TOGA SYSTEM
Interface Specification for the Exchange of Grid Code Data

IS/39.10.0016

Issue 2, 3rd November 2004

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Product Description PD206

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Revision History

Version	Release Date	Reason
Issue 1 Draft 1	13/02/2004	Initial Draft
Issue 1 Draft 2	02/04/2004	Redraft following review comments
Issue 1 Draft 3	28/04/2004	Redraft following review comments
Issue 1 Draft 4	30/04/2004	Redraft of the withdrawn Issue 1 Draft 3 document. Addition of multiple OU values for a day and additional validation against actual OU figures.
Issue 1 Draft 5	18/05/2004	Redraft following NGT comments
Issue 2 Draft 1	03/11/2004	Modification to the availability file validation

CONTENTS

1. INTRODUCTION

Purpose and Scope

As part of ongoing improvements to its Business Systems, National Grid is providing a secure database that is accessible over the Internet giving Grid Code Users the facility to enter and retrieve OC2 related information. Generation Output Useable and outage data can either be entered simply and quickly directly on the screen or by uploading flat files. These file uploads provide an additional way of submitting file based OC2 information. The system will also allow users to run reports giving the latest information on outages that affect Users

This document defines the technical nature of the file interfaces that will exist in the TOGA System for the exchange of data with the Generators.

This interface is designed for companies who have bespoke systems controlling their BMU output usable and generator outage information and will use these bespoke systems to create and read the files automatically.

The interface will comprise of:

- a file upload process allowing daily BMU output usable data to be submitted to TOGA. These submissions are for 2-14 day ahead and 2-49 day ahead.

- a file upload process allowing weekly BMU output usable data to be submitted to TOGA. These submissions are for 2-52 weeks ahead, 1-2 years ahead and 3-5 years ahead.

- a file download process allowing daily or weekly output usable data to be downloaded from TOGA.

- a file upload process allowing generator outage information to be submitted to TOGA.

- a file download process allowing generator outage information to be downloaded from TOGA.

All of the times supplied in the upload files must be specified in GMT. The actual time limits for uploading the submission files are specified in local time (e.g daily files before 11:00am).

1.1 Related Documents

1.1.1 Project Documents:

IS.39.10.0006/7 TOGA Functional & Process Specification Issue 1.2

2. TOGA WEB INTERFACE FOR OUTPUT USABLE SUBMISSIONS

2.1 Description

This web user interface enables customers to submit output usable values to the TOGA SYSTEM for all GOAMP time scales as CSV file uploads.

2.2 Interface Type

2.2.1 Medium

The interface will consist of a web upload form for the appropriate timescale allowing the users to specify their submission CSV file location to upload into the TOGA system.

2.2.2 TOGA actions

The TOGA system will decode the submitted file for validation and updating the TOGA output usable tables or reporting back errors via the users web browser.

2.2.3 Remote actions

The output usable submission file should be created using the user's bespoke BMU output usable system.

2.3 Frequency

Daily, Weekly and Twice Yearly as appropriate.

2.4 External User Initiation Method

2.4.1 Trigger

Use web browser to request for file upload of appropriate timescale.

2.4.2 User Interaction

From the File upload screen, navigate to the file to upload.

2.4.3 Report

Reports back to the user's browser of the outcome of the file submission.

2.5 Interface Location

The user can specify where each individual file will be.

2.6 Data

2.6.1 Daily Output Usable Submission File Format

This process applies to the 2-14 days and 2-49 days ahead output usable files.

The data must be provided in a comma-separated format.

Note: The times on all dates must be provided in GMT.

It will only be possible to submit daily submission data between midnight and 11:00 (or later if agreed with NGC) on the submission date.

If the day of the week that the submission is made is a Wednesday then the file should cover 48 contiguous dates starting 2 days ahead of the current date.

If the day of the week that the submission is made is not a Wednesday then the file should cover 13 contiguous dates starting 2 days ahead of the current date.

	Field	Required?	Format	Maximum Length
1	BMU	Yes	Alphanumeric	11 – must be a valid BMU as defined in the BM systems
2	Date Time	Yes	DD-MON-YYYY HH:MI	
3	Output Usable	Yes	Integer	10

2.6.2   Daily Output Usable Submission File Validation

If an error is found then the whole file will be rejected. The user will be informed of the line number where the error occurred and the type of error. It is expected that the user will correct the data in their bespoke system and create a new output usable file for resubmission. If there are no errors then the user will be informed that the file has been accepted. The data will only be committed to the database if all of the data passes the validation.

