator of ESAS. PSD is the RBNZs department responsible for the operation of ESAS.

ESAS is subject to regulation by the RBNZ. The RBNZ regulates ESAS through its Supervision Department. The Regulator undertakes the regulation, oversight, and supervision of designated settlement systems.

This self-assessment includes the PSD views of how well ESAS complies with each of the Principles as at June 2021.

Executive Summary

The RBNZ Payment Systems Department (PSD) operates the Exchange Settlement Account System (ESAS). The RBNZ has evaluated the observance of ESAS with each of the principles for financial markets infrastructure developed by CPSS-IOSCO. The table below shows a summary of the RBNZ's assessment.

Principles for FMIs	ESAS				
	Observed	Broadly Observed	Partly Observed	Not Observed	Not Applicable
General organisation					
Legal basis	✓				
Governance	✓				
Framework for the comprehensive management of risks	✓				
Credit and liquidity risk management					
Credit risk	✓				
Collateral	✓				
Margin					X
Liquidity risk	✓				
Settlement					
Settlement finality	✓				
Money Settlements	✓				
Physical deliveries					X
Central securities depository & exchange-of-value settlement systems					
Central securities depositories					X
Exchange-of-value settlement systems					X
Default management					
Participant – default rules and procedures	✓				
Segregation and portability					X
General business and operational risk management					
General business risk	✓				
Custody and investment risks	✓				
Operational risks	✓				
Access					
Access and participation requirements	✓				
Tiered participation requirements		✓			
FMI links					X
Efficiency					

Principles for FMIs	ESAS	
Efficiency and effectiveness	✓	
Communication procedures and standards	✓	
Transparency		
Disclosure of rules, key procedures and market data	✓	
Disclosure of market data by trade repositories		X

Seventeen of the twenty-four principles for FMIs are considered to apply to ESAS. It is PSD's assessment that ESAS observes sixteen of these principles, with one principle being broadly observed. Principle 19 Tiered participation requirements are considered to be broadly observed.

The seven principles not applicable to ESAS are:

1. Principle 6: Margin - ESAS is not a CCP and does not require a margin system to cover its credit exposure.
2. Principle 10: Physical Deliveries: ESAS does not deliver physical securities.
3. Principle 12: Exchange of Value Settlements: ESAS is not an exchange of value settlement system.
4. Principle 14: Segregation and portability - applicable only for CCPs.
5. Principle 20: FMI Links: No link arrangements exist between ESAS and other FMIs.
6. Principle 24: ESAS is not a trade repository.

The assessment methodology is explained in Section 2 of this report.

Assessment Methodology

The assessment of ESAS's observance of the principles for FMIs contained in this report is based on the assessment methodology published by CPSS-IOSCO¹.

This assessment methodology is built on the gravity and urgency to remedy any "issues of concern" such as a risk management flaw, a deficiency or a lack of transparency or effectiveness that needs to be addressed. An explanation for the ratings applied in the assessment is shown in the table below.

Rating	Definition
Observed	The FMI observes the principle. Any identified gaps and shortcomings are not issues of concern and are minor, manageable, and of a nature that the FMI could consider taking up in the normal course of its business.
Broadly observed	The FMI broadly observes the principle. One or more issues of concern have been identified that the FMI is encouraged to address and follow up to better manage risks or improve operations. The FMI should pursue such improvements in a defined timeline.

¹ Assessment methodology for the principles for FMIs and the responsibilities of authorities, Consultative report, April 2012

Rating	Definition
Partly observed	The FMI partly observes the principle. The assessment has identified one or more issues of concern that could become serious if not addressed in a timely manner. The FMI should accord a high priority to address these issues.
Not observed	The FMI does not observe the principle. The assessment has identified one or more serious issues of concern that warrant immediate action. Therefore, the FMI must accord the highest priority to address these issues in a timely manner.
Not applicable	The principle does not pertain to the type of FMI being assessed because of the particular legal, institutional, structural, or other characteristics of the FMI.

For the purpose of assessing ESAS's observance of the principles for FMIs, ESAS is considered to provide the function of the following type of FMI:

- Payment systems (PSs).

A definition of each type of FMI and a guide to the general applicability of each principle to each type of FMI is provided as Attachment A.

General Background on the FMIs in New Zealand

Payment Systems

Exchange Settlement Account System (ESAS) is New Zealand's principal high-value payments system which is used to settle payment instructions between accountholders. ESAS provides real time irrevocable settlements on a gross basis. In ESAS, final and irrevocable settlement of transactions is achieved in real time by the simultaneous crediting and debiting of the Exchange Settlement Accounts held. Participants in ESAS (Accountholders) largely comprise financial institutions, and each Accountholder has an exchange settlement account with the Reserve Bank. The Reserve Bank is also an Accountholder. The System is charged with providing an efficient and safe process for the real time electronic settlement of payments between Accountholders.

The Reserve Bank has provided ESAS as a real-time gross settlement system since 1998. Accountholders electronically submit instructions to debit an account and credit another account using an authorised electronic submitting mechanism. Authorised submitting mechanisms include closed user groups which utilise the SWIFT electronic messaging system, the NZClear system, and direct entry of transaction details to ESAS. The System is available for use by accountholders for 23.5 hours each business day. Each business day commences at 9.00am on a working day and ends at 8.30am the following working day.

A payment will be settled (i.e. funds are transferred from one ESAS accountholder's exchange settlement account to another ESAS accountholder's exchange settlement account) once a transaction instruction is authenticated, the payment instruction is authorised by the payor and the payor has sufficient funds in their exchange settlement account to effect the transaction. Once a transaction is settled it cannot be revoked.

Generally, each transaction is settled individually rather than in batches. The ESAS system allows for two or more payment instructions to be settled simultaneously, and where that occurs the ESAS Terms and Conditions stipulate that each such payment instruction is settled gross and there is no netting of payment instructions. The Reserve Bank has issued a notice to accountholders pursuant to the ESAS Terms and Conditions which stipulates the order and method by which payment instructions are to be tested to determine whether the relevant accountholder(s) have

sufficient funds available to settle one or more payment instructions. The Reserve Bank Financial Markets Department (FMD) determines the minimum balance that each accountholder must maintain in their exchange settlement account and the interest rate(s), if any, paid on end of day balances.

Datacom supports the systems infrastructure, the associated telecommunications network infrastructure, and related security features utilised by the System. Application software support (ESAS), application software development and operational support services are provided by SIA S.p.A. The PSD manages Datacom's and SIA's provision of services through a service contract and related service level agreement. The management process includes assessment of performance at regular review meetings, regular performance reports, and review of problem management reports, a relationship governance committee and relevant project steering committees. ESAS is a designated settlement system under Part 5C of the Reserve Bank of New Zealand Act 1989. The regulator is the Supervision Department of the Reserve Bank.

Exchange Settlement Account Operations

The Reserve Bank is the operator of the ESAS system (System). The Reserve Bank provides services to ESAS Accountholders (Accountholders) in accordance with the ESAS Terms and Conditions. The System allows:

1. Accountholders to give instructions for amounts to be transferred between exchange settlement accounts. The ESAS Terms and Conditions provide that once a transaction is settled, the settlement is irrevocable.
2. Accountholders with requisite repurchase facilities with the Reserve Bank, to raise funds which are credited to their account using the Reserve Bank's Overnight Reverse Repurchase Facility ("ORRF"). This facility allows certain accountholders to sell eligible securities to the Reserve Bank under a repurchase agreement on specified terms. The required transfers of securities are effected in the NZClear system and payment for the securities is effected in ESAS.
3. Accountholders to earn interest on end of day balances, in accordance with terms specified by the Reserve Bank.
4. Accountholders to interrogate the ESAS system in order to report exchange settlement account balances and the status of transactions.
5. Accountholders to allocate systems access rights to their own staff in respect of the Accountholder's own exchange settlement account.

Accountholders submit instructions to the System via electronic means, primarily via the dedicated telecommunications networks, via the internet or via the SWIFT system. In all cases the System has security features in place designed to ensure that access is authorised and instructions received are authenticated.

There are three primary interfaces or "Accountholder Submitting Systems" which are used by ESAS Accountholders to submit payment instructions to ESAS:

- Directly from the NZClear system;
- Via the SWIFT system where members of the Assured Value Payment "AVP" closed user group use ESAS to pay other members of that closed user group. The Reserve Bank is the administrator of the AVP closed user group; and

- Via the SWIFT system where members of the Settlement Before Interchange “SBI” closed user group use ESAS to pay other members of that closed user group. Payments NZ Limited is the administrator of the SBI closed user group. Once an SBI settlement has been effected in ESAS, a confirmation is sent to SWIFT which then allows an associated interchange file containing underlying payment details to be released to the destination bank.

High Value Clearing System (HVCS) Payments NZ Limited, a company owned by eight registered banks provides a set of rules for customer-to-customer real time payments and for high-value payments between participating financial institutions. Settlement occurs in ESAS.

Settlement Before Interchange (SBI) is a retail payment system, consisting of a set of rules governing the exchange via SWIFT files of retail transactions. The net value of those files is settled in ESAS. SBI is operated by Payments New Zealand (PNZ).

Security Settlement Systems

New Zealand Depository and Corporation Limited (NZCDC) is a wholly owned subsidiary of NZX limited which is a central counterparty and securities depository that clears and settles listed securities traded on NZX markets and also settles off-exchange trades and certain derivative transactions.

NZClear System is the securities settlement and central securities depository for a broad range of fixed interest securities and equities that are issued in New Zealand. NZClear has been operating in New Zealand since 1990. NZClear is owned and operated by the Reserve Bank of New Zealand (RBNZ).

NZClear works in an integrated manner with ESAS to support DVP Model 1 gross settlement of both funds and securities legs whereby settlement of securities and associated cash payments occur on an irrevocable and simultaneous basis. For a transaction to be settled, both parties must enter details of the transaction into the System and relevant elements of the transaction must be “matched” by the System. Once a transaction is settled it cannot be revoked.

Major Changes

The Payment Systems Replacement (PSR) Programme delivered the replacement processing platform (ESAS 2.0) on 24 February 2020. The systems replacement followed a strategic review of the incumbent payment and settlement systems operated by the Reserve Bank which was completed in 2014 in anticipation of the need to align with today's operational and technological standards. This was the culmination of a multi-year project to move to a modernized and higher integrity platform for this critical component of New Zealand's financial markets infrastructure.

The PSR Programme encompasses replacement of both the ESAS and NZClear systems as well as the establishment of new infrastructure, security and support services. The new technology involves RBNZ managing vendor relationships across multiple geographies with the application being supported by SIA S.p.A out of Italy and South Africa, while the infrastructure is supported by Datacom in New Zealand. A Post Implementation Review (PIR) for the PSR Programme was completed and highlights an overall successful outcome for RBNZ and the ESAS participants.

Over and above the PSR go-live, the payments team that operates ESAS was restructured and repositioned within RBNZ. A stand-alone department, PSD, now exists within the Economics, Financial Markets, and Banking Group within RBNZ to manage the operations of ESAS and NZClear and to focus on payments systems needs into the future. This restructure reflects both the increased operational complexities associated with the post-PSR systems environment and further

recognition that payments is a critical part of RBNZ's responsibility now and into the future. The new structure brings a dedicated management team PSD, and also features significant up-sizing of our Auckland presence.

In July 2019 RBNZ consulted ESAS Accountholders on an update to the ESAS Terms and Conditions. The new Terms and Conditions were promulgated after taking into account Accountholders' feedback and after the relevant regulatory processes had been completed. The main objectives of the update to the Terms and Conditions were to reflect changes in functionality, and to modernise the language used.

In 2020 a new third site ESAS back up facility RTGS Extreme Contingency Solution (RECS) was introduced. RECS provides another significant layer of resilience for New Zealand's real time gross settlement environment.

COVID-19 Pandemic

The COVID-19 pandemic, and associated national lockdown, occurred within weeks of the ESAS 2.0 go-live. In response to COVID-19, the Reserve Bank took proactive steps to protect the health and safety of staff while maintaining continuity of our services and ensuring any potential disruption to Accountholders' operations was minimised.

In response to COVID-19 the Payment Services Department's established BCP was implemented, which involved the team working remotely from home. Processes have been designed such that controls were able to be performed remotely, and minimal interruption was experienced to both the Payments Services Department and accountholders.

Summary of Major Changes Since Last Update

This is the RBNZ's third update of the initial self-assessment of ESAS's observance of the principles for FMIs. The major changes included in this update are:

Section	Change
General Background on the FMIS in NZ	New information on the Payment Systems Replacement Project.
Principle-by-principle narrative disclosures Principle 1 – Legal Basis	New information on the Financial Markets Infrastructure Act.
Principle 2- Governance	New Information on the Organizational Structure and Payment Services Department. New information regarding the RBNZ Board.
Principle 5-Collateral	Update on the bond lending facility (BLF).
Principle 7-Liquidity Risk	Update on the liquidity management options offered by the ESAS.
Principle 13-Participant Default Rules and Procedures	Update on the operational functions available in ESAS to manage an Accountholder failure.
Principle 17-Operational Risk	Update on the vendor information. Update on the key performance indicators of the ESAS System. Update on the Covid-19 pandemic response of the PSD.

Section	Change
	Update on the Datacentres. Update on the RECS.
Principle 18-Access and participation requirements	The rating of the Principle has improved from Broadly observed to Observed. The System operator provided more specificity regarding the application process, including improving the requirements for an ESAS application. Update on the participation arrangements for ESAS System.
Principle 19- Tiered participation requirements	The System Operator has enhanced Terms and Conditions by explicitly making provision for RBNZ to request information from the Accountholders for information relevant to the operation of their ESAS account. Update on the imminent implementation plan to gain access to the information required to make assessments of risk posed to ESAS by indirect participants.
Principle 21-Efficiency and Effectiveness	Further specificity around the goals and objectives.
Principle 22- Communication procedures and standards	Update on the new ISO 20022 standard.
Principle 23-Disclosure of rules, key procedures and market data	Further context provided for the information disclosed to the public.

Principle-by-Principle Narrative Disclosures

This section of the report contains detailed narrative disclosure for each principle for FMIs. The disclosure for each principle is intended to provide sufficient detail and context to enable the reader to understand ESAS's approach or method for observing the principles.

Principle 1: Legal Basis

An FMI should have a well-founded, clear, transparent, and enforceable legal basis for each material aspect of its activities in all relevant jurisdictions.

Assessment:

ESAS observes principle 1.

Key Considerations

KC1.1: The legal basis should provide a high degree of certainty for each material aspect of an FMI's activities in all relevant jurisdictions.

ESAS is an RTGS payment system, owned and operated by RBNZ. It is the system by which RBNZ provides settlement account services in New Zealand to banks and other financial institutions approved by the RBNZ to have Exchange Settlement Accounts (Accountholders). RBNZ also holds an Account within the System.

The material aspects of ESAS' activities requiring a high degree of certainty are those that support the provision of real time irrevocable settlements of payments between Accountholders. This is achieved by:

- Accountholders submitting transactions to ESAS through a number of feeder systems known as "authorised submitting systems", including NZClear, ESAS-SWIFT Interface and the Settlement Before Interchange (SBI Interface) administered by Payments NZ Limited;
- The simultaneous crediting and debiting of Accounts by the System; and
- The requirement that Accounts must always be in credit.

A high degree of legal certainty for these activities is derived from:

1. The ESAS Terms and Conditions (Terms and Conditions) which form a binding and enforceable contract between RBNZ as the System Operator and each Accountholder;
2. The designation of ESAS as a Designated Settlement System under Part 5C of the Reserve Bank Act (and the relevant statutory confirmations ESAS enjoys as a result, as described below);
3. The Settlement Submission Mechanism (which determines the order and combination in which Authorised Payment Instructions are queued, tested and settled in ESAS); and
4. The applicable laws of New Zealand governing property, contracts, insolvency, companies, securities, trusts, banking, secured interests and liability, including the Property Law Act 2007, the Contracts and Commercial Law Act 2017, the Companies Act 1993, the Trusts Act 2019, the

Financial Markets Conduct Act 2013, the Personal Property Securities Act 1999 (PPSA), the Reserve Bank Act, the Reserve Bank of New Zealand Act 2021, and (from the date on which relevant provisions come into force replacing the relevant provisions of part 5C of the Reserve Bank Act) the Financial Markets Infrastructures Act 2021 (the FMI Act).

