

Contents

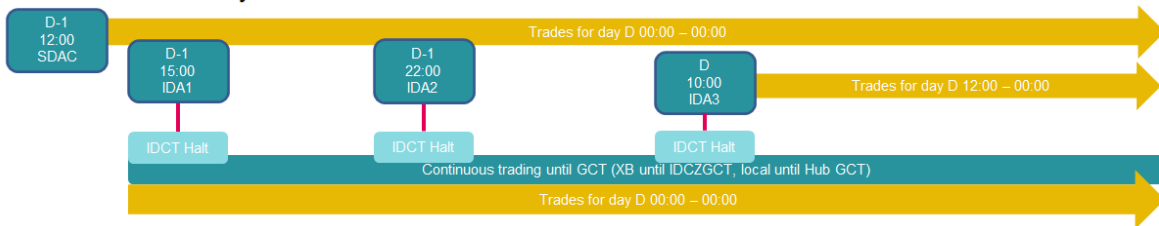
1.	Introduction	3
1.1.	Purpose	3
1.2.	Governed / Regulated by	3
1.3.	Associated procedures	3
2.	Procedure	4
2.1.	General overview	4
2.2.	Process clarification	5
	Case 1: The Coordinator PMB is down	5
	Case 2: Calculation cannot start because of an Algorithm technical issue	5
	Case 3: Calculation cannot start because the Algorithm indicates a problem in validating the input data	5
	Case 4: Calculation needs to be manually stopped because of incorrect Order Data or Network Data	6
	Case 5: Calculation is still ongoing even if the Calculation Time Limit is exceeded	7
	Case 6: Calculation cannot proceed due to an Algorithm technical issue	9
	Case 7: Calculation is finished with an unexpected error	9
	Case 8: Calculation is finished successfully but the PMB calculation process remains <i>Active</i>	9
	Case 9: Cloud Calculation step not set to <i>Active</i> even if all files are received and the PMB Target Time is reached	10
2.3.	Incident investigation management	10
2.4.	Operational manual reference	10

1. Introduction

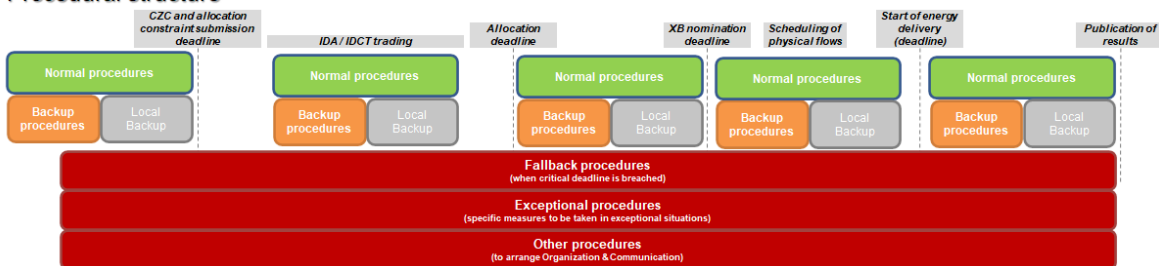
As soon the PMB Gate Closure Time has been reached and the PMB has received all the Order Data and all the Network Data from all IDA NEMO Operators, the calculation will start automatically. Once the calculation is finished, the Coordinator's PMB will send the results to the other PMBs for the Preliminary Confirmation of the Results.

In case the Calculation is extended after the Time Limit of 7 minutes or if the Calculation cannot be performed due to validation or technical problems, the IDA NEMO Operators will apply the relevant backup solutions as described in this document.

Joint SDAC-SIDC daily timeline



Procedural structure



1.1. Purpose

The purpose of this procedure is to describe the applicable backup solutions in case a problem occurs during one of the following stages:

- Validation of the Order Data or Network Data by the Algorithm;
- Market Coupling Calculation;
- Validation of the Results by the Algorithm.

1.2. Governed / Regulated by

- All NEMO Intraday Operational Agreement

1.3. Associated procedures

- IDA_NEMO_NOR_08: Aggregate order books and send to PMB
- IDA_NEMO_NOR_09: Calculating IDA results
- IDA_NEMO_NOR_10: Results sharing and receiving
- IDA_JOINT_FAL_01: Incident Management
- IDA_JOINT_EXC_03: Cancellation of Scheduled IDAs
- IDA_NEMO_FAL_02-PMB Incident Management
- IDA_NEMO_FAL_03-Algorithm Incident Management

2. Procedure

2.1. General overview

This backup procedure must be followed by all IDA NEMO Operators in case of a problem during calculation process. The Target Time indicated in the table is the Latest Time by which the IDA NEMO Operator has to start performing a backup action. The IDA cancellation Deadline indicated in the table is the Latest Time by which the Incident Committee has to declare the IDA cancellation if the Market Coupling Results are not yet confirmed through the Global Preliminary Confirmation.