The following validation will be applied:

Error number	Description
E01	Record contains wrong number of fields
E03	File contains entries for invalid BMUs
E04	File does not contain at least one item per day per BMU for the period covered by the file
E05	File contains duplicate entries for a BMU and date/time.
E06	The output usable value for the BMU is not between zero and an agreed tolerance of the GRC value for the BMU

If the submissions covering the last two days differ by more than an NGC defined percentage from the actual operation on those days and the current submission matches the submitted values for those days then TOGA will give the warning W01 "Your OU submission for BMU ...... appears to differ from your recent operation in real time compared to your last OU submissions by more than ..%, would you like to re-submit your data?"

If the file does not contain entries for all the BMUs associated with the user then TOGA will give the warning W05 "File does not contain entries for each BMU that you can submit for".

These warnings will not cause the rejection of the data file.

If the output usable submission file is accepted then the Output Usable / Outage Cross Validation will be performed (see section 4). This validation may cause warnings to be given but will not cause rejection of the data file. If the user has not entered the outage information for the period then the validation will be performed against the outages currently held in TOGA for the same time period.

2.6.3   Weekly Output Usable Submission File Format

This process applies to the 2-52 weeks ahead, 1-2 years ahead and 3-5 years ahead file format.

The time scales for submissions are as defined in the Grid Code and these will be defined as system parameters.

If the submission is for 2-52 weeks ahead then the file should cover 51 contiguous weeks starting at the 'current week + 2 weeks'. For example a submission made in week 10 of 2004 should contain a value for each week between week 12 2004 until week 10 2005.

If the submission is for 1-2 years or 3-5 years ahead then the file should cover either 52 or 53 weeks starting from week 1 until the end of the year. The data file should only contain one year of data. Therefore 2 files will be required for the 1-2 years ahead submission and 3 files will be required for the 3-5 years ahead submission.

This submission has a weekly resolution and the file format is as shown below:

	Field	*Required?*	*Format*	*Maximum Length*
1	*BMU*	*Yes*	*Alphanumeric*	*11 – must be a valid BMU as defined in the BM systems*
2	*WeekNo*	*Yes*	*99W99 – E.g. 19W04 for week 19 year 2004.*	
3	*Output Usable*	*Yes*	*Integer*	*10*

2.6.4   Weekly Output Usable Submission File Validation

If an error is found then the whole file will be rejected. The user will be informed of the line number where the error occurred and the type of error. It is expected that the user will correct the data in their bespoke system and create a new output usable file for resubmission. If there are no errors then the user will be informed that the file has been accepted. The data will only be committed to the database if all of the data passes the validation.

The following validation will be applied:

Error number	Description
E01	Record contains wrong number of fields

Error number	Description
E03	File contains entries for invalid BMUs
E06	The output usable value for the BMU is not between zero and an agreed tolerance of the GRC value for the BMU
E08	File does not contain one item per week per BMU for the period covered by the file

If the file does not contain entries for all the BMUs associated with the user then TOGA will give the warning W05 "File does not contain entries for each BMU that you can submit for".

This warning will not cause the rejection of the data file.

If the output usable submission file is accepted then the Output Usable / Outage Cross Validation will be performed (see section 4). This validation may cause warnings to be given but will not cause rejection of the data file. If the user has not entered the outage information for the period then the validation will be performed against the previously made outage submission.

2.7   Output Usable Submissions Download

The TOGA SYSTEM will provide a download facility for previously submitted data. The format of the download file will be the same as the output usable submission file for the same period. The timescale and submission type for the download file will default to the current date's requirement.

3. TOGA WEB INTERFACE FOR GENERATOR OUTAGE SUBMISSIONS

3.1 Description

This web user interface enables customers to submit details of their generator outage plan to the TOGA SYSTEM as CSV file uploads.

The outages are to be specified on individual generating units within a BMU and not on the BMU itself. If an entire BMU has an outage then a record should be supplied for the outage of each generating unit within the BMU. A BMU will have a least one generating unit

3.2 Interface Type

3.2.1 Medium

The interface will consist of a web upload form allowing the users to specify their outage submission CSV file location to upload into the TOGA system.