Terms and Conditions

The key legal basis for the ESAS system is provided by the Terms and Conditions, which establish a complete, reliable and enforceable contract governed by New Zealand law.

The Terms and Conditions incorporate by reference the applicable Settlement Submission Mechanism that determines the order, and the combination, in which payment instructions submitted to ESAS are tested and settled.

The Terms and Conditions and the Settlement Submissions Mechanism are specified in the Reserve Bank of New Zealand (Designated Settlement Systems) Order 2004 as the two documents that evidence the ESAS rules.

The Terms and Conditions address:

1. Settlement finality and irrevocability;
2. The operation of the System;
3. The rights, obligations, and powers of RBNZ as the System Operator, including to act on Settlement Accountholders' payment instructions submitted in accordance with the applicable Settlement Submission Mechanism, settlement of transactions, to notify Settlement Accountholders in relation to errors and Notifiable Events, and to suspend the operation of the System, or terminate or suspend a Settlement Account in relevant circumstances;
4. The rights and obligations of Settlement Accountholders in relation to compliance with the Terms and Conditions, including the requirement to maintain a minimum account balance in their Accounts, the availability of the Automated Overnight Repo Facility operated by the RBNZ as part of ESAS, and obligations in relation to errors, notifiable events, payment of fees and confidentiality; and
5. The liability of each of RBNZ as the System Operator, and the Accountholder.

Under clause 5.1 of the Terms and Conditions, all settlements of Authorised Payment Instructions are final and irrevocable. Legal certainty of the settlement and finality arrangements is reinforced by the status of ESAS as a designated settlement system under part 5C of the Reserve Bank Act (discussed below).

Similarly, the irrevocability of settled transactions originating from NZClear as a feeder system is supported by ESAS' status as a designated settlement system under the Reserve Bank Act.

The Terms and Conditions are a mutual contract between RBNZ as System Operator and each Accountholder. Changes to the Terms and Conditions require the consent of both parties.

In addition, the Terms and Conditions contain provisions that require:

- Consent of all Accountholders to any change to clauses 5 (finality of settlement), 7 (confidentiality), 10.5 (Accountholders with credit amounts arising in respect of invalid

transactions are held on trust for the Accountholders with corresponding debit amounts) and 20.4 (Amendments);

- RBNZ to offer all Accountholders the same proposed amendment to their Terms and Conditions;
- RBNZ to notify, and obtain the consent of the regulator to any proposed amendment to the Terms and Conditions in accordance with sections 156ZB and 156ZC of the Reserve Bank Act; and
- Accountholders to comply with RBNZ's directions relating to the System, any transaction within the System of the Accountholder's Account, where those directions are, in RBNZ's opinion, necessary or advisable for the purposes of compliance with Part 5B or 5C of the Reserve Bank Act or in order to ensure the sound and efficient operation of the System.

In addition the Terms and Conditions authorise the RBNZ, in accordance with change control protocols set out in the Terms and Conditions, to make any fixes, changes or enhancements to the System that it considers necessary to ensure ESAS continues to perform in accordance with the relevant service levels and, following consultation with Settlement Accountholders, to make changes to meet any additional reasonable performance requirements to the System beyond those specified in the service level requirements.

The Terms and Conditions were last updated in February 2021.

Designation of ESAS as a Designated Settlement System under Part 5C of the Reserve Bank Act/FMI Act

The Terms and Conditions are supported by the fact that ESAS was declared a "designated settlement system" pursuant to Part 2 of the Reserve Bank of New Zealand (Designated Settlement Systems) Order 2004, made under Part 5C of the Reserve Bank Act. As a designated settlement system, ESAS has the benefit of statutory confirmation, under sections 156Q to 156X of the Reserve Bank Act, that despite any enactment or rule of law to the contrary:

1. The Terms and Conditions (and the Settlement Submission Mechanism which forms part of the ESAS rules) are valid and enforceable insofar as they relate to the basis on which (a) settlement instructions are given and received, (b) settlement obligations are determined and calculated, (c) settlements are effected, and (d) action to be taken where an Accountholder is unable, or is unlikely to become unable, to meet its obligations to PSD or other Accountholders;
2. Any netting in accordance with the Terms and Conditions and Settlement Submission Mechanism is valid and enforceable;
3. Settlements effected are final and irrevocable, and no settlements may be reversed, repaid, recovered or set aside, including where an application to a New Zealand court is made by a foreign creditor in relation to the insolvency of entity within that foreign jurisdiction; and
4. A person may not refuse to take any action on the ground that any transfer of property in accordance with the Terms and Conditions is not effective.

The recently enacted FMI Act, when it is brought fully into force, will replace the existing provisions in Part 5C of the Reserve Bank Act relating to designated systems. Currently only Part 2 (dealing with the regulators' powers to require information, reviews and independent reports), and Subpart

2 of Part 3 (standards for designated FMIs) of the FMI Act have commenced. The balance of the Act will be phased in, with the FMI Act to be fully in force by 10 May 2024.

The FMI Act will govern those FMIs which, if disrupted, could undermine the stability of, or confidence in, the whole or a significant part of the financial system. FMIs that the RBNZ has previously assessed as likely to meet the threshold for “systemic importance” include ESAS and NZClear, and have automatic designation under the FMI Act.

The FMI Act will substantially strengthen the regulation of FMI’s in New Zealand. Section 31 of the FMI Act gives the FMA and RBNZ the power to issue legally binding minimum standards for designated FMIs (which will include ESAS). Section 34 of the FMI Act sets out a range of matters that may be covered by the standards. These statutory provisions will empower the regulators to develop a complete set of binding standards by the end of the transition period. The regulators are currently consulting on the standards to be introduced, which will include standards reflecting the PFMI’s addressed in this document, and covering matters such as governance, risk management, capital and liquidity, systems and processes, accessibility to services provided by the FMIs, monitoring and disclosure.

The FMI Act will also impose the requirement for designated FMIs to have contingency plans for dealing with financial or operational failure, provide the joint regulators with enhanced oversight of FMI rules and additional crisis management powers.

It is proposed that the standards will be developed in accordance with the following three “pillars”:

1. *Treatment of regulatory requirements for FMIs under the Reserve Bank Act.* Designated settlement systems” under the Reserve Bank of New Zealand Act 1989 (including ESAS and NZClear) are automatically designated FMIs under the FMI Act. The “conditions of designation” under the Reserve Bank Act will be superseded by the FMI Act.
2. Reflecting international criteria for regulation (the Principles for FMIs) in the standards. The 24 FMI principles addressed in this document will be reflected in the standards to be issued by the FMA and RBNZ under the FMI Act;
3. Matters not covered by the PFMI. This pillar encompasses additional matters that the regulators consider require “elaboration” beyond the PFMI, including:

- Standards which prescribe the content of contingency plans;
- Breach and outage reporting – outages must be reported immediately and breaches as soon as possible;
- Management of cyber risk;
- Standards to manage outsourcing risk;
- Treatment of overseas FMIs; and
- Disclosure of information replacing the current three yearly self-assessment disclosure obligation with an obligation to meet the disclosure framework developed by the CPMI and IOSCO.

Applications for a Settlement Account

Each applicant for an Account must be approved by RBNZ, and agree to be bound by the Terms and Conditions. It is a condition of the Terms and Conditions that, to have access to the ESAS system, the Account holder must at all times comply with RBNZ’s Prescribed Access and Participation Criteria. The Prescribed Access and Participation Criteria cover matters such as

operational capacity, financial resources, legal powers and risk management expertise. Please see Principle 18 for more information access requirements.

Other Applicable Laws of New Zealand

RBNZ, as the operator of ESAS, has the statutory authority under section 7 of the Reserve Bank Act to act as New Zealand's central bank. (This includes the function of providing central bank settlement accounts for persons approved by the RBNZ).

The Reserve Bank Act is in the process of being reviewed. The Reserve Bank of New Zealand Act 2021 (the Reserve Bank Act 2021), which addresses institutional matters relating to the Reserve Bank, was enacted in August 2021. Certain parts only of the Reserve Bank Act 2021 are currently in force. The majority of its provisions are intended to come into force in July 2022, including section 116 which sets out a range of central bank functions (replicating the existing functions of the RBNZ under the Reserve Bank Act 1989), including the functions of:

- Providing liquidity facilities to entities approved by the RBNZ (on the terms and conditions it thinks fit) in order to manage liquidity in the financial system and protect or promote the stability of the financial system;
- Providing settlement accounts for persons approved by the RBNZ; and
- Operating or otherwise participating in payments and settlement systems.

KC1.2: An FMI should have rules, procedures, and contracts that are clear, understandable, and consistent with relevant laws and regulations.

The Terms and Conditions are clearly drafted intended for ease of understanding and use by Accountholders who are familiar with the mechanics of the financial system and interchange and settlement.

RBNZ as the system operator seeks legal advice in relation to any proposed amendments to the Terms and Conditions, which are circulated to Settlement Accountholders for consultation and submitted informally to the regulator for advice of any regulatory concerns.

Formal submission of proposed amendments to any of the Terms and Conditions with any Accountholder must be submitted to the RBNZ (as regulator) for approval in accordance with section 156ZC of the RBNZ Act. The regulator has a 21-working day period to either approve or decline the proposed amendment to the Terms and Conditions.

The process of engagement with Settlement Accountholders on changes to the Terms and Conditions encourages Settlement Accountholder understanding of the Terms and Conditions, procedures and contracts governing the System. The regulatory scrutiny of the Terms and Conditions by the regulator provides a high degree of certainty that the Terms and Conditions are consistent with New Zealand laws.

The Terms and Conditions and additional information relating to ESAS are publicly available on the RBNZ website. The RBNZ Act, the FMI Act and all other New Zealand legislation is also publicly available.

KC1.3: An FMI should be able to articulate the legal basis for its activities to relevant authorities, participants, and, where relevant, participants' customers, in a clear and understandable way.

The legal basis for ESAS' activities, including its designation as a designated settlement system under the Reserve Bank Act, is set out above under Key Consideration 1.

In addition to the binding contractual commitments between each Accountholder and RBNZ as the System Operator under the Terms and Conditions, the designation of ESAS as a designated settlement system provides a clear legal basis for ESAS's settlement system activities, including statutory certainty with regard to settlement instructions and obligations, any netting, and settlement finality.

It is a condition of ESAS' designated settlement system status that the Terms and Conditions continue to comply with all laws and regulatory requirements relating to its operation. Legal advice is sought on all proposed changes to the Terms and Conditions, and those proposed changes must be approved by the regulators in accordance with Part 5C Reserve Bank Act.

The RBNZ maintains a Markets and Payments section on its website that includes an explanation of the RBNZ's roles and responsibilities in the Payments system, including its role as the operator of ESAS. A dedicated webpage for ESAS provides a brief and easy to understand overview of the Terms and Conditions, ESAS and RTGS, intended to facilitate understanding by Accountholders and any prospective Accountholder of the risks they face through participation in ESAS. Publicly available material includes high-level descriptions of ESAS operations and the settlement process, the ESAS system (including test system), business continuity arrangements and technical documentation.

The Terms and Conditions, Part 2 of the Reserve Bank of New Zealand (Designated Settlement Systems) Order 2004, Assessments of Observance of Principles for Financial Markets Infrastructure, Annual reports and other relevant information for Accountholders are published on this webpage.

There is a clear process for changing the Terms and Conditions either for all Accountholders or on a bi-lateral basis. Legal advice is sought in respect of all rule changes as summarised under Key Consideration 1.

KC1.4: An FMI should have rules, procedures, and contracts that are enforceable in all relevant jurisdictions. There should be a high degree of certainty that actions taken by the FMI under such rules and procedures will not be voided, reversed, or subject to stays.

The Terms and Conditions are governed by New Zealand law.

All transactions take place in New Zealand and the relevant assets relating to transactions are held in New Zealand. From 2012, all overseas incorporated Accountholders have been required to provide a legal opinion from a law firm in their jurisdiction providing assurance satisfactory to the RBNZ as System Operator that the Terms and Conditions will be valid and binding on the Accountholder under the laws of their home jurisdiction. The RBNZ as System Operator is not aware of any legislative or other developments in those foreign jurisdictions that would impact on the reliability of that advice.

Section 156R of the Reserve Bank Act provides that the statutory confirmation of the finality and irrevocability of settlements through ESAS as a designated settlement system also applies where an application to a New Zealand court is made by a foreign court, foreign representative, or foreign creditor to reverse, repay, recover, or set aside a settlement that relates to an insolvency (in any form, whether personal or corporate) within the jurisdiction of that foreign court, foreign representative, or foreign creditor.

Further, in relation to insolvency proceedings involving or affecting an overseas incorporated participant, section 156W of the Reserve Bank Act, the designated settlement system provisions in Part 5C of the Reserve Bank Act prevail over the Insolvency (Cross-border) Act 2006, which provides a framework for insolvency proceedings when a person is subject to insolvency administration in one country, but has assets or debts in another country. This provides further certainty that actions taken by RBNZ as the System Operator under the Terms and Conditions will not be voided, reversed or subject to stays if challenged by an overseas incorporated Participant or foreign court, in insolvency proceedings.

To date, there have been no adverse court rulings related to the enforceability of the Terms and Conditions and procedures of any payment and securities settlement systems in New Zealand.

KC1.5: An FMI conducting business in multiple jurisdictions should identify and mitigate the risks arising from any potential conflict of laws across jurisdictions.

The ESAS System operates only in New Zealand and settles only New Zealand based payments, and although a number of Accountholders are incorporated in, or operate from, a foreign jurisdiction, the Terms and Conditions are governed by New Zealand law.

The principal risks in connection with overseas incorporated Accountholders are that:

1. Any act or thing that is required to be fulfilled or effected under a foreign law, in order to ensure the validity or effectiveness of the Terms and Conditions is not duly fulfilled or effected;
2. A New Zealand court may not enforce a contractual provision which may be or become illegal under the laws of another jurisdiction in which it is to be performed; and
3. Proceedings may be stayed if the subject matter of the proceedings has previously been considered by, or is concurrently before, another court in another jurisdiction or another forum, having competent jurisdiction, is the more appropriate forum for those proceedings.

RBNZ, as System Operator has considered these in relation to the jurisdictions in which Accountholders are incorporated, and has formed the view that there are no such material risks, for the reasons elaborated in response to Key Considerations 1 to 4. In addition, as stated in response to Key Consideration 4:

1. Section 156R of the Reserve Bank Act provides that the statutory confirmation of the finality and irrevocability of settlements through ESAS as a designated settlement system also applies where an application to a New Zealand court is made by a foreign court, foreign representative, or foreign creditor to reverse, repay, recover, or set aside a settlement that relates to an insolvency (in any form, whether personal or corporate) within the jurisdiction of that foreign court, foreign representative, or foreign creditor; and

2. RBNZ as System Operator requires that, before accepting an application from an overseas incorporated entity to join ESAS, a legal opinion from a law firm in the applicant's home jurisdiction must be provided confirming that the Terms and Conditions will be valid and binding on the Accountholder under the laws of their home jurisdiction.

Principle 2: Governance

An FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders.

Assessment:

ESAS observes principle 2.

Key Considerations

KC2.1: An FMI should have objectives that place a high priority on the safety and efficiency of the FMI and explicitly support financial stability and other relevant public interest considerations.

ESAS is operated by the RBNZ. The RBNZ has a statutory responsibility to promote the maintenance of a sound and efficient financial system² and RBNZ's objective is to operate ESAS to achieve outcomes which are consistent with that statutory responsibility. The RBNZ's high level objective in providing the ESAS service is to promote the maintenance of a sound and efficient financial system and to ensure that payments system infrastructure supports the smooth functioning of the economy.

RBNZ ensures the sound and resilient running and maintenance of payment and settlement systems and that these are supported by robust legislative and supervisory frameworks by working jointly with industry and regulator stakeholders

ESAS's objectives, which are a combination of business as usual and project specific targets, typically have a considerable leaning towards overall FMI integrity, governance, and meeting stakeholder needs.