All these cases apply to the IDA NEMO Coordinator and IDA Backup Coordinator.

Case	Calculation process Issue description	Target time	Latest Time to start IC	IDA cancellation Deadline	Procedures involved
1	The Coordinator PMB is down	OBK GCT + 00:06	OBK GCT + 00:06	OBK GCT + 00:23	SIDC_JOINT_FAL_01 IDA_JOINT_EXC_03
2	Calculation cannot start because of an Algorithm technical issue	OBK GCT + 00:06	OBK GCT + 00:06	OBK GCT + 00:23	SIDC_JOINT_FAL_01 IDA_JOINT_EXC_03
3	Calculation cannot start because the Algorithm indicates a problem in validating the input data	OBK GCT + 00:06	OBK GCT + 00:06	OBK GCT + 00:23	SIDC_JOINT_FAL_01 IDA_JOINT_EXC_03 IDA_NEMO_EXC_02
4	Calculation needs to be manually stopped because of incorrect Order Data or Network Data	OBK GCT	OBK GCT	OBK GCT + 00:23	SIDC_JOINT_FAL_01 IDA_JOINT_EXC_03 IDA_NEMO_EXC_02
5	Calculation is still ongoing even if the Calculation Time Limit is exceeded	OBK GCT + 00:11	OBK GCT + 00:11	OBK GCT + 00:23	SIDC_JOINT_FAL_01 IDA_JOINT_EXC_03
6	Calculation cannot proceed due to an Algorithm technical issue	OBK GCT + 00:11	OBK GCT + 00:11	OBK GCT + 00:23	SIDC_JOINT_FAL_01 IDA_JOINT_EXC_03
7	Calculation is finished with an unexpected error	OBK GCT + 00:11	OBK GCT + 00:11	OBK GCT + 00:23	SIDC_JOINT_FAL_01 IDA_JOINT_EXC_03
8	Calculation is finished successfully but the PMB calculation process remains Active	OBK GCT + 00:11	OBK GCT + 00:11	OBK GCT + 00:23	SIDC_JOINT_FAL_01 IDA_JOINT_EXC_03
9	Cloud Calculation step not set to Active even if all files are received and the PMB Target Time is reached	OBK GCT + 00:00	OBK GCT + 00:06	OBK GCT + 00:23	SIDC_JOINT_FAL_01 IDA_JOINT_EXC_03

2.2. Process clarification

As a general guideline, the backup procedure has to be applied as soon as an incident occurs and an Incident Committee has to be triggered according to the SIDC_JOINT_FAL_01 procedure.

As soon as a PMB or Algorithm issue is detected, the concerned IDA NEMO Operators will involve their local IT department in solving the issue.

Case 1: The Coordinator PMB is down

At OBK GCT + 00:06, if the Coordinator PMB is down and the IDA NEMO Coordinator's Calculation cannot start, the IDA NEMO Coordinator must start an Incident Committee as described in the SIDC_JOINT_FAL_01 procedure.

In the Incident Committee, the IDA NEMO Coordinator will check that the calculation has started successfully in all other PMBs.

Depending on the case, the following actions have to be performed:

- a. **If only the IDA NEMO Coordinator has this problem, and the coordinator switch can be completed before OBK GCT + 00:23**, then a switch between IDA NEMO Coordinator and IDA Backup Coordinator roles will be performed, as described in the IDA_NEMO_OPE_01 procedure.

The PMB issue will be investigated with the PMB Provider at the end of the Market Coupling Session, according to the IDA_NEMO_FAL_02 procedure.

- b. **If all the PMBs have the same problem** and there is no valid solution at OBK GCT + 00:23, the IC will declare the IDA Cancellation according to the IDA_JOINT_EXC_03 procedure. Then the IDA NEMO Coordinator contacts the PMB Provider and the Algorithm Provider according to IDA_NEMO_FAL_02 and IDA_NEMO_FAL_03 procedures.

Case 2: Calculation cannot start because of an Algorithm technical issue

If the calculation cannot start, [REDACTED] will indicate a problem in starting the Algorithm, the IDA NEMO Coordinator must start an Incident Committee as described in the Procedure SIDC_JOINT_FAL_01.

Depending on the case, the following actions have to be performed:

- a. **If only the IDA NEMO Coordinator has this problem**, then a switch between IDA NEMO Coordinator and IDA NEMO Backup Coordinator roles will be performed, as described in the Procedure IDA_NEMO_OPE_01.

