Statistics Finland

Energiamarkkinavirasto
Energy Market Authority

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Finland's National Registry under Article 7 of the Kyoto Protocol

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PREFACE

This report describes Finland's National Registry under the Kyoto Protocol. The National Registry under Article 7 of the Kyoto protocol is still under development and awaiting the finalisation of the Independent Transaction Log (ITL). The GRETA registry system used in Finland has been developed for the EU Emissions Trading Scheme (EU ETS). The EU ETS requires the Member States' registries to comply with the UN Data Exchange Standards (DES) specified for the Kyoto Protocol. Finland's Registry system has been tested successfully within the EU ETS and has been operational since 2005.

This description of Finland's National Registry is part of the report to facilitate the estimation of Finland's assigned amount under the Kyoto Protocol (Finland's AA Report). Finland's AA report has been reviewed by the ministries participating in the High Level Working Group of Government Officials on the national implementation issues of the Kyoto Protocol headed by the Ministry of Trade and Industry. The Cabinet Committee on European Union Affairs approved on 27 October 2006 the procedure to submit the report to the European Commission and the UNFCCC.

Statistics Finland
Kaija Hovi
Director, Business Structures

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Description of the Finnish national registry

The description of the Finnish national registry is undertaken in accordance with the Guidelines for the preparation of information required under Article 7 of the Kyoto Protocol set down in the Annex of Decision 15/CMP.1.

1 Contact details

The name and contact information of the registry administrator is:

Title	Mr.
Name	Jukka Moisanen
Organisation	Energy Market Authority
Address	Lintulahdenkatu 10, FIN-00500 Helsinki
Email	jukka.moisanen@emvi.fi
Phone	+358 9 6220 360
Fax	+358 9 6221 911
Website	www.energiamarkkinavirasto.fi

2 Consolidated registry systems

The Finnish National Registry is currently linked to the other operational EU member states' National Registries by way of the European Commission CITL (Community Independent Transaction Log).

3 Database structure and capacity

The GRETA registry system used in Finland is implemented using a Microsoft SQL Server relational database management system with a dedicated data model for supporting the registry operations.

The absolute maximum size of a SQL Server 2000 database is: 1,048,516 Terabytes or 50 Terabytes per single file entry. A Terabyte is equivalent to 10 to the power 12 (10^{12}) bytes.

SQL Server database model is also scalable up to 32 processors with 64 gigabytes of memory

4 Compliance with ITL data exchange standards

The GRETA registry system used in Finland has been developed for the EU Emissions Trading Scheme. This scheme requires its Member States' registries to be compliant with the UN Data Exchange Standards (DES) specified for the Kyoto Protocol.

The system contains the functionality to perform issuance, conversion, external transfer, (voluntary) cancellation, retirement and reconciliation processes using XML messages and web-services as specified in draft #7 of the UN DES document.

In addition, it also contains: 24 Hour Clean-up, Transaction Status enquiry, Time Synchronisation, Data Logging requirements (including, Transaction Log, Reconciliation Log, Internal Audit Log and Message Archive) and the different identifier formats specified in the UN DES document.

The registry development team has been in close contact with the ITL administrator and development team within the UNFCCC secretariat. Discussions have been held regarding the potential implementation timescales for the remaining functions. All functionality that has yet to be developed will be completed in line with the ITL timetable and this report to the UNFCCC will be updated as necessary.

5 Procedures to minimise discrepancies and terminate transactions

In order to minimise discrepancies between the Registry and the Transaction Log, the following approach has been adopted for the registry system development under the EU Emissions Trading Scheme. The same approach will be adopted for the development of the remaining Kyoto functionalities for the Registry software:

- Communications between the National Registry and the ITL will be via web-services using XML messages – as specified in the UN DES document. These web-services, XML message format and the processing sequence will be as specified in the UN DES document;
- As far as possible, the Registry shall validate data entries against the list of checks that are performed by the ITL – as documented in Annex E of the UN DES Annexes document – before forwarding the request to the ITL for processing. This will help to minimize sending incorrect information to the ITL for approval;
- All units that are involved in a transaction shall be earmarked internally within the Registry; thereby preventing the units from being involved in another transaction until a response has been received from the ITL and the current transaction has been completed;
- The web-service that sends the message to the ITL for processing will ensure that a received acknowledgement message is received from the ITL before completing the submission of the message. Where no acknowledgement message has been received following a number of retries, the web-service will terminate the submission and roll-back any changes made to the unit blocks that were involved;
- Where a 24 hour clean-up message is received from the ITL, the existing web-service will roll back any pending transactions and the units that were involved, thereby preventing any discrepancies in the unit blocks between the Registry and the ITL;
- Finally, if an unforeseen failure were to occur, the data discrepancies between our Registry and the ITL can be corrected via a manual intervention function within our Registry. Following this, reconciliation will be performed to validate that the data is in sync between the Registry and the ITL.