An annual report for ESAS is completed at June year-end and this formally sets out ESAS's objectives for the year ahead. This report has high visibility as it is circulated to all Accountholders and is published on the RBNZ's website. The ESAS Annual Report contains considerable retrospective commentary on the year just completed including key performance indicator metrics, operational performance, commercial performance, financial results, and risk management activities. The report is also tabled at the RBNZ's Board Audit Committee for review and discussion, and is shared with the regulator for ESAS.

The RBNZ conducts an annual survey of Accountholders and asks Accountholders to rate the services provided and to make suggestions for change. The survey is published on the RBNZ's website. Also, Accountholders are consulted on major system changes and have the opportunity to suggest system changes.

² Under the Reserve Bank of New Zealand Act 2021, this financial stability objective will be reformulated to "protecting and promoting the stability of New Zealand's financial system".

KC2.2: An FMI should have documented governance arrangements that provide clear and direct lines of responsibility and accountability. These arrangements should be disclosed to owners, relevant authorities, participants, and, at a more general level, the public.

ESAS is owned and operated by RBNZ and, since it is not operated as a separate legal entity, the management and operation of ESAS falls under the governance structure of RBNZ. It is therefore subject to the RBNZ's normal oversight, decision-making and audit processes.

As an independent central bank and statutory body, RBNZ is ultimately accountable to Parliament. The RBNZ Governor (Governor) and other RBNZ senior officials appear before Parliament's Finance and Expenditure Select Committee to report on matters under RBNZ's responsibility.

The current governance arrangements for RBNZ involve a board (Advisory Board) whose primary function is to monitor the performance of the Governor and the RBNZ on behalf of the Minister of Finance. The Advisory Board has delegated oversight of its internal and external audit responsibilities to the Advisory Board Audit Committee. The Advisory Board Audit Committee reviews external audit reports on ESASs operations and monitors progress in implementing recommendations made as a result of internal and external audits. In accordance with the provisions of the Reserve Bank Act, the Governor is responsible for the management of the RBNZ, and is therefore ultimately responsible for the operation of ESAS.

The governance and accountability arrangements in the Reserve Bank Act (as described above) will be repealed and replaced by the Reserve Bank of New Zealand Act 2021 (the 2021 Reserve Bank Act). A key change will involve the creation of a new governance board (Governance Board) with all the powers and responsibilities of the RBNZ (other than those of the Monetary Policy Committee) sitting with this new board rather than with the Governor. In effect this will move RBNZ from a governance model that relies on a single-decision maker (the Governor) to a board making collective decisions. There is now a transitional period to prepare for the new governance arrangements with the Governance Board expected to be in place by 1 July 2022. Until then the Advisory Board will continue in its advisory and monitoring capacity with the Governor as single-decision maker (except for monetary policy which is decided by the Monetary Policy Committee)

Day-to-day operations, liaison with Accountholders, and the ongoing development of ESAS are delegated to the RBNZ's PSD. The PSD is headed by the Head of Payment Services who is responsible for overseeing the management of ESAS and reports to the Assistant Governor, Economics, Financial Markets and Banking. The Assistant Governor reports to the Governor whose performance is monitored by the Advisory Board.

ESAS is a designated settlement system under part 5C of the Reserve Bank Act. As a designated settlement system, ESAS is subject to conditions of designation outlined in the Reserve Bank of New Zealand (Designated Settlement Systems) Order 2004 and ESAS is subject to regulation by the RBNZ (through the RBNZ's Supervision Department). Arrangements are in place to ensure that the RBNZ's Supervision Department and PSD interact with each other on an arm's length basis. The Supervision Department report to the Deputy Governor whereas the System Operator reports to the Assistant Governor, Economics, Financial Markets and Banking. Where appropriate these Governors excuse themselves from discussions and decisions that may give rise to potential areas of Conflict of Interest.

Part 5C of the Reserve Bank Act will be repealed and replaced by the Financial Market Infrastructures Act 2021 (FMI Act). Under the transitional arrangements in the FMI Act, ESAS will be treated as designated under the FMI Act once Part 5C is repealed. At that time the regulator must decide whether ESAS is systemically important under the FMI Act. Once the FMI Act is fully in force it is expected that ESAS will be subject to more intensive regulation. A brief summary of the changes to be brought about by the FMI Act is set out under Principle 1.

The Payments and Currencies Committee (PACC) of the RBNZ was established in December 2020. The Committee members include the Governor, Assistant Governor Economics, Financial Markets and Banking, Head of Payment Services Department and Head of Money and Cash Department.

The objectives of the Committee that pertain to the System Operator include;

- Establishing the RBNZ's view on policy areas in relation to its role as system operator of payments and settlements systems;
- Advising the Senior Leadership Team (SLT) on its strategic and commercial decisions regarding the operation of payments and settlements systems;
- Monitoring the performance of the RBNZ's payments and settlement systems and ensure on-going management and maintenance of these systems; and
- Overseeing the regulatory preparation, compliance and audit of the payments, and settlement systems.

The RBNZ publishes an annual Statement of Intent (SOI) and an Annual Report, which report on the RBNZ's governance, objectives, strategies key performance indicators and performance.

The System Operator also publishes an ESAS annual report which reports on governance, risk management and performance of RBNZ with respect to the operation of ESAS.

KC2.3: The roles and responsibilities of an FMI's board of directors (or equivalent) should be clearly specified, and there should be documented procedures for its functioning, including procedures to identify, address, and manage participant conflicts of interest. The board should review both its overall performance and the performance of its individual board participants regularly.

As described in Key Consideration 2.2, the Advisory Board's primary function is to monitor the performance of the Governor and the RBNZ on behalf of the Minister of Finance. The roles and responsibilities of the Advisory Board are set out in sections 52-63 of the Reserve Bank Act. The Advisory Board will be disestablished when the Governance Board under the Reserve Bank Act 2021 is in place. This is expected to be from 1 July 2022.

Sections 24-79 of the Reserve Bank Act 2021 establishes the Governance Board as RBNZ's governing body and includes provisions covering:

- The role of the Governance Board, its membership and accountability to the Minister of Finance (sections 24-26);
- The appointment, removal and conditions of members of the Governance Board (sections 27-42);

- Remuneration and expenses of members of the Governance Board (sections 43-44);
- The collective duties of the Governance Board and individual duties of members of the Governance Board and effect of non-compliance with the duties (sections 45-59);
- Conflict of interest disclosure rules (section 61-72); and
- Powers of delegation (sections 74-77).

As described in Key Consideration 2.2, until the Governance Board is in place the Governor remains the single-decision maker (except in respect of monetary policy) and ultimately responsible for management of the RBNZ, including the operation of ESAS. Responsibility for day-to-day operation of ESAS is delegated by the Governor to PSD. Staff roles and responsibilities within PSD are set out in position descriptions.

All PSD staff are subject to a RBNZ Code of Conduct which requires all employees to carry out their duties with integrity and in a non-partisan manner. All employees must also comply with RBNZ's conflicts of interest policy. As described in Key Consideration 2.2, arrangements are in place to ensure that the RBNZ Supervision Department (which is responsible for oversight and regulation of settlement systems) and Payment Services Department (System Operator) interact with each other on an arm's length basis.

KC2.4: The board should contain suitable participants with the appropriate skills and incentives to fulfil its multiple roles. This typically requires the inclusion of non-executive board participant(s).

Under the 1989 Reserve Bank Act, the non-executive members of the Advisory Board are appointed by the Minister of Finance taking into account their knowledge, skills and experience and the likelihood of any conflicts of interest. In practice, the individuals appointed to the Advisory Board typically have proven skills and experience in finance, accounting, business and/or public policy. Details of all directors, including other directorships and employment, are published in RBNZ's Annual Report and on each appointment.

In accordance with the provisions of the 1989 Reserve Bank of Act, the Governor and the Deputy Governor are appointed by the Minister of Finance on the recommendation of the Advisory Board. The skills and qualifications of the Governor are determined in accordance with the RBNZ's broader responsibilities which include the RBNZs' role as ESAS System Operator.

Under the 2021 Reserve Bank Act, the members of the Governance Board will be appointed by the Governor-General, on the recommendation of the Minister of Finance. The Minister of Finance may only appoint a person who has the appropriate knowledge, skills and experience to assist RBNZ in achieving its objectives and performing its functions. In recommending appointments the Minister will also need to take into account the desirability of promoting diversity in the membership of the Governance Board. The Governor will automatically be a member of the Governance Board. Under the 2021 Reserve Bank Act, there will no longer be a statutory Deputy Governor position, although a Deputy Governor may remain a senior management position within RBNZ.

The RBNZ has human resources policies in place to help ensure that staff (including PSD staff) have the appropriate skills and incentives to fulfil their roles. These policies are described in Key Consideration 2.5.

KC2.5: The roles and responsibilities of management should be clearly specified. An FMI's management should have the appropriate experience, a mix of skills, and the integrity necessary to discharge their responsibilities for the operation and risk management of the FMI.

The PSD is headed by the Head of Payment Services. PSD's day-to-day business operations and overall business planning are undertaken by this Head and other RBNZ staff working in PSD.

RBNZ staff and management working in PSD are appointed with regard to their skills to manage the development and operation of ESAS. The roles and responsibilities of management and staff responsible for day-to-day operation of ESAS are clearly documented in position descriptions. RBNZ's senior management responsible for the operation and oversight of the ESAS system have significant experience within the financial services industry.

RBNZ has human resources policies in place to ensure that management positions are filled with employees with the appropriate skills, incentives, experience and integrity to perform their duties. RBNZ has a formal performance management programme, which sets out the expectations of employees, and ensures that timely feedback is provided. Recruitment and selection at RBNZ is based on the suitability of an applicant to carry out the specific requirements of the position to be filled, having regard to the applicant's: ability to perform the duties; relevant experience; relevant training and qualifications; and willingness to meet any particular requirement specified in the job description. RBNZ staff are subject to the Code of Conduct and Conflict of Interest policies.

KC2.6: The board should establish a clear, documented risk-management framework that includes the FMI's risk-tolerance policy, assigns responsibilities and accountability for risk decisions, and addresses decision making in crises and emergencies. Governance arrangements should ensure that the risk-management and internal control functions have sufficient authority, independence, resources, and access to the board.

The RBNZ's Risk and Audit Department is responsible for providing advice on and monitoring of the RBNZ's risk management frameworks. The internal audit role also resides in this department. The RBNZ operates an Enterprise-wide Risk Management framework and this applies to all RBNZ risks including those, which arise in operating ESAS.

The Enterprise-wide Risk Management Framework identifies the existence of risks and controls that mitigate the risks and defines the extent of residual risk. Each risk is classified depending on the RBNZ's assessment of its potential severity and the probability that the relevant risk event will occur. The combined assessment of severity and probability results in risks being classified as "high", "medium" or "low". The Enterprise-wide Risk Management Register is updated each quarter and discussed by the RBNZ's ERM Committee.

PSD has dedicated quality assurance and compliance and legal analyst roles within the department. These roles ensure that both capacity and capability is afforded to embodying the Enterprise Risk Management Framework within the PSD.

The PSD has its own Departmental Risk Committee whose purpose is to carry out the activities for providing the vision and objectives of the risk management of PSD; identify and assess risks

pertaining to PSD; and maintain an adequate Risk Management Framework for the department in line with Enterprise Risk Management.

ESAS is primarily exposed to operational risks. These risks are identified by assessing the system and processes using risk matrices to identify potential vulnerabilities. To minimise risks, appropriate internal controls, systems, and procedures are developed and continuously improved upon. The assessment is an on-going responsibility of PSD management.

In addition, a comprehensive business continuity plan is maintained by PSD and key elements are either invoked (for example swapping production sites) or are regularly tested. This plan includes decision making authority and processes related to emergencies. PSD also has a Business Continuity Committee which undertakes the activities for ensuring continuity of PSD key processes and critical operations.

ESAS is subject to a number of independent reviews which provide assurance over the adequacy and effectiveness of control frameworks to mitigate key risks.

This includes an annual review by the appointed external auditors, and integration into the internal audit assurance activities across the RBNZ, in addition to targeted reviews of specific risk areas.

The internal controls of ESAS are audited by PricewaterhouseCoopers (PwC) who act on behalf of the RBNZ's external auditor, the Auditor-General. PwC's audit reports are addressed to the Governor and reports are reviewed by the Audit Committee of the Advisory Board with external auditors, RBNZ governors and management in attendance. The PwC audit opinion is available by request to all Participants. The RBNZ's internal audit function reports to the Advisory Board Audit Committee on significant matters arising.

All significant findings and recommendations arising from any of these review activities are formally captured by the RBNZ's Risk and Audit Department and are followed up accordingly.

KC2.7: The board should ensure that the FMI's design, rules, overall strategy, and major decisions reflect appropriately the legitimate interests of its direct and indirect participants and other relevant stakeholders. Major decisions should be clearly disclosed to relevant stakeholders and, where there is a broad market impact, the public.

Changes to the bi-lateral contract comprising the ESAS Terms and Conditions require the consent of both parties. In addition:

- The of consent of all Accountholders is required to any change to clauses dealing with finality of settlement, confidentiality, Accountholder credit amounts arising in respect of invalid transactions being held on trust for Accountholders with corresponding debit amounts, or amendments;
- RBNZ must offer all Accountholders the same proposed amendment to their Terms and Conditions; and
- RBNZ must notify, and obtain the consent of the regulator to any proposed amendment to the Terms and Conditions in accordance with sections 156ZB and 156ZC of the Reserve Bank Act. The regulator has a 21-working day period to either approve or disallow the proposed amendments.

As a matter of practice, before a change to the Terms and Conditions is promulgated by RBNZ as the System Operator, Accountholders are provided a reasonable opportunity to comment on the proposed change. The System Operator determines the period and process for such consultation.

However, Accountholders must comply with the System Operator's directions relating to the System, any transaction within the System of the Accountholder's Account, where those directions are, in the System Operator's opinion, necessary or advisable for the purposes of compliance with Part 5B or 5C of the Reserve Bank Act or in order to ensure the sound and efficient operation of the System.

Accountholders can influence decision making through the ESAS Participant Group (EPG). EPG is established for the following purposes:

- Promoting the good governance of the ESAS;
- Ensuring that Accountholders have an opportunity to contribute to the long term effectiveness and viability of the System; and
- Ensuring that the System Operator is aware of, and takes into account, the views of Accountholders concerning the strategy and operation of the System.

This forum:

- Provides advice to the System Operator on strategic and operational matters that relate to the System;
- Discusses and advises on matters raised with and put before the Group by System Operator, including plans, reports and proposed new services or significant developments; and
- Identifies industry trends and issues that are relevant to the ESAS.

The System Operator ensures that it consults with Accountholders, particularly with respect to major initiatives, before important decisions are made.

If there are any material changes proposed to ESAS or if there are any emerging industry issues or developments which impact or potentially impact the System Operator's ability to meet the high level objectives for ESAS, these matters will be discussed with PSD payments policy personnel, the regulators and industry stakeholders including Accountholders.

Key system information including legal, operational access and is publically disclosed on the RBNZ's – ESAS webpage.

Principle 3: Framework for the Comprehensive Management of Risks

An FMI should have a sound risk-management framework for comprehensively managing legal, credit, liquidity, operational, and other risks.

Assessment:

ESAS observes principle 3.

Key considerations

KC3.1: An FMI should have risk-management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are borne by the FMI. Risk-management frameworks should be subject to periodic review.

ESAS's high level risk management is described in RBNZ's Enterprise Risk Management (ERM) Policy. RBNZ has an established ERM Framework. The primary objective of the Framework is to provide guidance on how consistently and comprehensively apply risk management practices in RBNZ. The Framework integrates ERM practices with the RBNZ's strategy-setting and performance management.

RBNZ has a methodology for identifying and prioritising risks which aligns to AS/NZS31000³ on Risk Management. The methodology includes defined categories for risk causes. Once the cause is identified, the likelihood rating is applied to the risk event. The risk is assessed against all four impact categories, and an impact rating is assigned. These impact categories are as follows: operational, legal, financial, reputation.