The Algorithm issue will be investigated with the Algorithm Provider at the end of the Market Coupling Session, according to the IDA_NEMO_FAL_03 procedure.

- b. **If all the PMBs have the same problem**, and there is no valid solution at OBK GCT + 00:23, the IC will declare the IDA Cancellation according to the IDA_JOINT_EXC_03 procedure. Then the IDA Coordinator contacts the PMB Provider and the Algorithm Provider according to IDA_NEMO_FAL_02 and IDA_NEMO_FAL_03 procedures.

- c. **If only a PMB Non-Coordinator has this problem**, the concerned IDA NEMO Operators will skip its Shadow Calculation in order to receive the IDA NEMO Coordinator's Results on time and avoid a delay of the Market Coupling Session.

The Algorithm issue will be investigated with the Algorithm Provider at the end of the Market Coupling Session, according to the IDA_NEMO_FAL_03 procedure.

Case 3: Calculation cannot start because the Algorithm indicates a problem in validating the

input data

In case the input data received in the PMB is not validated by the Algorithm, [REDACTED] will be received [REDACTED]. Additionally, the Algorithm log will show one of the two following messages:

- code 301: *Algorithm termination: reading data failed*
- code 302: *Algorithm termination: invalid data*

If the IDA NEMO Coordinator receives [REDACTED], an Incident Committee will be started as described in the SIDC_JOINT_FAL_01 procedure.

3.1 If the IC succeeds to determine before OBK GCT + 00:23 which Operational NEMO has sent the invalid input data

Depending on the case, the following actions have to be performed:

- a. The related IDA NEMO Operator needs to send the valid input data by using the Local PMB.
- b. In order to receive the new input data, all PMBs are set to Manual mode and the MCS is restarted, according to IDA_NEMO_EXC_01. Once the valid input data is received in the PMB, all PMB are switched back to Automatic mode in order to start the calculation at the same time.

If this issue delays the Calculation in a way that Calculation has not finished with a valid solution at OBK GCT + 00:23, the Incident Committee declares the IDA Cancellation according to the IDA_NEMO_EXC_03 procedure.

3.2 If the IC cannot determine before OBK GCT + 00:23 which Operational NEMO has sent the invalid input data

In this case, the issue is investigated by the IC. As soon as the Operational NEMO having sent the invalid input data is identified, the concerned PMB IDA NEMO Operator needs to send a new valid input data by using its Local PMB.

Case 4: Calculation needs to be manually stopped because of incorrect Order Data or Network Data

During the calculation process, if one IDA NEMO Operator informs the IDA NEMO Coordinator that their Order Data or Network Data is incorrect, an Incident Committee will be started as described in the procedure SIDC_JOINT_FAL_01.

The concerned IDA NEMO Operator explains in the IC why the initial Order Data or Network Data file was incorrect and checks internally that the Order Data or Network Data is actually incorrect. The concerned IDA NEMO Operator requests to submit a correct Order Data or Network Data. Deadline for request for stopping calculation is OBK GCT + 00:06.

The calculation should only be stopped once the concerned IDA NEMO Operator has confirmed in the IC that they are ready to submit the corrected Order Data or Network Data. The IDA NEMO Coordinator starts the coordination between all PMBs. The IDA NEMO Coordinator will request all IDA NEMO Operators to go to Manual mode and stop the calculation and restart the Market Coupling Session according to the IDA_NEMO_EXC_01 procedure.

Once the new version of Order Data or Network Data is received, all PMBs will be switched back to Automatic mode in order to start the calculation at the same time.

Because of the delay on the reception of the new version of Order Data or Network Data, if the calculation has not finished with a valid solution before IDA OBK GCT + 00:23 (OBK GCT + 00:06 min start of calc + 00:08 minutes of calculation + 00:09 min contingency), the Incident Committee declares the IDA Cancellation according to the IDA_JOINT_EXC_03 procedure.

If the concerned IDA NEMO Operator is not able to apply this process, the IDA NEMO Operator has the

right to inform in the IC that a negative preliminary confirmation will be sent due to the incorrect Order Data. Consequently, the Incident Committee will declare the IDA Cancellation according to the IDA_JOINT_EXC_03 procedure.

Case 5: Calculation is still ongoing even if the Calculation Time Limit is exceeded

If the Algorithm does not find a valid solution that ends in a termination code 401,402,411,412,441,442,451 or 452 (the solution codes defined in the IDA_NEMO_NOR_04 procedure) within the Calculation Time Limit (4+1 minutes), the Calculation will be automatically extended with the contingency time and the Algorithm Log will display a warning message (solution code 261: *Initial time limit reached without OK solution, continuing*).