3.2.2 TOGA actions

The TOGA system will decode the submitted file for validation and updating the TOGA outage table or reporting back errors via the users web browser.

3.2.3 Remote actions

The generator outage submission file should be created using the user's bespoke generator outage system.

3.3 Frequency and time limits

The outage submission file time scale will be in line with the requirements of the grid, but note that a weekly outage submission file can only be submitted up to 16:00 each Wednesday. The file must contain all of the outages for generating units associated with the user, relevant to the period 2-52 weeks ahead of the submission date.

Submission periods will be defined by system parameters.

3.4 External User Initiation Method

3.4.1 Trigger

External user uses web browser to request for file upload.

3.4.2 User Interaction

From the File upload screen, navigate to the file to upload.

3.4.3   Report

Reports back to the user's browser of the outcome of the file submission.

3.5   Interface Location

The user can specify where each individual file will be.

3.6   Data

3.6.1   CSV Submission File Format

This process applies to all of the outage file submissions.

The data must be provided in a comma-separated format.

Note: The times on all dates must be provided in GMT.

	Field	*Required?*	*Format*	*Maximum Length*
1	*Generating Unit*	*Yes*	*Alphanumeric*	*11 – must be a valid Generating Unit as defined in the BM systems*
2	*Start Date Time*	*Yes*	*DD-MON-YYYY HH:MI*	
3	*End Date Time*	*Yes*	*DD-MON-YYYY HH:MI*	
4	*MW Loss*	*Yes*	*Integer*	*10*
5	*Comment*	*No*	*Alphanumeric*	*150*

3.6.2   Outage Submission File Validation

If an error is found then the whole file will be rejected. The user will be informed of the line number where the error occurred and the type of error. It is expected that the user will correct the data in their bespoke system and create a new outage file for resubmission. If there are no errors then the user will be informed that the file has been accepted. The data will only be committed to the database if all of the data passes the validation.

Note: If an outage within the file does not cross the submission timescale (e.g. not in the 2-52 week ahead timescale for the weekly submission) then a warning will be given (W04) and TOGA will not load the outage into the database. This will not cause the file to be rejected.

The following validation will be applied:

Error number	Description
E10	Record contains wrong number of fields
E11	Record references invalid Generating Unit
E12	Start date must not be after the end date
E13	The MW loss value for the outage must be between zero and an agreed tolerance of the GRC value for the associated BMU
W02	A warning will be given if the outage overlaps another outage for the same generating unit in the input file.
W04	Outage must intersect with the specified date range for the submission file.

If the generator outage submission file is accepted and the output usable submission has already been accepted for this timescale then the Output Usable / Outage Cross Validation will be performed (see section 4). This validation may cause warnings to be given but will not cause rejection of the data file.

3.6.3 Outage download file

TOGA will allow the user to download a csv file of the outages in the same format as the upload file. The user will be able to download outages for the period 2-52 weeks, 1-2 years and 3-5 years ahead.

4. OUTPUT USABLE / OUTAGE CROSS VALIDATION

Once an output usable file has been submitted and accepted by TOGA, or an outage file has been submitted and accepted by TOGA following the acceptance of the output usable file for the same period, the system will perform cross validation of the data.

4.1   Daily submission data

In the case of Daily submission then the validation is as follows:

- On each date of the period, BMU output usable value is either zero or less than the GRC value (within tolerance) suggesting outages, while there are no outage records for generator units of the BMU for that date.
- There are outage records for a given date for generators belonging to a BMU but the corresponding BMU output usable value is within the GRC tolerance range suggesting no outage.
- The stated BMU output usable value is inconsistent with the total stated outage MW Loss for generators of a BMU

If any of the above validation shows inconsistencies in the data then the following warning message is given.

Warning number	Description
W03	Output usable submitted for <BMU> for <the date> is inconsistent with the submitted outages. Please review this data.

4.2   Weekly submission data

In the case of Weekly submission the Output Usable for the week (which represents the peak of the week) is compared to the submitted outage information. If the outage covers any time between Monday and Thursday of the week then it is assumed that it will affect the peak of the week, otherwise the peak Output Usable figure will not be assumed to be affected. The checks are exactly the same as the Daily submission data validation using these assumptions.