For each risk that has been identified, Payment Services Department sets out the potential impact and probability of the risk occurring, and also identifies existing controls and mitigation strategies to reduce the likelihood and/or impact of the risk materialising. In addition, as discussed in KC2.6, RBNZ's Enterprise-wide Risk Management Framework requires that the risks register be updated and be reviewed by the RBNZ's ERM Committee each quarter. The RBNZ Advisory Board reviews this framework annually.

Individual departments within RBNZ are responsible for identifying business-specific risks; applying controls; maintaining risk-management systems; reporting on the effectiveness of risk controls; and implementing enhancements and taking remedial action as appropriate. The PSD has its own Departmental Risk Committee whose purpose is to carry out the activities for providing the vision and objectives of the risk management of PSD; identify and assess risks pertaining to PSD; and maintain an adequate Risk Management Framework for the department in line with Enterprise Risk Management.

The PSD as the System Operator is continuously implementing improvements to strengthen the risk management model and associated framework, policies, procedures and practices.

³ International ISO Standard

PSD has dedicated quality assurance and compliance and legal analyst roles within the department. These roles ensure that both capacity and capability is afforded to embodying the Enterprise Risk Management Framework within the PSD.

KC3.2: An FMI should provide incentives to participants and, where relevant, their customers to manage and contain the risks they pose to the FMI.

As ESAS is a RTGS settlement system, it is designed so that Accountholders (participants) do not pose liquidity or material credit exposures to the System Operator. The System Operator does not act as a guarantor or party to any transaction submitted for settlement through ESAS. This is discussed further in response to Principle 7 (Liquidity Risk).

Accountholders are required to advise the System Operator of any circumstances that could reasonably be expected to adversely affect the Accountholders (a) eligibility to remain an Accountholder, (b) ability to comply with the ESAS Terms and Conditions, or (c) ability (or the ability of another Accountholder) to transact within the ESAS system (Clause 6). The System Operator monitors operational incidents experienced by Accountholders and will follow up with Accountholders as required. Any material non-compliance with the ESAS Terms and Conditions must be recorded and System Operator must immediately report to the regulator. Additionally, the System Operator must report to the regulator any event that materially increases risk to the ESAS, and any outage or material incident immediately upon becoming aware of the event or incident.

The RBNZ may terminate Accountholders' Accounts for any reason, including for non-compliance with the Terms and Conditions (Clause 8.4).

Further, a person is not eligible to become an Accountholder unless the System Operator is satisfied that that person meets the System Operator's criteria for suitability to have an ESAS Account (set out on the RBNZ website) which includes considering:

- whether the person is a financial institution, whether accepting the person's application might detract from the soundness or efficiency of the financial system or adversely affect the RBNZ's reputation, and whether a legitimate business interest can be serviced by access to an ESAS Account; and
- any other matters the bank considers is relevant to the application, including whether the person is able to meet its present and future obligations under the ESAS Terms and Conditions having regard to the person's:
 - Operational capacity;
 - Financial condition;
 - Risk management expertise;
 - Business Continuity arrangements;
 - Character and business integrity;
 - Conformity with relevant legal requirements;
 - Tax status; and

- Any other consideration that RBNZ deems is relevant.

KC3.3: An FMI should regularly review the material risks it bears from and poses to other entities (such as other FMIs, settlement banks, liquidity providers, and service providers) as a result of interdependencies and develop appropriate risk-management tools to address these risks.

The System Operator, reviews the material risks that it bears from or poses to other entities. This is done in the context of its ongoing review of risks (the quarterly update of the Risk Register for Enterprise-wide Risk Management Framework) and its processes for identifying risks associated with major changes to its environment, such as new activities or system changes. The tools used to manage risk from other entities include service level agreements, review of service provider performance, and documented operational and contingency arrangements. As ESAS has the benefit of being a designated settlement system under the Reserve Bank Act, the System Operator and other Accountholders are protected from settlement risk. This is discussed in further detail in Principle 1 (Legal basis).

KC3.4: An FMI should identify scenarios that may potentially prevent it from being able to provide its critical operations and services as a going concern and assess the effectiveness of a full range of options for recovery or orderly wind-down. An FMI should prepare appropriate plans for its recovery or orderly wind-down based on the results of that assessment. Where applicable, an FMI should also provide relevant authorities with the information needed for purposes of resolution planning.

Specific scenarios that may prevent ESAS from providing critical operations and services are identified as part of the business continuity (BCP) process. These scenarios cover all resources, physical infrastructure, labour force, information systems and communication infrastructure, and handle failure cases of various system components by taking into consideration the predefined business priorities. Please see Principle 17 (Operational Risk) for detailed discussion on this.

ESAS is operated by the RBNZ which is New Zealand's Central Bank. Given this, recovery and wind-down plans are not applicable, as noted in the PFMI and the CPMI-IOSCO publication on application of PFMI to Central Bank operated FMIs.

Principle 4: Credit Risk

An FMI should effectively measure, monitor, and manage its credit exposures to participants and those arising from its payment, clearing, and settlement processes. An FMI should maintain sufficient financial resources to cover its credit exposure to each participant fully with a high degree of confidence. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure to the CCP in extreme but plausible market conditions.

Assessment:

ESAS observes principle 4.

Key considerations

KC4.1: An FMI should establish a robust framework to manage its credit exposures to its participants and the credit risks arising from its payment, clearing, and settlement processes. Credit exposure may arise from current exposures, potential future exposures, or both.

The nature RTGS settlement in ESAS eliminates credit risk between Accountholders. As settlement occurs in real time, there are no intraday exposures built up between Accountholders through use of the System. There has to be sufficient liquidity in the Accountholders' ESAS Accounts before the settlement can take place. Payment messages are exchanged between Accountholders simultaneously with the transfer of funds across Accounts.

The System Operator does not grant overdrafts to Accountholders and therefore RBNZ is not exposed to credit risk in its role as System Operator. Payments in ESAS are settled in Accountholders' ESAS Accounts which cannot be overdrawn, and the System Operator does not guarantee any transaction submitted for settlement in ESAS. Accordingly, in the event of an Accountholder default the System Operator would not be exposed to a loss.

The RBNZ provides additional facilities to support the efficient functioning of the payments system. The RBNZ can make credit available to Accountholders (as well as to institutions which do not have ESAS accounts) as part of its monetary policy and financial stability functions. RBNZ may enter FX swap and/or repurchase transactions, including the provision of an automated overnight reverse repo facility (A-ORRF) for emergency liquidity. The liquidity facilities offered by RBNZ are structured as monetary policy instruments and are managed and operated by the Financial Markets Department of RBNZ.

These operations are effected through direct dealing arrangements (supported by internationally recognised agreements - GMRA and ISDA). Participation in ESAS and the associated ESAS Terms and Conditions does not of itself guarantee an Accountholder access to any liquidity facilities

provided by the RBNZ. Any credit risk associated with these facilities is borne by RBNZ and not the ESAS System.

In addition, settlement risk is mitigated through the use of "delivery versus payment" ("DVP") protocols – this applies to all domestic and most FX trades*. (* The RBNZ encourages the use of CLS to settle wholesale FX trades).

KC4.2: An FMI should identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.

The System Operator does not incur credit risk as described in Key Consideration 4.1 above.

KC4.3: A payment system or SSS should cover its current and, where they exist, potential future exposures to each participant fully with a high degree of confidence using collateral and other equivalent financial resources (see Principle 5 on collateral). In the case of a DNS payment system or DNS SSS in which there is no settlement guarantee but where its participants face credit exposures arising from its payment, clearing, and settlement processes, such an FMI should maintain, at a minimum, sufficient resources to cover the exposures of the two participants and their affiliates that would create the largest aggregate credit exposure in the system.

Not applicable

KC4.4: A CCP should cover its current and potential future exposures to each participant fully with a high degree of confidence using margin and other prefunded financial resources (see Principle 5 on collateral and Principle 6 on margin). In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should maintain additional financial resources to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. All other CCPs should maintain additional financial resources sufficient to cover a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would potentially cause the largest aggregate credit exposure for the CCP in extreme but plausible market conditions. In all cases, a CCP should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount of total financial resources it maintains.

Not applicable – ESAS is not a CCP

KC4.5 A CCP should determine the amount and regularly test the sufficiency of its total financial resources available in the event of a default or multiple defaults in extreme but plausible market conditions through rigorous stress testing. A CCP should have clear procedures to report the results of its stress tests to appropriate decision makers at the CCP and to use these results to evaluate the adequacy of and adjust its total financial resources. Stress tests should be performed daily using standard and predetermined parameters and assumptions. On at least a monthly basis, a CCP should perform a comprehensive and thorough analysis of stress testing scenarios, models, and underlying parameters and assumptions used to ensure they are appropriate for determining the CCP's required level of default protection in light of current and evolving market conditions. A CCP should perform this analysis of stress testing more frequently when the products cleared or markets served display high volatility, become less liquid, or when the size or concentration of positions held by a CCP's participant's increases significantly. A full validation of a CCP's risk-management model should be performed at least annually.

Not applicable – ESAS is not a CCP

KC4.6: In conducting stress testing, a CCP should consider the effect of a wide range of relevant stress scenarios in terms of both defaulters' positions and possible price changes in liquidation periods. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions.

Not applicable – ESAS is not a CCP

KC4.7: An FMI should establish explicit rules and procedures that address fully any credit losses it may face as a result of any individual or combined default among its participants with respect to any of their obligations to the FMI. These rules and procedures should address how potentially uncovered credit losses would be allocated, including the repayment of any funds an FMI may borrow from liquidity providers. These rules and procedures should also indicate the FMI's process to replenish any financial resources that the FMI may employ during a stress event, so that the FMI can continue to operate in a safe and sound manner.

As explained under Key Consideration 4.1, in the event of an Accountholder default RBNZ would not be exposed to a loss in its role as System Operator. RBNZ makes credit available in to order to implement monetary policy and to ensure smooth operation of the payment system.

RBNZ could be exposed to uncovered credit losses in the event that credit made available by RBNZ is not repaid and the value realised on disposal of collateral is less than the amount lent. As a central bank RBNZ is able to generate New Zealand dollar liquidity. Any such credit losses would not be allocated to ESAS participants and RBNZ has no contractual recourse to any party for such losses other than the counterparty to whom credit was advanced. RBNZ maintains internal

procedures that set out the course of action it would take after a participant default (see Principle 13 for further details).

Principle 5: Collateral

An FMI that requires collateral to manage its or its participants' credit exposure should accept collateral with low credit, liquidity, and market risks. An FMI should also set and enforce appropriately conservative haircuts and concentration limits.

Assessment:

ESAS observes principle 5.

Key considerations

KC5.1: An FMI should generally limit the Assets it (routinely) accepts as collateral to those with low credit, liquidity, and market risks.

The RBNZ provides additional facilities to support the efficient functioning of the payments system.

RBNZ can make credit available to institutions who are Accountholders as part of its monetary policy and financial stability functions. In providing credit RBNZ does so in its capacity as a central bank to support monetary policy implementation and financial stability functions, and not in its capacity as operator of ESAS.

When providing credit RBNZ does so on a collateralised basis. It does this through the use of repurchase agreements or FX swaps. Any outright trades are settled DVP.

RBNZ also provides standing facilities for cash and Government bonds to registered eligible market participants. Under these standing facilities, RBNZ offers cash liquidity to Accountholders through the ORRF facility. Under this arrangement RBNZ credits the Accountholder's Account with the required amount of cash and simultaneously receives the eligible securities from the Accountholder as collateral. These securities are bought by RBNZ on contractual terms in the form of a repurchase agreement that requires the Accountholder to buy the securities back and plus interest at a future date in time.

The RBNZ also operates a bond lending facility ("BLF") to ensure efficient functioning of the New Zealand government bond market. This operates similarly to the ORRF however the cash/collateral flows are reversed.

In both facilities RBNZ only transacts in highly rated debt securities denominated in NZ dollars under repurchase agreements. This policy applies to all of the domestic operations. The Operating Rules and Guidelines for RBNZ domestic market facilities are made available on the RBNZ website, and are regularly reviewed. Eligible securities are generally restricted to highly rated liquid securities.

KC5.2: An FMI should establish prudent valuation practices and develop haircuts that are regularly tested and take into account stressed market conditions.

The RBNZ values securities held as collateral using available market pricing and formulae published on its website. Haircuts are applied to broad groups of securities based on their credit rating. The RBNZ also reserves the right to add an additional haircut if it has concerns with

liquidity. Haircuts are set to cover modelled anticipated decline in market price over a conservative liquidation horizon. Key inputs are market prices, the maturity of the securities and their credit rating. The standard haircuts are also publicly available on the RBNZ's website. RBNZ also collects mark to market margin to cover changes in the values of the securities it holds. This margining is conducted on a daily basis and in line with the relevant documentation (e.g. GMRA).

KC5.3: In order to reduce the need for procyclical adjustments, an FMI should establish stable and conservative haircuts that are calibrated to include periods of stressed market conditions, to the extent practicable and prudent.

The haircuts for all repo eligible securities are set and calibrated to ensure the RBNZ minimises the loss in value of the security should the RBNZ be required to sell either in normal or stressed market conditions.

KC5.4: An FMI should avoid concentrated holdings of certain assets where this would significantly impair the ability to liquidate such assets quickly without significant adverse price effects.

The RBNZ constantly monitors its holdings of securities to highlight any concentration issues. RBNZ specifically monitors its holding of the security versus the total amount on issue.

KC5.5: An FMI that accepts cross-border collateral should mitigate the risks associated with its use and ensure that the collateral can be used in a timely manner.

The RBNZ currently accepts NZ dollar denominated securities either issued or guaranteed by foreign governments or supra-national agencies. These securities must not have a subsidiary or related party within NZ, have an appropriate rating, be plain vanilla, follow the RBNZ's pricing convention and be lodged in NZClear. These requirements reduce the risks associated with the use of cross-border collateral and assist to ensure the timely use of such securities.

KC5.6: An FMI should use a collateral management system that is well-designed and operationally flexible.

The RBNZ uses a treasury system that is widely used by central banks to manage its credit exposures and related collateral. The system covers front, middle and back office and records all security transactions, carries out daily revaluations and provides reporting for margining and concentration purposes.

Principle 6: Margin

A CCP should cover its credit exposures to its participants for all products through an effective margin system that is risk-based and regularly reviewed.

Assessment:

Principle 6 is not applicable to ESAS

Key considerations

KC6.1: A CCP should have a margin system that establishes margin levels commensurate with the risks and particular attributes of each product, portfolio, and market it serves.

ESAS is not a CCP.

KC6.2: A CCP should have a reliable source of timely price data for its margin system. A CCP should also have procedures and sound valuation models for addressing circumstances in which pricing data are not readily available or reliable.

Not applicable

KC6.3: CCP should adopt initial margin models and parameters that are risk-based and generate margin requirements sufficient to cover its potential future exposure to participants in the interval between the last margin collection and the close out of positions following a participant default. Initial margin should meet an established single-tailed confidence level of at least 99 percent with respect to the estimated distribution of future exposure. For a CCP that calculates margin at the portfolio level, this requirement applies to each portfolio's distribution of future exposure. For a CCP that calculates margin at more-granular levels, such as at the subportfolio level or by product, the requirement must be met for the corresponding distributions of future exposure. The model should (a) use a conservative estimate of the time horizons for the effective hedging or close out of the particular types of products cleared by the CCP (including in stressed market conditions), (b) have an appropriate method for measuring credit exposure that accounts for relevant product risk factors and portfolio effects across products, and (c) to the extent practicable and prudent, limit the need for destabilising, procyclical changes.

Not applicable

KC6.4: A CCP should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures. A CCP should have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants.

Not applicable

KC6.5: In calculating margin requirements, a CCP may allow offsets or reductions in required margin across products that it clears or between products that it and another CCP clear, if the risk of one product is significantly and reliably correlated with the risk of the other product. Where two or more CCPs are authorised to offer cross-margining, they must have appropriate safeguards and harmonised overall risk-management systems.