The IDA NEMO Operator will check in the IDA Session Call if the other PMBs have already found a valid solution and if their Calculation process is completed.

Depending on the case, the following situations can be encountered:

5.1 If the IDA NEMO Coordinator's Calculation is ongoing even if the Calculation Time Limit is exceeded

If the IDA NEMO Coordinator has not found a valid solution that ends in a termination code 401, 402,411,412, 441,442,451 or 452, its calculation will be automatically extended.

An IC will be started as described in the SIDC_JOINT_FAL_01 procedure.

How to solve the issue:

The IDA NEMO Coordinator will ask in the IC if at least another PMB has found a valid solution and if their Calculation process is completed.

Depending on the case, the following actions have to be performed:

a) If other PMB has already finished the Calculation with a valid solution, a switch between the IDA NEMO Coordinator and the IDA Backup Coordinator/another PMB (even of IDA NEMO Operator) has to be performed according to the following steps:

- All the IDA NEMO Operators switch their Local PMB to Manual Mode;
- The IDA NEMO Operator which completed the Calculation process with a valid solution takes over the IDA NEMO Coordinator role and instructs all IDA NEMO Operators to apply the steps listed in the IDA_NEMO_OPE_01. procedure, Table 2;
- All the IDA NEMO Operators confirm if the IDA NEMO Coordinator's Results file has been received in the Local PMB;
- All the IDA NEMO Operators check that the Preliminary Confirmation step is Active.

The Algorithm issue will be investigated with the Algorithm Provider at the end of the Market Coupling Session, according to the IDA_NEMO_FAL_03 procedure.

How to proceed:

As soon as one PMB has finished the calculation with a valid solution (any of the solutions listed in the IDA_NEMO_NOR_09 procedure), the concerned IDA NEMO Operator gives this update in the IC and the IDA NEMO Coordinator will instruct all IDA NEMO Operators to perform the following actions:

- i. All the IDA NEMO Operators switch their Local PMB to Manual Mode.
- ii. If the PMB having found the solution is not the IDA NEMO Coordinator, a switch between the IDA NEMO Coordinator and the PMB that has found a solution has to be performed and the new PMB IDA instructs all IDA NEMO Operators to apply the

steps listed in the IDA_NEMO_OPE_01. procedure, Table 2.

Remark: If several PMBs finished the calculation with a valid solution at the same time, the next Coordinator in the Rotational Scheme will be the one who takes over the IDA NEMO Coordinator role.

- iii. All the IDA NEMO Operators confirm if the IDA NEMO Coordinator's Results file has been received in the Local PMB;
- iv. All the IDA NEMO Operators check if the Preliminary Confirmation step is *Active*.

b) If none of the PMBs have finished the Calculation with a valid solution, the following actions need to be performed without the IDA NEMO Coordinator's instructions:

- Let the calculation run without stopping it.
- The maximum Extension Time of the calculation is configured as the IDA cancellation deadline.
- The solutions described above are aimed at finding a valid solution that allows the Market Coupling Results to be confirmed as final before the IDA cancellation deadline.

c) How to proceed at OBK GCT + 00:23 if NO PMB has finished the Calculation but one or more PMBs display that there is at least 1 solution found

- The IC will declare the IDA cancellation according to the IDA_JOINT_EXC_03 procedure.

d) How to proceed if no valid solution is found or if the solution is found too late to prevent the IDA cancellation:

- The IC will declare the IDA cancellation according to the IDA_JOINT_EXC_03 procedure.

5.2 If a PMB Non-Coordinator's Calculation is ongoing even if the Calculation Time Limit is exceeded but the IDA NEMO Coordinator has already found a valid solution

The concerned IDA NEMO Operator will indicate in the Daily Operational Call that his Local PMB did not find a solution within the Calculation Time Limit.

In this case, no IC will be started.

The IDA NEMO Operator for which the Calculation process is still running will need to perform the following actions in order to activate the Preliminary Confirmation process:

- Make sure the IDA NEMO Coordinator's Results file has been received in the Local PMB;
- Switch the Local PMB to Manual mode;
- Skip the Calculation process;
- Switch the PMB back to Automatic mode;
- Check that the Preliminary Confirmation step became Active.

The Algorithm issue will be investigated with the Algorithm Provider at the end of the Market Coupling Session, according to the IDA_NEMO_FAL_03 procedure.

Case 6: Calculation cannot proceed due to an Algorithm technical issue

If the Algorithm is down during the Calculation process, a notification will be displayed in the PMB.