6 Security measures to prevent unauthorized manipulations and operator error

The security measures employed in the National Registry of Finland are described in the attached document "Information Security Description". For the Greta Registry the following security measures have been taken:

- By default, access to the Registry is via Username and Password – though a different authentication module can be added locally, if required;
- For the FI, authentication is further strengthened by digital certificate access;
- The actions that a user can perform are controlled by a permissions system, hence preventing unauthorised access to restricted actions;
- All actions performed are recorded by audit;
- Database manipulations can only be carried out by protected, internally stored procedures which are not accessible directly from the user interface and can only be invoked by our internal web-services;
- A dedicated Greta development team is available to make any further security enhancements as and when required.

In order to prevent operator errors, our Registry software incorporates the following design:

- Applies validation on all user inputs to ensure that only valid details are submitted for processing;
- Displays confirmation of user input to help the user to spot any errors that may have been made;
- Implements an internal approval process for secondary approval for relevant operations before submitting the details to the ITL for processing.

7 A list of the information publicly accessible through the user interface to the national registry

Following information is publicly accessible through the user interface at present:

– Account details – unchanged, updated, created;
– Operator holding account – unchanged, updated, created.

Publicly accessible information required under 5/CMP.1, 13/CMP.1 and 14/CMP.1 will be included in a future release of the software in order to meet with the timetable required for the Kyoto Protocol. These reports will be displayed publicly in addition to the reports described above and will most likely be available from the same location.

8 How to access information through the user interface of the national registry

All publicly accessible information is available from the homepage of the Registry. To access this, open Internet Explorer (or similar) and browse to the following URL: http://www.paastokaupparekisteri.fi (this is the Registry's homepage) and click on the public reports link. The user can then choose to view a report from the list described above.

9 Measures to safeguard, maintain and recover data in the event of a disaster

In the event of a disaster the following recovery procedures have been incorporated in the design of the Registry system:

- Locally information in the database is held over a raid-array structure with automatic error detection and recovery. Therefore, any single database failure would be alerted and the Registry would automatically switch over to use information from the remaining 'correct' databases;
- Data is also archived every 24 hours to an off-site disaster recovery site that can be used to take over as the live registry in case that the main site has become un-operable. This will then be followed by the reconciliation (with the ITL) and manual intervention processes in order to check for any inconsistencies that may exist in the Registry and to restore data as needed.

10 Results of previous test procedures

A full regression test of the Registry was performed by the IT contract supplier in July 2006.

11 How the registry performs the functions defined in 5/CMP.1

Provisions governing t/lCERs. The required functionality to deal with t/lCERs is currently being developed in accordance with the UNFCCC timetable.

Publicly accessible information. Public reports will be built along with the rest of the UNFCCC functionality and will be developed in accordance with the UNFCCC timetable.

12 How the registry performs the functions defined in 13/CMP.1

Issuance of ERUs, AAUs & RMUs. Information will be transmitted to the ITL in the format of the messages specified in the UN DES #7. Any functionality that has yet to be built will be developed in accordance with the UNFCCC timetable.

Tr*ansfer, acquisition, cancellation, retirement & carry-over*. Information will be transmitted to other registries in the format of the messages specified in the UN DES #7 via the ITL. Acknowledgement information will be transmitted to other registries in the format of the messages specified in the UN DES #7 via the ITL. Any functionality that has yet to be built will be developed in accordance with the UNFCCC timetable.

Transaction procedures. Will be carried out as specified in the UN DES #7. Any functionality that has yet to be built will be developed in accordance with the UNFCCC timetable.

Publicly accessible information. Publicly available reports will be developed in accordance with the UNFCCC timetable.

13 The Standard Electronic Reporting Format (14/CMP.1)

The SEF reports will contain the information as set out in Decision 14/CMP.1 and will be built in accordance with the ITL timetable.