Not applicable

KC6.6: A CCP should analyse and monitor its model performance and overall margin coverage by conducting rigorous daily backtesting and at least monthly, and more-frequent where appropriate, sensitivity analysis. A CCP should regularly conduct an assessment of the theoretical and empirical properties of its margin model for all products it clears. In conducting sensitivity analysis of the model's coverage, a CCP should take into account a wide range of parameters and assumptions that reflect possible market conditions, including the most-volatile periods that have been experienced by the markets it serves and extreme changes in the correlations between prices.

Not applicable

KC6.7: CCP should regularly review and validate its margin system.

Not applicable

Principle 7: Liquidity Risk

An FMI should effectively measure, monitor, and manage its liquidity risk. An FMI should maintain sufficient liquid resources in all relevant currencies to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate liquidity obligation for the FMI in extreme but plausible market conditions.

Assessment:

ESAS observes Principle 7

Key considerations

KC7.1: An FMI should have a robust framework to manage its liquidity risks from its participants, settlement banks, nostro agents, custodian banks, liquidity providers, and other entities.

The System Operator is not exposed to any liquidity risk as the ESAS is structured as a RTGS system, and there are no overdrafts allowed. However as Accountholders may face some potential liquidity risks, ESAS provides Accountholders liquidity assistance through its liquidity-efficient design, including incentives for redistribution of Account balances, the provision of liquidity using automated ORRF (A-ORRF) for eligible securities through NZClear, the provision of real-time information on transactions and ESAS balances, and the provision of tools to manage their payments and liquidity. These are described below.

Accountholders have access to their payments queue and can prioritise transfer orders and adjust the order as needed for queued transactions. ESAS provides Accountholders with a number of liquidity management features, including; settlement prioritisation, authorisation (Payer to Activate), releasing instructions for settlement at a specific date/time, and configuring a bilateral limit.

In addition, ESAS provides a "gridlock buster" function.. The process involves identifying all eligible and queued settlements that if settled, would leave Accountholders in a positive position. The process is configured to run every five minutes in ESAS.

The A-ORRF is a facility provided by RBNZ to approved Accountholders in order to generate additional liquidity if required. The RBNZ can enter into these overnight agreements with any counterparty that has signed the 2011 GMRA (and associated ORRF annex). The facility works on the basis of the RBNZ accepting approved collateral, at a price set by the RBNZ, in return for additional liquidity in ESAS. A-ORRF is typically called upon when an Accountholder wishes to effect a payment but does not have enough cash. This facility can also be invoked on demand. The A-ORRF transaction is settled using the repurchase functionality provided in NZClear. Legal ownership of the securities is transferred into the RBNZ's name. Under the current A-ORRF conditions the repurchase agreement must be fulfilled overnight - i.e. the Accountholder must repurchase the collateral from the RBNZ the next business day.

KC7.2: An FMI should have effective operational and analytical tools to identify, measure, and monitor its settlement and funding flows on an ongoing and timely basis, including its use of intraday liquidity.

ESAS provides tools for Accountholders to manage their liquidity. As stated in K.C7.1 Accountholders have access to queue management tools, access to account balances all through the day and liquidity support tools provided by RBNZ. Since ESAS does not assume liquidity risk, there are no relevant funding flows for ESAS to measure and monitor. However, in managing operational risk the System Operator's operational staff also monitor the flow of liquidity and payments at both a system and Accountholder level for evidence of any disruption to the flow of liquidity, which could occur if an Accountholder experienced operational or financial issues (see Principle 17). If such a disruption were observed, the System Operator would liaise with Accountholders to assist with impact mitigation. To further mitigate possible disruption and front run any escalating issues Accountholders are required (under the Terms and Conditions) to inform the System Operator in the event of any operational issues.

Alerting and monitoring of expected settlement flows is in place and exceptions are noted.

KC7.3: A payment system or SSS, including one employing a DNS mechanism, should maintain sufficient liquid resources in all relevant currencies to effect same-day settlement, and where appropriate intraday or multiday settlement, of payment obligations with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation in extreme but plausible market conditions.

As ESAS does not assume liquidity risk as principal, the System Operator does not need to maintain liquid resources to cover payment obligations.

KC7.4: A CCP should maintain sufficient liquid resources in all relevant currencies to settle securities-related payments, make required variation margin payments, and meet other payment obligations on time with a high degree of confidence under a wide range of potential stress scenarios that should include, but not be limited to, the default of the participant and its affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions. In addition, a CCP that is involved in activities with a more-complex risk profile or that is systemically important in multiple jurisdictions should consider maintaining additional liquidity resources sufficient to cover a wider range of potential stress scenarios that should include, but not be limited to, the default of the two participants and their affiliates that would generate the largest aggregate payment obligation to the CCP in extreme but plausible market conditions.

Not applicable

KC7.5: For the purpose of meeting its minimum liquid resource requirement, an FMI's qualifying liquid resources in each currency include cash at the central bank of issue and at creditworthy commercial banks, committed lines of credit, committed foreign exchange swaps, and committed repos, as well as highly marketable collateral held in custody and investments that are readily available and convertible into cash with prearranged and highly reliable funding arrangements, even in extreme but plausible market conditions. If an FMI has access to routine credit at the central bank of issue, the FMI may count such access as part of the minimum requirement to the extent it has collateral that is eligible for pledging to (or for conducting other appropriate forms of transactions with) the relevant central bank. All such resources should be available when needed.

As ESAS does not assume liquidity risk as principal hence the System Operator, does not maintain liquid resources to cover payment obligations in stressed scenarios.

KC7.6: An FMI may supplement its qualifying liquid resources with other forms of liquid resources. If the FMI does so, then these liquid resources should be in the form of assets that are likely to be saleable or acceptable as collateral for lines of credit, swaps, or repos on an ad hoc basis following a default, even if this cannot be reliably prearranged or guaranteed in extreme market conditions. Even if an FMI does not have access to routine central bank credit, it should still take account of what collateral is typically accepted by the relevant central bank, as such assets may be more likely to be liquid in stressed circumstances. An FMI should not assume the availability of emergency central bank credit as a part of its liquidity plan.

As ESAS does not assume liquidity risk as principal, RBNZ, as System Operator, does not maintain liquid resources to cover payment obligations in stressed scenarios.

KC7.7: An FMI should obtain a high degree of confidence, through rigorous due diligence, that each provider of its minimum required qualifying liquid resources, whether a participant of the FMI or an external party, has sufficient information to understand and to manage its associated liquidity risks, and that it has the capacity to perform as required under its commitment. Where relevant to assessing a liquidity provider's performance reliability with respect to a particular currency, a liquidity provider's potential access to credit from the central bank of issue may be taken into account. An FMI should regularly test its procedures for accessing its liquid resources at a liquidity provider.

As ESAS does not assume liquidity risk as principal, the System Operator, does not maintain liquid resources to cover payment obligations in stressed scenarios.

KC7.8: An FMI with access to central bank accounts, payment services, or securities services should use these services, where practical, to enhance its management of liquidity risk.

Since the System Operator does not assume liquidity risk through the operation of ESAS, the requirement to use central bank accounts, payment services or securities services does not apply.

KC7.9 An FMI should determine the amount and regularly test the sufficiency of its liquid resources through rigorous stress testing. An FMI should have clear procedures to report the results of its stress tests to appropriate decision makers at the FMI and to use these results to evaluate the adequacy of and adjust its liquidity risk-management framework. In conducting stress testing, an FMI should consider a wide range of relevant scenarios. Scenarios should include relevant peak historic price volatilities, shifts in other market factors such as price determinants and yield curves, multiple defaults over various time horizons, simultaneous pressures in funding and asset markets, and a spectrum of forward-looking stress scenarios in a variety of extreme but plausible market conditions. Scenarios should also take into account the design and operation of the FMI, include all entities that might pose material liquidity risks to the FMI (such as settlement banks, nostro agents, custodian banks, liquidity providers, and linked FMIs), and where appropriate, cover a multiday period. In all cases, an FMI should document its supporting rationale for, and should have appropriate governance arrangements relating to, the amount and form of total liquid resources it maintains.

As RBNZ does not assume liquidity risk as principal, it does not maintain liquid resources to cover Accountholders' payment obligations in stressed scenarios. Accordingly, there is no need for ESAS to undertake liquidity stress testing.

KC7.10: An FMI should establish explicit rules and procedures that enable the FMI to effect same-day and, where appropriate, intraday and multiday settlement of payment obligations on time following any individual or combined default among its participants. These rules and procedures should address unforeseen and potentially uncovered liquidity shortfalls and should aim to avoid unwinding, revoking, or delaying the same-day settlement of payment obligations. These rules and procedures should also indicate the FMI's process to replenish any liquidity resources it may employ during a stress event, so that it can continue to operate in a safe and sound manner.

As stated above, the System Operator does not assume liquidity risk as principal. Therefore ESAS does not require rules regarding a liquidity shortfall.

Principle 8: Settlement Finality

An FMI should provide clear and certain final settlement, at a minimum by the end of the value date. Where necessary or preferable, an FMI should provide final settlement intraday or in real time.

Assessment:

ESAS observes principle 8.

Key considerations

KC8.1: An FMI's rules and procedures should clearly define the point at which settlement is final.

ESAS Terms and Conditions (Clause 5) clearly define when a transaction settles and it is final and irrevocable.

The settlement of a payment in ESAS is final and irrevocable when the Accounts of the paying and receiving Accountholders are simultaneously debited and credited, respectively. Settled payments made pursuant to Authorised Payment Instructions are irrevocable and may not be reversed.

ESAS is a designated settlement system under part 5C of the Reserve Bank Act which gives statutory backing for the finality of settlements. The status of ESAS as a designated settlement system prevents payments made through ESAS from being voided or reversed in the case of an ESAS Bank becoming insolvent, or entering statutory management or any similar form of administration.

KC8.2: An FMI should complete final settlement no later than the end of the value date, and preferably intraday or in real time, to reduce settlement risk. An LVPS or SSS should consider adopting RTGS or multiple-batch processing during the settlement day.

ESAS is structured as an RTGS system. Payments are therefore settled individually on a real-time basis. Although settlements occur in real time, a payment submitted to the ESAS queue may remain there if the payer chooses not to settle the transaction (e.g. if the payer has set the status of the transaction to 'unauthorised') or has insufficient funds. Any payments that are not settled at the end of the relevant session are automatically cancelled from ESAS.

KC8.3: An FMI should clearly define the point after which unsettled payments, transfer instructions, or other obligations may not be revoked by a participant.

In ESAS, it is possible for an Accountholder to cancel payment instructions [at any time] before they are settled. Under the Terms and Conditions, an Accountholder is able to unilaterally revoke its outgoing RTGS payments at any time prior to settlement, ESAS cash transfers and payments sent via a feeder system can be revoked prior to settlement via the ESAS User Interface. However a settled transaction cannot be cancelled or revoked.

Principle 9: Money Settlements

An FMI should conduct its money settlements in central bank money where practical and available. If central bank money is not used, an FMI should minimise and strictly control the credit and liquidity risk arising from the use of commercial bank money.

Assessment:

ESAS observes principle 9.

Key considerations

KC9.1: An FMI should conduct its money settlements in central bank money, where practical and available, to avoid credit and liquidity risks.

Money settlements in ESAS are conducted in central bank money on a RTGS basis. RBNZ, as the operator of ESAS, does not permit Accountholder's balances in ESAS to be overdrawn and, because ESAS is a designated settlement system under Part 5C of the Reserve Bank Act, finality of settlement of ESAS transactions has statutory backing.

KC9.2: If central bank money is not used, an FMI should conduct its money settlements using a settlement asset with little or no credit or liquidity risk.

ESAS transactions are effected using central bank money.

KC9.3: If an FMI settles in commercial bank money, it should monitor, manage, and limit its credit and liquidity risks arising from the commercial settlement banks. In particular, an FMI should establish and monitor adherence to strict criteria for its settlement banks that take account of, among other things, their regulation and supervision, creditworthiness, capitalisation, access to liquidity, and operational reliability. An FMI should also monitor and manage the concentration of credit and liquidity exposures to its commercial settlement banks.

ESAS transactions are effected using central bank money.

KC9.4: If an FMI conducts money settlements on its own books, it should minimise and strictly control its credit and liquidity risks.

Money settlements in ESAS are conducted using central bank money across the books of RBNZ. RBNZ's credit and liquidity risks from the operation and provision of liquidity in ESAS are strictly controlled, as described in Principles 4 and 7.

KC9.5: An FMI's legal agreements with any settlement banks should state clearly when transfers on the books of individual settlement banks are expected to occur, that transfers are to be final when effected, and that funds received should be transferable as soon as possible, at a minimum by the end of the day and ideally intraday, in order to enable the FMI and its participants to manage credit and liquidity risks.

RBNZ does not use commercial bank money settlement agents in the operation of ESAS.

Principle 10: Physical Deliveries

An FMI should clearly state its obligations with respect to the delivery of physical instruments or commodities and should identify, monitor, and manage the risks associated with such physical deliveries.

Assessment:

Principle 10 is **not applicable** to ESAS.

Key considerations

KC10.1: An FMI's rules should clearly state its obligations with respect to the delivery of physical instruments or commodities.

Not applicable

KC10.2: An FMI should identify, monitor, and manage the risks and costs associated with the storage and delivery of physical instruments or commodities.

Not applicable

Principle 11: Central Securities Depositories

A CSD should have appropriate rules and procedures to help ensure the integrity of securities issues and minimise and manage the risks associated with the safekeeping and transfer of securities. A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry.

Assessment:

Principle 11 is **not applicable** to ESAS

Key considerations

KC11.1: A CSD should have appropriate rules, procedures, and controls, including robust accounting practices, to safeguard the rights of securities issuers and holders, prevent the unauthorised creation or deletion of securities, and conduct periodic and at least daily reconciliation of securities issues it maintains.

Not applicable

KC11.2: A CSD should prohibit overdrafts and debit balances in securities accounts.

Not applicable

KC11.3: A CSD should maintain securities in an immobilised or dematerialised form for their transfer by book entry. Where appropriate, a CSD should provide incentives to immobilise or dematerialise securities.

Not applicable

KC11.4: A CSD should protect assets against custody risk through appropriate rules and procedures consistent with its legal framework.

Not applicable

KC11.5: A CSD should employ a robust system that ensures segregation between the CSD's own assets and the securities of its participants and segregation among the securities of participants. Where supported by the legal framework, the CSD should also support operationally the segregation of securities belonging to a participant's customers on the participant's books and facilitate the transfer of customer holdings.

Not applicable

KC11.6: A CSD should identify, measure, monitor, and manage its risks from other activities that it may perform; additional tools may be necessary in order to address these risks.

Not applicable

Principle 12: Exchange of Value Settlement Systems

If an FMI settles transactions that involve the settlement of two linked obligations (for example, securities or foreign exchange transactions), it should eliminate principal risk by conditioning the final settlement of one obligation upon the final settlement of the other.

Assessment:

Principle 12 is **not applicable** to ESAS

Key considerations

KC12.1: An FMI that is an exchange-of-value settlement system should eliminate principal risk by ensuring that the final settlement of one obligation occurs if and only if the final settlement of the linked obligation also occurs, regardless of whether the FMI settles on a gross or net basis and when finality occurs.

Not applicable

Principle 13: Participant – Default Rules and Procedures

An FMI should have effective and clearly defined rules and procedures to manage a participant default. These rules and procedures should be designed to ensure that the FMI can take timely action to contain losses and liquidity pressures and continue to meet its obligations.

Assessment:

ESAS observes principle 13.

Key considerations

KC13.1: An FMI should have default rules and procedures that enable the FMI to continue to meet its obligations in the event of a participant default and that address the replenishment of resources following a default.

RBNZ has the right, acting reasonably, to suspend or terminate the operation of the Accountholder's Settlement Account at any time, on notification to the Accountholder or as soon as practicable following such suspension or termination (clause 8).

Accountholders are obligated to notify the System Operator immediately upon the occurrence, or threatened occurrence, of a "notifiable event" such as an inability to pay its debts or appointment of receiver or liquidator (clause 6). In addition, Accountholders must inform the System Operator of the steps (if any) the Accountholder is taking to ensure that it continues to have authority to issue Payment Instructions.