Depending on the case, the following actions have to be performed:

6.1 If only the IDA NEMO Coordinator has this problem

A switch between IDA NEMO Coordinator and IDA Backup Coordinator roles will be performed, as described in the Procedure IDA_NEMO_OPE_01.

The Algorithm issue will be investigated with the Algorithm Provider at the end of the Market Coupling Session, according to the IDA_NEMO_FAL_03 procedure.

If there is no positive Global Preliminary Confirmation at OBK GCT + 00:30 the IC will declare the IDA cancellation according to the IDA_JOINT_EXC_03 procedure.

6.2 If only a PMB Non-Coordinator has this problem

The concerned IDA NEMO Operators will skip its Shadow Calculation (if this is technically possible) in order to receive the IDA NEMO Coordinator's Results on time and avoid a delay of the Market Coupling Session.

The Algorithm issue will be investigated with the Algorithm Provider at the end of the Market Coupling Session, according to the IDA_NEMO_FAL_03 procedure.

Case 7: Calculation is finished with an unexpected error

If the calculation is finished with an unexpected error, the following code is displayed in the calculation log: 500 - *Algorithm termination: unexpected error*.

If the IDA NEMO Coordinator receives this notification, an Incident Committee will be started as described in the SIDC_JOINT_FAL_01 procedure.

Depending on the case, the actions listed in Case 5.1 and Case 5.2 have to be performed, the only difference being that the Calculation does not have to be manually stopped, since it has stopped itself with an error message.

Case 8: Calculation is finished successfully but the PMB calculation process remains Active

If the IDA NEMO Coordinator's calculation ends successfully with a valid solution but the Market Coupling Results are not sent from the Algorithm database to the PMB, the PMB calculation process will remain in *active* state. In this case, the Market Coupling Results will not be distributed to the Cloud.

If the IDA NEMO Coordinator encounters this issue or if the IDA NEMO Coordinator is informed that another IDA NEMO Operator encounters this issue, an Incident Committee will be started as described in the procedure SIDC_JOINT_FAL_01.

Depending on the case, the following actions have to be performed:

8.1 If the IDA NEMO Coordinator has finished the calculation with a valid solution but the PMB Calculation remained active

A switch between IDA NEMO Coordinator and IDA Backup Coordinator roles has to be performed according to the IDA_NEMO_OPE_01. procedure.

The initial IDA NEMO Coordinator has to press the 'Skip' button in order to stop the Shadow Calculation and receive the IDA NEMO Coordinator Results in the Local IT System.

The PMB issue will be investigated with the PMB Provider at the end of the Market Coupling

Session, according to the IDA_NEMO_FAL_02 procedure.

8.1.1) If all PMBs have the same problem

Then the IC will declare the IDA cancellation according to the IDA_JOINT_EXC_03 procedure.

8.2 If an IDA Non-Coordinator PMB encounters this issue

The IDA NEMO Operator has to press the 'Skip' button in order to stop the Shadow Calculation and receive the IDA NEMO Coordinator Results in the Local NEMO IT System.

The PMB issue will be investigated with the PMB Provider at the end of the Market Coupling Session, according to the IDA_NEMO_FAL_02 procedure.

Case 9: Cloud Calculation step not set to *Active* even if all files are received and the PMB Target Time is reached

At **OBK GCT + 00:06** (the PMB Target Time), if all the Network Data and Order Data files are in the PMB but the Cloud Calculation step is not automatically set to *Active*, the backup solution is the following:

- The PMB is switched to Manual Mode;
- The PMB is switched back to Automatic Mode.

If the IDA NEMO Coordinator encounters this issue and the backup solution mentioned above does not solve the issue, an IC is immediately triggered according to the SIDC_JOINT_FAL_01 procedure. If the issue still persists after applying this solution, the PMB Backup Coordinator takes over the IDA NEMO Coordinator role according to the IDA_NEMO_OPE_01. procedure.

If more PMBs are having this issue, during the IC, the IDA NEMO Coordinator will coordinate all the IDA NEMO Operators for applying the above-mentioned solution. Once all PMBs are switched back to Automatic mode, all IDA NEMO Operators will confirm in the Incident Committee if the Cloud Calculation step becomes *Active*.

2.3. Incident investigation management

At the end of each day on which an incident occurs, the IDA NEMO Coordinator is responsible for sending a detailed Incident Report to all the parties, as described in the SIDC_JOINT_FAL_01 procedure, and provide this report to the OPSCOM.

2.4. Operational manual reference

See chapter *Calculation in the Operational Manual (User Guide provided by Unicorn)*