The default of an Accountholder in ESAS does not require the System Operator to meet obligations on its behalf; nor does it create additional obligations for non-defaulting Accountholders. Steps taken by the System Operator to manage an Accountholder's default are therefore largely procedural in nature.

Accountholder default may result from insolvency events or a failure to comply with the requirements of the ESAS Terms and Conditions. The System Operator has a documented process that sets out actions required to be taken by the RBNZ to manage Accountholder default.

Those actions are:

- Suspension – All debits and credits against the Accountholder are rejected.
- Stop Pay – All debit against the Accountholder are rejected.
- Stop Receive – All credits against the Accountholder are rejected.
- Exclusion – Removing the participant from ESAS.
- Remove from SBI agreement – All SBI transactions for the Accountholder are rejected.

The above actions would only be invoked in consultation with RBNZ Supervision Department and Payments NZ. Payments NZ will be consulted but the ultimate decision to take one of the actions set out above sits with the RBNZ. All the above actions require system enforced second level

approval within ESAS. The four eye principle requires that the payment is processed by one privileged enabled user and then approved by different enabled privileged user.

KC13.2: An FMI should be well prepared to implement its default rules and procedures, including any appropriate discretionary procedures provided for in its rules.

The ESAS Terms and Conditions allow the System Operator to cancel or suspend the participation of an Accountholder at any time provided the System Operator acts reasonably. An Accountholder is also required to notify the System Operator of any notifiable event as defined under the Terms and Conditions, including statutory management or external administration, or where it reasonably suspects that this may occur.

The System Operator is prepared to exercise its powers under the ESAS Terms and Conditions and has a documented process that sets out actions to be taken in managing an Accountholder default.

In the event of an Accountholder's actual or threatened failure or default, the System Operator would work with both the Supervision Department of the RBNZ to understand any systemic issues arising as a result of the likely failure or default of an Accountholder in ESAS.

KC13.3: An FMI should publicly disclose key aspects of its default rules and procedures.

ESAS Terms and Conditions are published on RBNZ's ESAS public webpage. These include requirements for Accountholders to give notice of notifiable event and the rights of the System Operator to suspend or terminate an Accountholder's account in a default event.

KC13.4: An FMI should involve its participants and other stakeholders in the testing and review of the FMI's default procedures, including any close-out procedures. Such testing and review should be conducted at least annually or following material changes to the rules and procedures to ensure that they are practical and effective.

As ESAS does not require any Accountholder actions in the event of default (aside from the requirement to notify the System Operator of any notifiable event), Accountholders are not involved in any testing or review of the procedures.

As stated above, in the event of an Accountholder's actual or threatened failure or default, the System Operator would work with the Supervision Department of the RBNZ to understand any systemic issues arising as a result of the likely failure or default of an Accountholder in ESAS.

The System Operator has committed to test managing default of an Accountholder each year.

Principle 14: Segregation and Portability

A CCP should have rules and procedures that enable the segregation and portability of positions of a participant's customers and the collateral provided to the CCP with respect to those positions.

Assessment:

Principle 14 is not applicable to ESAS

Key considerations

KC14.1: A CCP should, at a minimum, have segregation and portability arrangements that effectively protect a participant's customers' positions and related collateral from the default or insolvency of that participant. If the CCP additionally offers protection of such customer positions and collateral against the concurrent default of the participant and a fellow customer, the CCP should take steps to ensure that such protection is effective.

Not applicable as ESAS is not a central counterparty to securities transactions between participants.

KC14.2: A CCP should employ an account structure that enables it readily to identify positions of a participant's customers and to segregate related collateral. A CCP should maintain customer positions and collateral in individual customer accounts or in omnibus customer accounts.

Not applicable.

KC14.3: A CCP should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants.

Not applicable.

KC14.4: A CCP should disclose its rules, policies, and procedures relating to the segregation and portability of a participant's customers' positions and related collateral. In particular, the CCP should disclose whether customer collateral is protected on an individual or omnibus basis. In addition, a CCP should disclose any constraints, such as legal or operational constraints, that may impair its ability to segregate or port a participant's customers' positions and related collateral.

Not applicable.

Principle 15: General Business Risk

An FMI should identify, monitor, and manage its general business risk and hold sufficient liquid net assets funded by equity to cover potential general business losses so that it can continue operations and services as a going concern if those losses materialise. Further, liquid net assets should at all times be sufficient to ensure a recovery or orderly wind-down of critical operations and services.

Assessment:

ESAS observes principle 15.

Key considerations

KC15.1: An FMI should have robust management and control systems to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or unexpected and excessively large operating expenses.

The System Operator takes a coordinated approach to identifying, assessing and managing risk at both an enterprise and business level. A key component of the System Operator's framework for managing general business risk is its budgeting and accounting processes, which allow it to monitor, manage and control its operating expenses, including those arising from the operation of ESAS. The RBNZ's financial accounting processes are also subject to audit by both internal and external auditors. Income and operating expenditure is reported in the annual report for ESAS.

ESAS is operated on a cost recovery basis, with a six monthly review of its charges. The pricing model of the ESAS system is structured to fully recover investment and operating expenses related to hardware and software of the RBNZ Payment Systems and personnel costs.

Note in respect of key considerations 15.2 to 15.5.

Since ESAS is a central bank-owned system, it has not been assessed against the Principle that would require the operator to hold ring-fenced liquid net assets funded by equity to cover business risk and support a recovery or wind-down plan (Key Considerations 15.2–15.4). This recognises central banks' inherent ability to supply liquidity to support continuity of operations, should liquidity be required for this purpose. Similarly ESAS has not been assessed against the requirement to maintain a plan to raise additional equity (Key Consideration 15.5).

KC15.2 An FMI should hold liquid net assets funded by equity (such as common stock, disclosed reserves, or other retained earnings) so that it can continue operations and services as a going concern if it incurs general business losses. The amount of liquid net assets funded by equity an FMI should hold should be determined by its general business risk profile and the length of time required to achieve a recovery or orderly wind-down, as appropriate, of its critical operations and services if such action is taken.

See note above regarding operation of FMIs by central banks immediately before Key Consideration 15.2.

KC15.3: An FMI should maintain a viable recovery or orderly wind-down plan and should hold sufficient liquid net assets funded by equity to implement this plan. At a minimum, an FMI should hold liquid net assets funded by equity equal to at least six months of current operating expenses. These assets are in addition to resources held to cover participant defaults or other risks covered under the financial resources principles. However, equity held under international risk-based capital standards can be included where relevant and appropriate to avoid duplicate capital requirements.

See note above regarding operation of FMIs by central banks immediately before Key Consideration 15.2.

KC15.4: Assets held to cover general business risk should be of high quality and sufficiently liquid in order to allow the FMI to meet its current and projected operating expenses under a range of scenarios, including in adverse market conditions.

See note regarding operation of FMIs by central banks immediately before Key Consideration 15.2.

KC15.5: An FMI should maintain a viable plan for raising additional equity should its equity fall close to or below the amount needed. This plan should be approved by the board of directors and updated regularly.

See note regarding operation of FMIs by central banks immediately before Key Consideration 15.2.

Principle 16: Custody and Investment Risks

An FMI should safeguard its own and its participants' assets and minimise the risk of loss on and delay in access to these assets. An FMI's investments should be in instruments with minimal credit, market, and liquidity risks.

Assessment:

ESAS observes principle 16.

Key considerations

KC16.1: An FMI should hold its own and its participants' assets at supervised and regulated entities that have robust accounting practices, safekeeping procedures, and internal controls that fully protect these assets.

Securities provided to RBNZ as collateral under repo are held by RBNZ in the in the NZClear system.

NZClear (including New Zealand Central Securities Depository Limited) is a designated settlement system under part 5C of the Reserve Bank Act and is regulated jointly by the RBNZ and the FMA. New Zealand Central Depository Limited (NZCSD) is a wholly owned subsidiary of the RBNZ which is a statutory body created under its own Act (the Reserve Bank Act) and owned by the government of New Zealand. NZCSD is appointed by RBNZ as its nominee to hold custody of NZClear Participants' securities deposited in the NZClear system. Participants hold their debt and equity securities in their securities accounts within the NZClear system with legal title to the securities held for Participants at the relevant securities registries in the name of NZCSD. RBNZ and NZCSD do not use a third party to provide custody of securities held for Participants in NZClear.

The operations of NZClear are fully subject to a quarterly external audit together with an annual audit of all internal controls. The current auditors are PricewaterhouseCoopers as agent for the Auditor-General. Participants may also request specific audit reports.

Note in respect of key considerations 16.2 to 16.4.

Note: Paragraph 1.23 of the Principles for Financial Market Infrastructures acknowledges that 'central banks may have separate public policy objectives and responsibilities for monetary and liquidity policies that take precedence'. Accordingly, it is the System Operator's view that nothing in this Principle should constrain central bank policies on its investment strategy (including that for reserve management) or the disclosure of that strategy.

KC16.2: An FMI should have prompt access to its assets and the assets provided by participants, when required.

See note above regarding operation of FMIs by central banks immediately before Key Consideration 16.2.

KC16.3: An FMI should evaluate and understand its exposures to its custodian banks, taking into account the full scope of its relationships with each.

The System Operator does not use the services of custodians to hold the collateral it receives in providing liquidity to ESAS Accountholders. Please refer to Principle 5 collateral for further information.

KC16.4: An FMI's investment strategy should be consistent with its overall risk-management strategy and fully disclosed to its participants, and investments should be secured by, or be claims on, high-quality obligors. These investments should allow for quick liquidation with little, if any, adverse price effect.

See note above regarding operation of FMIs by central banks immediately before Key Consideration 16.2.

Principle 17: Operational Risks

An FMI should identify the plausible sources of operational risk, both internal and external, and mitigate their impact through the use of appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate, scalable capacity. Business continuity management should aim for timely recovery of operations and fulfilment of the FMI's obligations, including in the event of a wide-scale or major disruption.

Assessment:

ESAS observes principle 17.

Key considerations

KC17.1: An FMI should establish a robust operational risk-management framework with appropriate systems, policies, procedures, and controls to identify, monitor, and manage operational risks.

ESAS is primarily exposed to operational risks. These risks are identified by assessing the system and processes using risk matrices to identify potential vulnerabilities. To minimise material and likely risks appropriate internal controls, systems and procedures are developed and continuously improved on. Operational risk management includes policies that describe the standard of conduct required of staff.

The System Operator's operational risk policies have been developed in accordance with the RBNZ's Enterprise-wide Risk Management framework.

The System Operator sees risk management as an integral part of the general management task and the responsibility of day-to-day management. The main elements of risk management for ESAS are the daily completion and review of reconciliations, adherence to RBNZ policies and procedures such as those governing segregation of duties, security and technology risk (e.g. change control), service level agreements and maintenance and testing of business continuity plans. The RBNZ has a Proactive Problem Management policy, which requires that incidents and "near misses" are escalated, analysed and remedial actions undertaken to prevent reoccurrence.

Specific controls are designed and implemented around control objectives are documented in Report on controls over the ESAS System⁴. A summary of the control objectives relevant to ESAS are listed below:

Security

- ESAS security management procedures and application controls are adequate and acknowledged.
- The Reserve Bank has processes in place to identify, manage and monitor controls responsible for mitigating internal and external network security risks.
- Access to system privileges within the underlying operating system is adequately managed.

⁴ The report has been prepared in compliance with the requirements of the International Standard on assurance Engagements (New Zealand) 3402 'Assurance Reports on Controls at a Service Organisation' issued by the External reporting Board

- ESAS functionality is only available to appropriate users at appropriate levels.
- Access to the underlying database is adequately managed.
- Adequate environmental and physical security controls are in place over computing equipment.

Participant Detail Administration

- Authorisation is obtained for all additions, changes and deletions to participant details.
- Additions, changes and deletions to participant details are correctly input into the System.

Change Control

- Changes migrated into production are tested and approved.
- Emergency changes migrated into production are appropriate and authorised.

Problem Management

- Problems are identified and resolved in a timely manner.

Backup and Recovery

- Adequate processes are in place for data integrity across the primary and secondary sites.
- Timely recovery of business operations is possible.
- System issues over ESAS system are identified and resolved in a timely manner.

SLA Monitoring

- Third party service level agreements are monitored to ensure compliance with agreed contractual requirements.

Period End Processing

- End of day processing is complete, accurate and timely.

The System Operator maintains multiple versions of the ESAS application and associated infrastructure. These are maintained and data is synchronised in real time to ensure continuous service in the event of system failure, natural disaster or other event. A comprehensive business continuity plan is maintained. The System Operator has staff located in both Auckland and Wellington offices who provide business support in the event that one or other offices are not able to operate e.g. because of an earthquake.

KC17.2: An FMI's board of directors should clearly define the roles and responsibilities for addressing operational risk and should endorse the FMI's operational risk-management framework. Systems, operational policies, procedures, and controls should be reviewed, audited, and tested periodically and after significant changes.

The RBNZ's Risk and Audit Department is responsible for providing advice on and monitoring of the RBNZ's risk management frameworks including in respect of the management of ESAS's operational risk. ESAS is subject to review by RBNZ's internal audit team within the Risk and Audit

Department. The Board receives reports and monitors the RBNZ's Enterprise-wide Risk Management framework and the Board Audit Committee also oversees internal and external audit functions.

Responsibility for management of operational risk relating to ESAS has been delegated to the Payment Services Department (PSD). Operational risks are identified by PSD assessing the system and processes using risk matrices to identify potential vulnerabilities. Risk matrices are reviewed quarterly. To minimise material and likely risks appropriate internal controls systems and procedures are developed and continuously improved on.

Internal controls of ESAS are audited by PricewaterhouseCoopers (PwC) who act on behalf of the RBNZ's external auditor, the Auditor General. PwC's audit reports are addressed to the Governor and reports are reviewed by the Audit Committee of the Board with external auditors, RBNZ governors and management in attendance. The PwC audit opinion is available by request to all Participants.

KC17.3: An FMI should have clearly defined operational reliability objectives and should have policies in place that are designed to achieve those objectives.

ESAS is designed for high availability and resiliency and infrastructure and applications are housed within two datacentres that are geographically separate.

ESAS has the following key performance indicators (KPI's):

- The targeted system availability is 99.90% and actual performance against this benchmark is reported and monitored. (Both the RBNZ annual report and the ESAS annual report which are both published on RBNZ's website report actual availability statistics).
- There are "supporting" KPIs that are in place to ensure that the underlying systems can collectively meet the overarching objective. One such supporting KPI is fault handling regimes with the two key service providers (SIA and Datacom) to ensure faults, outages and issues are dealt with according to contractual obligations – minimising downtime that impact the 99.9 % availability KPI. These are managed on an individual basis i.e. when the fault/issue occurs, and collectively as part of monthly performance reporting i.e. a formal review of the fault handling performance of each provider.

In addition, there are KPIs that relate to performance and through-put. In the main, these are validated as part of the software release process e.g. to ensure that the system can process stipulated volumes within specified periods.

The system is monitored continuously during the day and a help desk attends to users' enquiries. Problems, incidents and near misses are reported to senior management for decision-making and action.

Measures and KPI's are identified (and reported on) to provide an early warning mechanism of operational deficiencies. For example:

- The system is monitored continuously during the day and an incident management regime is in place.
- Monthly monitoring of network reliability.

- Monthly monitoring of service levels and other KPIs.

In addition, other mechanisms to provide assurance that operational risk is being effectively managed are:

- On-going external audit reviews of key operational processes, change control processes, network and access change control.
- Quarterly external audit reviews of reconciliations of securities holdings.
- Regular forums with key service providers to monitor and manage their performance.

KC17.4: An FMI should ensure that it has scalable capacity adequate to handle increasing stress volumes and to achieve its service-level objectives.

The infrastructure and applications (ESAS, NZClear and supporting systems) are governed by two contracts: the Master Services Agreement with Datacom (infrastructure) and the Software Licencing and Services Agreement (SIA). Both include obligations around all aspects of the contract operation (including performance) and contract governance. Both contracts (and vendors) are actively managed.

For infrastructure service provider this involves:

- Regular meetings to manage the work-program and issues.
- Regular meetings to review the delivery and system performance (including system capacity and performance).
- Regular meetings to review the contract performance and review the system and industry roadmap.
- Weekly and monthly meetings with the SOC team and infrastructure support provider's architects (cyber/vulnerability management).

For applications software provider this involves:

- Regular meetings to review all software developments and releases – including prioritisation and application performance, as well as covering of any active issues.
- Regular meetings to review SIA's performance against contract and to cover off the development roadmap (short-medium term) and review any key issues/outages etc.
- Regular meetings to review contract operation and strategic initiatives and developments.

Both contracts and their obligations (including the governance operation) are covered under the 3402 Audit Report and also swept into the SWIFT Customer Security Programme (CSP) control framework.

If alerting or reports indicates an emerging capacity issue, then the System Operator will engage the vendors (Datacom and SIA) to analyse and respond with a course of action in order to maintain the pre-determined buffers of the system.

KC17.5: An FMI should have comprehensive physical and information security policies that address all potential vulnerabilities and threats.

The RBNZ has a comprehensive suite of policies that includes building and information security policies. These policies include (amongst other things) the following:

- Information disclosure;
- Records Management;
- Access restrictions – records and physical;
- Information systems security;
- Building security; and
- Incident reporting management.

The payments systems were architected and are operated with security front and foremost – aligning to SWIFT’s CSP and GCSB’s NZISM (which is largely ISO aligned), with operation consistent with BIS/IOSCO Guidelines and also the RBNZ’s Guidance on Cyber Resilience (draft). There is a comprehensive cyber support programme in place, which utilises SOC to monitor and manage security within the payments domain on a 24/7 basis. All systems and access activities are actively managed by the SOC, who also oversee the security monitoring and scanning of the system and the management of vulnerabilities (detected or otherwise) within the payments systems. The SOC work closely with Datacom support staff, the RBNZ payments technical team and RBNZ Cyber Team (and also NZ/National cyber agencies). Weekly meetings are held to review security current issues and to review the management of all vulnerabilities – using an agreed risk management framework (risk profile based on asset value and the CVSS risk rating as applied in the payments domain). Any risks are managed within the RBNZ Enterprise Risk Management Framework. There is also a monthly SOC review which looks at the overall security position of the ESAS and the wider cyber risk landscape.

There is a comprehensive plan in place to manage and recover from any cyber incidents – this covers ESAS and supporting infrastructure, and links to the corporate incident management plan where appropriate. Regular penetration testing is conducted against the systems and this is co-ordinated through RBNZ Cyber Team and undertaken by a 3rd party. A SWIFT CSP assessment is also undertaken on (at least) a yearly basis and from 2021 this will be independently audited.

KC17.6: An FMI should have a business continuity plan that addresses events posing a significant risk of disrupting operations, including events that could cause a wide-scale or major disruption. The plan should incorporate the use of a secondary site and should be designed to ensure that critical information technology (IT) systems can resume operations within two hours following disruptive events. The plan should be designed to enable the FMI to complete settlement by the end of the day of the disruption, even in case of extreme circumstances. The FMI should regularly test these arrangements.

The System Operator maintains and regularly tests comprehensive Business Continuity Plan (BCP). This includes our primary and secondary sites in New Zealand in addition to our extreme contingency based in Milan.

Infrastructure and payment applications are housed within two Tier 3 Datacentres that are geographically separate; Hamilton and Auckland. These datacentres house a complete replica of all components required to operate ESAS and NZClear. The architecture of the system allows a full site swap and/or a disaster recovery process if and when required. Broadly, every six weeks the production stack is swapped to the other site ensuring that the ESAS can run successfully from either site. In addition, the SWIFT capability can run in the same data centre as the ESAS or in the other data centre allowing for numerous site swap and disruptive incident scenarios.

The ESAS has been designed to operate in an active/standby configuration. That is, one site is actively processing transactions whereas the other site is active but only receiving updates from the active site in order to keep the system state (i.e. data) synchronised. All components (hardware, software and networking) are replicated in both sites. Other than hostnames and IP addresses, they are identically configured.

In the event of critical component or complete failure of a site or loss of communications to a site, the site operating in standby mode can be activated to restore service to end users, including Participants. Datacom is responsible for activating the "standby" site, once instructed to do so by the System Operator (in accordance with BCP procedures).

The time taken to recover operations through secondary system is around one hour. Key decision points for the System Operator are reached after 20 minutes, 60 minutes and 2 hours. In the event of a systems failure that requires activation of systems located in the alternate site, the System Operator is committed to resume processing from the alternate site within 60 minutes of the decision being made to switch processing sites.

In addition, in the event of a catastrophic failure of these two data centres, ESAS has a third disaster recovery site -RTGS Extreme Contingency Solution (RECS) which is operated from the vendor's datacentre in Milan. RECS provides another significant layer of resilience for New Zealand's real time gross settlement environment.

Daily operations are divided between PSD staff located in RBNZ's offices in Auckland and Wellington. This enables the operations to continue unaffected for a period of time if the services of one location (plus its operators) become unavailable. Moreover, all staff in PSD are able to work remotely in case of a disaster scenario.

The COVID-19 pandemic, and associated national lockdown, occurred within weeks of the ESAS 2.0 go-live. In response to COVID-19, the RBNZ took proactive steps to protect the health and

safety of staff while maintaining continuity of our services and ensuring any potential disruption to Participants' operations was minimised.

In response to COVID-19 the RBNZ's well-established BCP was implemented, which involved the PSD working remotely from home. Processes have been designed such that controls were able to be performed remotely, and minimal interruption was experienced to both the PSD and Participants.

KC17.7: An FMI should identify, monitor, and manage the risks that key participants, other FMIs, and service and utility providers might pose to its operations. In addition, an FMI should identify, monitor, and manage the risks its operations might pose to other FMIs.

The System Operator recognises system failure as one of its major enterprise risks. ESAS is designed for high availability and resiliency and there are multiple physical computer systems in place (two instances in each of two locations), to mitigate the risk of a disruption to processing.

ESAS works in an integrated manner with the RBNZ's NZClear System to support DVP Model 1 gross settlement of both funds and securities legs whereby settlement of securities and associated cash payments occurs on an irrevocable and simultaneous basis. As NZClear and ESAS are both operated by RBNZ, RBNZ is able to take a holistic approach to the interdependencies and risk management considerations which exist between NZClear and ESAS.

Accountholders may also send and receive settlement instructions to/from ESAS over the SWIFT network. The operation of ESAS includes some elements of the administration of the SWIFT system, which are the responsibility of the System Operator. In most other respects, reliance is placed on the SWIFT organisation itself for operation of that system.

Datacom supports the telecommunications network infrastructure, and related security features utilised by the ESAS. Software support, software development and operational support services are provided by SIA S.p.A. The System Operator manages provision of services by third parties through services contracts and related service level agreements. The management process includes assessment of risks and performance at monthly review meetings, monthly performance reports, review of problem management reports and relevant project steering committees.

The telecommunications network on which the ESAS operates is provided by Spark New Zealand Limited with a second provider operating a backup network service.

The major ESAS Accountholders are registered banks which are required to provide attestation to the Reserve Bank regarding the suitability of their own business continuity plans. When outages occur, involving either the System Operator's systems or Accountholder systems, an incident report is prepared and reviewed. Accountholders are required to notify the System Operator of all processing issues which impact ESAS and equally the Bank advises accountholders immediately if Bank systems are not operating as required. The incident reports endeavour to identify the root cause of disruptions and require appropriate follow up actions are taken to minimise the chance of recurrence.

ESAS manages the risk it might pose to other FMIs by managing the resilience of the ESAS and its interfaces to other FMIs against potential negative impacts. This includes active monitoring of all interfaces, robust fault management processes, and backup (manual) processing alternatives.

Principle 18: Access and Participation Requirements

An FMI should have objective, risk-based, and publicly disclosed criteria for participation, which permit fair and open access.

Assessment:

ESAS observes principle 18.

Key considerations

KC18.1: An FMI should allow for fair and open access to its services, including by direct and, where relevant, indirect participants and other FMIs, based on reasonable risk-related participation requirements.

The rating of this Principle has improved from the last assessment which was done in 2019 from Broadly Observed to Observed. The System operator has provided more specificity regarding the application process, including improving the requirements for an ESAS application. The ESAS eligibility policy has been designed to promote the development of a payments system which is efficient, open and flexible; which has a high level of integrity; and which is robust in the face of financial crises.

When deciding on an application for an ESAS account RBNZ will consider the following matters:

- Whether the applicant fits the definition of financial institution in the Reserve Bank Act;
- Whether provision of an ES account to the applicant might detract from the soundness of the financial system;
- Whether provision of an ES account to the applicant might detract from the efficiency of the financial system;
- Whether there is a legitimate business interest that can be served by access to an ES account;
- Whether the provision of an ES account would adversely affect the reputation of RBNZ; and
- Any other matters RBNZ considers relevant to the application.

The Accountholder application process raises awareness of the risks an Accountholder may pose to the system. An applicant must satisfy the System Operator that it has the capacity to meet its present and future obligations. That will include the applicant's:

- Incorporation and ownership structure including the jurisdiction of the applicant and the method of incorporation
- Size and nature including the applicant's experience in respect of payment systems and actual and expected cash flows
- Creditworthiness and prudential matters including the applicant's capital structure, financial condition and credit rating

- Operational requirements such as operational risk management framework, ability and readiness to use ESAS and any network provided by the RBNZ, and business continuity and disaster recovery arrangements;
- Risk management expertise including liquidity management arrangements;
- Legal requirements including whether it holds all required licenses and authorizations; and
- Any other considerations.

The rights and obligations of Accountholders to each other and the rights and obligations of the System Operator are governed by ESAS Terms and Conditions.

KC18.2: An FMI's participation requirements should be justified in terms of the safety and efficiency of the FMI and the markets it serves, be tailored to and commensurate with the FMI's specific risks, and be publicly disclosed. Subject to maintaining acceptable risk control standards, an FMI should endeavour to set requirements that have the least-restrictive impact on access that circumstances permit.

ESAS' participation requirements are designed promote the safety and integrity of ESAS as well as to reduce the likelihood that an Accountholder experiences an operational or financial problem that disrupts the system more broadly and can create systemic risk.

Factors taken into account cover the applicant's ability to meet its current and on-going obligations and include operational capacity, financial condition, business continuity arrangements, character and business integrity, and any other considerations that in the opinion of the System Operator relate to the standing of the applicant and the integrity of the system. The requirements related to operational capacity and related aspects like BCP plans are required to mitigate operational risks. System participation policy and the participation requirements are disclosed on the RBNZ's ESAS webpage.

KC18.3: An FMI should monitor compliance with its participation requirements on an ongoing basis and have clearly defined and publicly disclosed procedures for facilitating the suspension and orderly exit of a participant that breaches, or no longer meets, the participation requirements.

The System Operator assesses the conformance of Accountholders to the operational requirements as part of the ongoing monitoring of the ESAS system transaction flows. The monitoring regime includes the System Operator identifying and following up on operational incidents as well as failed or delayed settlements. For Accountholders with high volume and value concentrations ratios, the System Operator monitors changes in portfolio size and seeks an explanation for very large changes. The RBNZ reviews, on a quarterly basis, aggregate settlement values and seeks an explanation for very large changes periodically.

ESAS Term and Conditions (Clause 6) encourages Participants to report "notifiable events" to the System Operator. Any non-compliance with the ESAS terms and Conditions, either by RBNZ or Accountholders, is required to be reported to the regulators.

The System Operator has wide-ranging powers under the Terms and Conditions to sanction ESAS Accountholders in order to preserve the integrity of the ESAS. The System Operator may suspend

or terminate an account in the event of non-compliance of the obligations with regard to ESAS including the obligation set out in clause 14.1 of the Terms and Conditions to comply with RBNZ's directions relating to the System or the Accountholder's Account, where those directions are, in RBNZs' opinion, necessary or advisable for compliance with parts 5B or 5C of the Reserve Bank Act or to ensure the sound and efficient operation of the System.

In order to continue to operate a Settlement Account and use the System, the Accountholder must, at all times, comply with the Prescribed Access and Participation Criteria (clause 2.7 of the Terms and Conditions). Where a breach has been identified and the Accountholder has taken appropriate steps to rectify it, the System Operator will likely continue to monitor the Accountholder closely for a period of time.

Principle 19: Tiered Participation Requirements

An FMI should identify, monitor, and manage the material risks to the FMI arising from tiered participation arrangements.

Assessment:

ESAS broadly observes principle 19.

Key considerations

KC19.1: An FMI should ensure that its rules, procedures, and agreements allow it to gather basic information about indirect participation in order to identify, monitor, and manage any material risks to the FMI arising from such tiered participation arrangements.

The ESAS Terms and Conditions apply only to direct Accountholders in ESAS. The legal basis for participation, and the operational relationship, exists between the System Operator and the direct Accountholders. Entities that are not eligible for participation can perform operations through Accountholders, but are treated as clients of Accountholders, rather than “indirect participants”. The System Operator does not admit or recognise indirect or tiered participants nor have any relationship with underlying clients of Accountholders.

The System Operator considers that the ESAS is not exposed to material risks arising from the customers of Accountholders (i.e., “indirect participants”). Risks and their materiality are assessed at the level of the Accountholder. Accountholders have an obligation to the System Operator to satisfy all commitments arising from either (a) their own use of ESAS services or (b) the use of those services on behalf of their clients.

The System Operator has enhanced Terms and Conditions by explicitly making provision for RBNZ to request information from the Accountholders for information relevant to the operation of their ESAS account. With the new provision, Accountholders are required to provide the System Operator with information which can enable the System Operator to assess the material risks emerging from indirect participation.

Although the risks from underlying clients are considered to be low, the System Operator will be implementing process changes in to gain access to the information required to make assessments of risk posed to ESAS from their customer’s.

KC19.2: An FMI should identify material dependencies between direct and indirect participants that might affect the FMI.

Whilst the RBNZ is aware of each Accountholder’s activity in ESAS, it does not have visibility of Accountholders’ clients’ activity. The System Operator relies on Accountholders identifying and managing their key risks arising from the activity of their own customers.

ESAS does not currently identify material risks between Accountholders and indirect participants. The System Operator will be implementing process changes to be able to identify material risks between direct and indirect participants.

KC19.3: An FMI should identify indirect participants responsible for a significant proportion of transactions processed by the FMI and indirect participants whose transaction volumes or values are large relative to the capacity of the direct participants through which they access the FMI in order to manage the risks arising from these transactions.

Whilst the RBNZ is aware of each Accountholder's activity in ESAS, it does not have visibility of indirect participants' activity.

The design of ESAS as an RTGS system which does not provide overdrafts and which settles on an irrevocable basis in central bank funds, minimises the risk of loss to the System Operator and other Accountholders as a result of failure of an Accountholder.

Accountholders must manage risk generated by their customers and ensure they have sufficient controls in place so as to mitigate the risk that their customers' activity will cause disruption to their own ability to meet their obligations to settle in ESAS. The Accountholders which account for the greatest volume and value passing through ESAS are registered banks which have to prepare quarterly attestations regarding management of key risks.

The System Operator does not currently monitor the extent to which the activity of Accountholders is undertaken on behalf of indirect participants. However, the System Operator will be implementing processes to enable System Operator to access the information required to make assessments of risk posed to ESAS by indirect participants.

KC19.4: An FMI should regularly review risks arising from tiered participation arrangements and should take mitigating action when appropriate.

As explained in the answer to KC 19.1, the ESAS Terms and Conditions do not provide for tiered arrangements and as such currently, there is no monitoring of tiered participation arrangements. Despite that, to have a better understanding of the nature of the risks from tiered participation, process improvements will be performed to enable the System Operator to access information about the relationships between Accountholders and their clients.

Principle 20: FMI Links

An FMI that establishes a link with one or more FMIs should identify, monitor, and manage link-related risks.

Assessment:

Principle 20 is not applicable to ESAS

Key considerations

KC20.1: Before entering into a link arrangement and on an ongoing basis once the link is established, an FMI should identify, monitor, and manage all potential sources of risk arising from the link arrangement. Link arrangements should be designed such that each FMI is able to observe the other principles in this report.

Not applicable.

KC20.2: A link should have a well-founded legal basis, in all relevant jurisdictions, that supports its design and provides adequate protection to the FMIs involved in the link.

Not applicable

KC20.3: Linked CSDs should measure, monitor, and manage the credit and liquidity risks arising from each other. Any credit extensions between CSDs should be covered fully with high-quality collateral and be subject to limits.

Not applicable.

KC20.4: Provisional transfers of securities between linked CSDs should be prohibited or, at a minimum, the retransfer of provisionally transferred securities should be prohibited prior to the transfer becoming final.

Not applicable.

KC20.5: An investor CSD should only establish a link with an issuer CSD if the arrangement provides a high level of protection for the rights of the investor CSD's participants.

Not applicable.

KC20.6: An investor CSD that uses an intermediary to operate a link with an issuer CSD should measure, monitor, and manage the additional risks (including custody, credit, legal, and operational risks) arising from the use of the intermediary.

Not applicable. The link does not involve the use of intermediaries.

KC20.7: Before entering into a link with another CCP, a CCP should identify and manage the potential spill-over effects from the default of the linked CCP. If a link has three or more CCPs, each CCP should identify, assess, and manage the risks of the collective link arrangement.

Not applicable

KC20.8: Each CCP in a CCP link arrangement should be able to cover, at least on a daily basis, its current and potential future exposures to the linked CCP and its participants, if any, fully with a high degree of confidence without reducing the CCP's ability to fulfil its obligations to its own participants at any time.

Not applicable

KC20.9: A TR should carefully assess the additional operational risks related to its links to ensure the scalability and reliability of IT and related resources.

Not applicable

Principle 21: Efficiency and Effectiveness

An FMI should be efficient and effective in meeting the requirements of its participants and the markets it serves.

Assessment:

ESAS observes principle 21.

Key considerations

KC21.1: An FMI should be designed to meet the needs of its participants and the markets it serves, in particular, with regard to choice of a clearing and settlement arrangement; operating structure; scope of products cleared, settled, or recorded; and use of technology and procedures.

RBNZ updates Accountholders on planned fee changes and developments every six months. This provides an opportunity both for participants to suggest improvements and for RBNZ to consult on planned upgrades. RBNZ also liaises closely with the industry through the ESAS Participation Group which is stated in K.C2.6

Accountholders can also communicate with the System Operator by forwarding questions and requests to the Help Desk and can track progress of their requests electronically.

Each year the System Operator surveys Accountholder satisfaction with the quality of help desk support, communication, processing, development and overall system performance. The outcome of this survey is published on the RBNZ website.

KC21.2: An FMI should have clearly defined goals and objectives that are measurable and achievable, such as in the areas of minimum service levels, risk-management expectations, and business priorities.

The System Operator's main goal and objective in payment and securities settlement systems is on-going management and maintenance of payment and settlement systems to achieve trust and confidence in systems. In addition, the System Operator aims to maintain an ability to adopt its systems to any future changes, including developing payment and settlement systems which are fair, efficient, and transparent.

The System Operator endeavours to operate ESAS with the highest reasonable degree of reliability and integrity. This includes regular review and testing of disaster recovery plans.

Each year, the System Operator must prepare a plan and objectives for the year ahead. Accountholders have the opportunity to comment on the proposed plan before it is finalised by the System Operator and the System Operator reports on outcomes against plans in the Annual Report for ESAS.

In addition to reporting on outcomes against planned initiatives, key measures include system availability, customer satisfaction, financial outcomes, transaction volumes and reporting on external audit outcomes.

KC21.3: An FMI should have established mechanisms for the regular review of its efficiency and effectiveness.

As stated in K.C2.6 the System Operator liaises closely with the industry through the ESAS Participation Group which meets on a semi-annual basis.

Principle 22: Communication Procedures and Standards

An FMI should use, or at a minimum accommodate, relevant internationally accepted communication procedures and standards in order to facilitate efficient payment, clearing, settlement, and recording.

Assessment:

ESAS observes principle 22.

Key considerations

KC22.1: An FMI should use, or at a minimum accommodate, internationally accepted communication procedures and standards.

Payments instructions can be fed into ESAS via the feeder systems – NZClear, ESAS-SWIFT Interface; and Settlement Before Interchange (SBI) – or entered directly into ESAS. Messages sent to ESAS via SWIFT – which accounts for the majority of volumes and value settled in ESAS – are sent using internationally accepted communication protocols and message standards set by SWIFT, and are transmitted over the SWIFT communications network.

The ESAS SWIFT Interface (ESI) allows accountholders to send wholesale payment instructions to a counterparty within a closed user group using a SWIFT Y-Copy service. The Y-Copy service ensures that settlement of the payment instruction occurs in ESAS before the payment instruction is released to the counterparty for processing. The RBNZ is the administrator of the ESI closed user group.

The ESI will be enhanced early next year to support the new ISO 20022 standard for payment instructions as mandated by SWIFT. The RBNZ will support the same or higher level of functionality with ISO 20022 that was previously provided to Accountholders under the existing standard.

Settlement Before Interchange (SBI) works in a similar way to the ESI but it is used to settle net obligations for batched retail payments over SWIFT's FileAct Y-Copy service using proprietary and ISO 20022 XML messaging. Access to the SBI closed user group is controlled by Payments NZ Limited. Accountholders who have been granted access to the SBI closed user group can send batched retail payments to a counterparty using the FileAct Y-Copy service, which ensures settlement of the batched retail payments occurs in ESAS before they are released to the counterparty for processing.

In addition to the above SWIFT interfaces, some payment instructions are manually entered directly into ESAS using the ESAS User Interface. The function provided to manually enter payments adheres to the same message standards as those used on the SWIFT network.

The System Operator has put in place processes and procedures to determine the impact and actions required to accommodate changes to connectivity protocols (either standardised or commercial). Similarly, well-established processes and procedures exist for the notification of changes to downstream users and dependent applications.

Principle 23: Disclosure of Rules, Key Procedures and Market Data

An FMI should have clear and comprehensive rules and procedures and should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI. All relevant rules and key procedures should be publicly disclosed.

Assessment:

ESAS observes principle 23.

Key considerations

KC23.1: An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.

As noted in respect of Principle 1 (the Legal Basis for the material aspects of ESAS's activities), the Terms and Conditions are drafted in a clear manner intended for ease of understanding and use by Accountholders.

They are intended to provide a comprehensive set of rules by which Accountholders may issue Payment Instructions and ensure finality of settlement of payments through the ESAS System.

The Terms and Conditions are publicly available on the RBNZ website. The Reserve Bank Act and all other New Zealand legislation is also publicly available.

KC23.2: An FMI should disclose clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI.

The Terms and Conditions set out Accountholders' rights and obligations in a clear manner. The System's design and operations are also clearly described in the Terms and Conditions.

The Terms and Conditions, and an overview of the System giving a clear description of the System design and operations, is published on the ESAS page of the RBNZ website.

This includes the latest (2021) (and older archived) ESAS Annual Reports and ESAS/NZClear Helpdesk Survey reports. Other information published on the website includes scheduled system outages and maintenance windows.

KC23.3: An FMI should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI's rules and procedures and the risks they face from participating in the FMI.

The information in the Terms and Conditions is supplemented by on-line documentation and a help desk facility.

The RBNZ provides focused training in the use of ESAS functionality to new Accountholders and new employees upon request. A test system is available for Accountholders to familiarise themselves with the System and a helpdesk is available during business hours to answer specific questions.

KC23.4: An FMI should publicly disclose its fees at the level of individual services it offers as well as its policies on any available discounts. The FMI should provide clear descriptions of priced services for comparability purposes.

The Terms and Conditions provide that the RBNZ as System Operator may set the fees so as to recover costs but not more, in providing, managing and operating the System and administering the Accounts.

As ESAS operates for the purpose of providing interchange and settlement services amongst banks and other large financial institutions, it has a relatively a small number of Accountholders, and publication of its fees for comparability of priced services is not viewed as necessary.

All fees applicable to the operation of an ESAS Account are reviewed and provided to Accountholders semi-annually and prospective accountholders on request.

KC23.5: An FMI should complete regularly and disclose publicly responses to the CPSS-IOSCO Disclosure framework for financial market infrastructures. An FMI also should, at a minimum, disclose basic data on transaction volumes and values.

RBNZ (as System operator) completed its first self-assessment of compliance with the CPSS-IOSCO Disclosure Framework for Financial Market Infrastructures in September 2017. A second self-assessment was completed in March 2019. Data on transaction volumes and values is disclosed in the ESAS Annual Report which is also published on the ESAS webpage of the Reserve Bank website. The website also contains useful knowledge such as an overview of the ESAS, background information of the system, operational information and industry updates.

Principle 24: Disclosure of Market Data by Trade Repositories

A TR should provide timely and accurate data to relevant authorities and the public in line with their respective needs.

Assessment:

Principle 24 is **not applicable** to ESAS.

Key considerations

KC24.1: A TR should provide data in line with regulatory and industry expectations to relevant authorities and the public, respectively, that is comprehensive and at a level of detail sufficient to enhance market transparency and support other public policy objectives.

Not Applicable.

KC24.2: A TR should have effective processes and procedures to provide data to relevant authorities in a timely and appropriate manner to enable them to meet their respective regulatory mandates and legal responsibilities.

Not Applicable.

KC24.3: TR should have robust information systems that provide accurate current and historical data. Data should be provided in a timely manner and in a format that permits it to be easily analysed.

Not Applicable.

Attachment A: FMIS: Definition, Organisation and Function

Extract from *Principles for financial market infrastructures*, CPSS-IOSCO, April 2012.

An FMI is defined as a multilateral system among participating institutions, including the operator of the system, used for the purposes of clearing, settling, or recording payments, securities, derivatives, or other financial transactions. FMIs may differ significantly in organisation, function, and design and can be legally organised in a variety of forms, including associations of financial institutions, non-bank clearing corporations, and specialised banking organisations. FMIs may be owned and operated by a central bank or by the private sector.

The definition of an FMI includes five key types of FMIs:

- Payment systems (PSs);
- Central securities depositories (CSDs);
- Securities settlements systems (SSSs);
- Central counterparties (CCPs); and
- Trade repositories (TRs).

There can be significant variation in design among FMIs with the same function. For example, some FMIs use real-time settlement, while others may use deferred settlement. Some FMIs settle individual transactions while others settle batches of transactions.

Payment Systems

A payment system is a set of instruments, procedures, and rules for the transfer of funds between or among participants; the system includes the participants and the entity operating the arrangement. Payment systems are typically based on an agreement between or among participants and the operator of the arrangement, and the transfer of funds is effected using an agreed-upon operational infrastructure. A payment system is generally categorised as either a retail payment system or a large-value payment system (LVPS). A retail payment system is a funds transfer system that typically handles a large volume of relatively low-value payments in such forms as cheques, credit transfers, direct debits, and card payment transactions. Retail payment systems may be operated either by the private sector or the public sector, using a multilateral deferred net settlement (DNS) or a real-time gross settlement (RTGS) mechanism. An LVPS is a funds transfer system that typically handles large-value and high-priority payments. In contrast to retail systems, many LVPSs are operated by central banks, using an RTGS or equivalent mechanism.

Central Securities Depositories

A central securities depository provides securities accounts, central safekeeping services, and asset services, which may include the administration of corporate actions and redemptions, and plays an important role in helping to ensure the integrity of securities issues (that is, ensure that securities are not accidentally or fraudulently created or destroyed or their details changed). A CSD can hold securities either in physical form (but immobilised) or in dematerialised form (that is, they exist only as electronic records). The precise activities of a CSD vary based on jurisdiction and market practices. For example, the activities of a CSD may vary depending on whether it operates in a jurisdiction with a direct or indirect holding arrangement or a combination of both. A CSD may

maintain the definitive record of legal ownership for a security; in some cases, however, a separate securities registrar will serve this notary function. In many countries, a CSD also operates a securities settlement system but unless otherwise specified, this report adopts a narrower definition of CSD that does not include securities settlement functions.

Securities Settlement Systems

A securities settlement system enables securities to be transferred and settled by book entry according to a set of predetermined multilateral rules. Such systems allow transfers of securities either free of payment or against payment. When transfer is against payment, many systems provide delivery versus payment (DVP), where delivery of the security occurs if and only if payment occurs. An SSS may be organised to provide additional securities clearing and settlement functions, such as the confirmation of trade and settlement instructions. The definition of an SSS in this report is narrower than the one used in the RSSS, which defined an SSS broadly to include the full set of institutional arrangements for confirmation, clearance, and settlement of securities trades and safekeeping of securities across a securities market. For example, the RSSS definition for SSSs included CSDs and CCPs, as well as commercial bank functions involving securities transfers. In this report, CSDs and CCPs are treated as separate types of FMIs. As noted above, in many countries, CSDs also operate an SSS.

Central Counterparties

A central counterparty interposes itself between counterparties to contracts traded in one or more financial markets, becoming the buyer to every seller and the seller to every buyer and thereby ensuring the performance of open contracts. A CCP becomes counterparty to trades with market participants through novation, an open-offer system, or through an analogous legally binding arrangement. CCPs have the potential to reduce significantly risks to participants through the multilateral netting of trades and by imposing more-effective risk controls on all participants. For example, CCPs typically require participants to provide collateral (in the form of initial margin and other financial resources) to cover current and potential future exposures. CCPs may also mutualise certain risks through devices such as default funds. As a result of their potential to reduce risks to participants, CCPs also can reduce systemic risk in the markets they serve. The effectiveness of a CCP's risk controls and the adequacy of its financial resources are critical to achieving these risk-reduction benefits.

Trade Repositories

A trade repository is an entity that maintains a centralised electronic record (database) of transaction data. Trade repositories have emerged as a new type of FMI and have recently grown in importance, particularly in the OTC derivatives market. By centralising the collection, storage, and dissemination of data, a well-designed Trade repositories that operates with effective risk controls can serve an important role in enhancing the transparency of transaction information to relevant authorities and the public, promoting financial stability, and supporting the detection and prevention of market abuse. An important function of a Trade repositories is to provide information that supports risk reduction, operational efficiency and effectiveness, and cost savings for both individual entities and the market as a whole. Such entities may include the principals to a trade, their agents, CCPs, and other service providers offering complementary services, including central settlement of payment obligations, electronic novation and affirmation, portfolio compression and reconciliation, and collateral management. Because the data maintained by a Trade repositories may be used by a number of stakeholders, the continuous availability, reliability, and accuracy of such data are critical.

Table 1: General applicability of principles to specific types of FMIs

Principle	PSs	CSDs	SSSs	CCPs	TRs
Legal basis	•	•	•	•	•
Governance	•	•	•	•	•
Framework for the comprehensive management of risks	•	•	•	•	•
Credit risk	•		•	•	
Collateral	•		•	•	
Margin				•	
Liquidity risk	•		•	•	
Settlement finality	•		•	•	
Money Settlements	•		•	•	
Physical deliveries		•	•	•	
Central securities depositories		•			
Exchange-of-value settlement systems	•		•	•	
Participant –default rules and procedures	•	•	•	•	
Segregation and portability				•	
General business risk	•	•	•	•	•
Custody and investment risks	•	•	•	•	
Operational risks	•	•	•	•	•
Access and participation requirements	•	•	•	•	•
Tiered participation requirements	•	•	•	•	•
FMI links		•	•	•	•
Efficiency and effectiveness	•	•	•	•	•
Communication procedures and standards	•	•	•	•	•
Disclosure of rules, key procedures and market data	•	•	•	•	•
Disclosure of market data by trade repositories					•

This table depicts the applicability of the principles to each type of FMI. If an FMI performs the functions of more than one type of FMI, all the principles that address the actual functions performed by the particular FMI will apply in practice.

Attachment B: The Designation and Oversight of Designated Settlement Systems

ESAS is a designated settlement system under Part 5C of the Reserve Bank Act 1989. Designation also gives legislative backing to the finality of settlements effected in accordance with the Terms and Conditions of the ESAS system. The Reserve Bank's Supervision Department is the regulator of the system.