Dialogue Code for expressing balancing orders to generation sites

V3.1

CONTENTS

1. Background and purpose of the document

1.1 Why a dialogue code?

During the balancing process, RTE and Balancing Service Providers are required to send orders to generation groups describing their expected operation, in terms of:

- Active power delivered over the network,
- Frequency containment reserve (FCR) made available to the system (if the group participates in the primary frequency setting),
- Automatic frequency restoration reserve (aFRR) made available to the system (if the group participates in the automatic frequency restoration frequency setting).

This document deals with the definition and expression of orders defining this information, as part of the balancing mechanism: implicitly, when it comes to orders sent to power plants, these three types of instructions will be involved — knowing that, moreover, many other types of orders can be sent to power plants (voltage management, operating manoeuvres, etc.).

Compliance of the EDAs' behaviour with the balancing orders that are sent to Order Recipients (ROs) is essential for system management and reliability. To ensure compliance with balancing orders, each order must be clear and unambiguous, and must be executed in a timely manner in a real-time operating environment, including in tense incident situations: it must therefore have been defined in advance in its form and in its translation into a gesture of operation.

This document is limited to orders sent to EDAs consisting of generation groups as part of the balancing mechanism and does not address how to send redeclarations to intra-daily gate closures. The vocabulary is consistent with that used in the BRE/Balance Mechanism rules. The most frequently used acronyms are specified in the glossary 5.

1.2 Purpose of the document

This document is placed in an operating situation such that the responsibilities of RTE and generators are those defined in the RE/Balance Mechanism rules.

The main principles of this division of responsibility are as follows:

- In normal power system control situation, the final dispatch schedule to be followed by an EDP is transmitted by RTE through the TAO device. It is the result of the Forecast Dispatch Schedule which is transmitted to it by its Scheduling Agent, possible re-declarations, technical constraints and possible Balancing orders.
- In the event of the unavailability of the TAO Technical Device, the balancing orders are made by telephone.
- The Balancing Service Provider is obliged to implement the Balancing Orders addressed to it by RTE. Any Balancing Order accepted by the Order Recipient shall be deemed to be executed. In the event of a total or partial inability to execute a Balancing Order, the Balancing Service Provider shall inform RTE by telephone as soon as possible.

The rest of the document is devoted to the manner in which balancing orders are expressed in this context. It is organised as follows:

- the possibilities for describing the operating points of EDAs, either explicitly or implicitly and according to their technology (paragraph 3),
- description of the balancing orders themselves (paragraph 4).

2. Designation of EDAs

When the balancing orders are transmitted, the EDAs are designated by the name of the EDA mentioned in the Balancing Service Provider's balancing perimeter. Specific cases may exist and are mentioned in technical conventions.

In so-called "dual-fuel" generation groups, the fuel type will be associated with the EDA name, if necessary.

3. Operational setpoints

3.1 Operational setpoints for thermal groups

3.1.1 Specification per quadruplet

In order to manage the maximum and minimum power variations of conventional thermal groups and nuclear groups, balancing orders are transmitted as quadruplet. A quadruplet consists of a series of 4 values:

`(implicit code, x,y,z)`

having the following interpretation:

- The *implicit code* is a predefined code (see 3.1.2 and 3.1.3) characterising the set point desired by the balancing.
- x is the setpoint power, i.e. the active power to be delivered to the network, expressed in MW corresponding to the half-hour interval of the order;
- y gives the Frequency Containment Reserve in MW to be made available to the system;
- z is the expression in MW of the remotely adjusted half-band to be made available to the system.

The Frequency Containment Reserve (automatic frequency restoration, respectively) is specified as zero if the group does not participate in the frequency containment (automatic frequency restoration, respectively) setting.

Examples[1]:

The EDA ZZ0 shall produce 430 MW without participation in either frequency containment or automatic frequency restoration setting:

```
(PMD,430,0,0) on ZZ0
```

The EDA ZZ1 must produce 424 MW with a setting contribution of 6 MW in frequency containment:

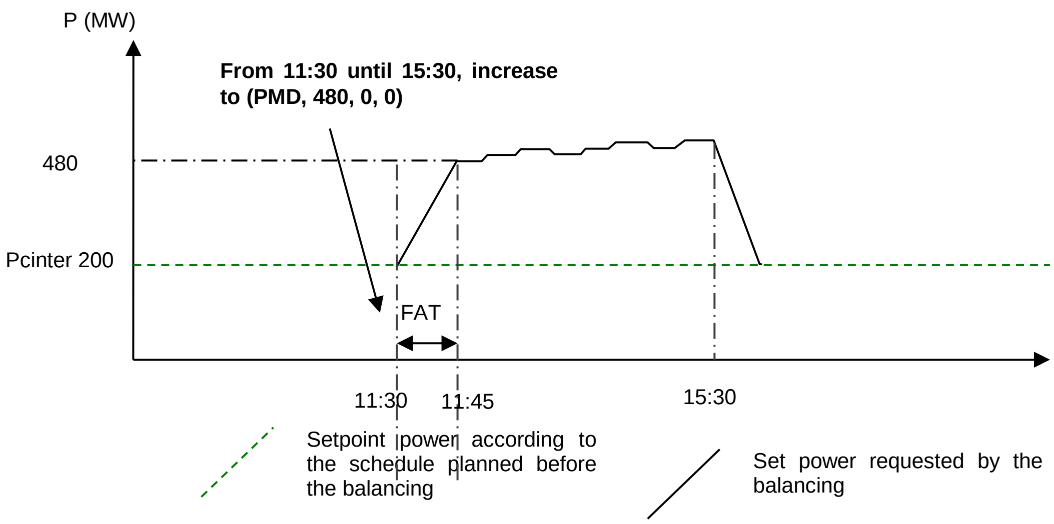
```
(PCmax,424,6,0) on ZZ1
```

The EDA ZZ2 must produce 416 MW with a participation in the setting of 6 MW in frequency containment and 8 MW in automatic frequency restoration:

```
(PC0max,416,6,8) on ZZ2
```

The set power associated with the implicit code is the set point on the half-hour transmission interval of the balancing order. It allows operators to verify the desired implicit code, knowing that the setpoint power can then evolve according to the powers declared in the Bid Usage Conditions, while the Frequency Containment Reserve and the automatic frequency restoration reserve are fixed over the entire duration of the balancing. The balancing service provider is then responsible for calculating the value of the setpoint to be reached for the implicit code transmitted at the end of the load change.

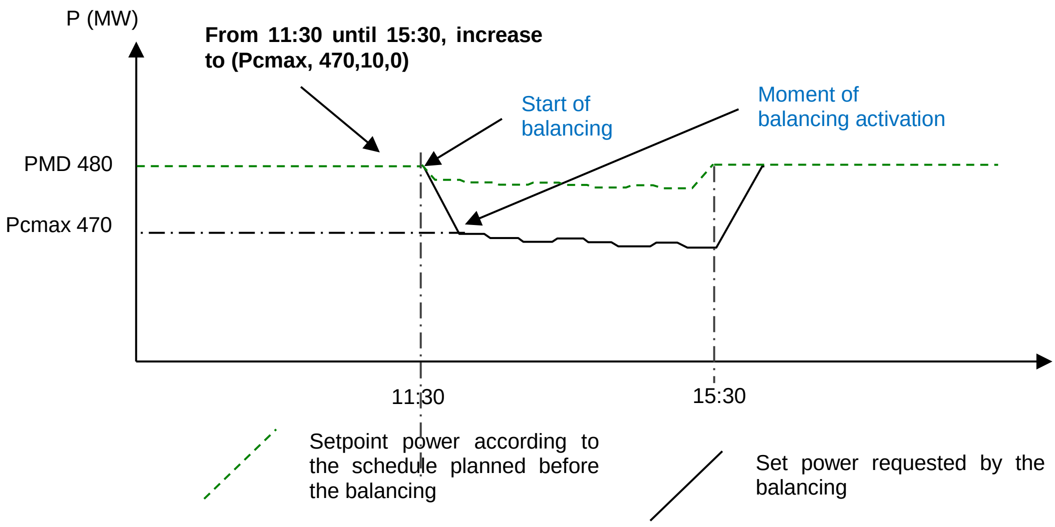
Example 1:



The 480MW setpoint power corresponds to the value of PMD on the half-hour interval after the Full Activation Time, i.e. the interval]11:30, 12:00]. Then the generation group's setpoint power varies depending on the time series of the PMDs reported in the Bid Conditions.

[1] See the following paragraphs for the meaning of the implicit codes

Example 2:



The 470 MW setpoint power is calculated from the value of PMD on the half-hour interval at the beginning of the balancing, i.e. the interval]11:30, 12:00]. Since these are small changes in load, this setpoint power value also corresponds to the setpoint power value at the time the balancing is activated. Then the generation group's setpoint power varies depending on the time series of the PMDs reported in the CUO (Bid Usage Conditions).

For ease of reference, in the remainder of the document, the values of PMD and MT from which the values of setpoint powers are derived are considered fixed during the balancing period.

3.1.2 Implicit codes that can be used in quadruplets for conventional thermal groups

To give a list and meaning of codes that can be used in the first position of a quadruplet, we use the following concepts:

- Frequency Containment Reserve (abbreviated as FCR): defined as the active power reserve available for the Frequency containment Frequency/Power Setting;
- Automatic Frequency Restoration Reserve (abbreviated as aFRR): otherwise known as the remotely set half-band, it is the power available for the automatic frequency restoration power frequency setting (RSFP), which can be released when the level increases from 0 to +1;

These frequency containment and automatic frequency restoration reserve contribution values are defined in the Technical Constraints Document and the Offer Terms of Use.

PMD	The power unit produces the Maximum Available Power (PMD), outside of frequency containment setting and remote setting. The PMD is the maximum net active power that the power unit can produce; its value depends on the conditions of the moment: weather, environment, state of the power unit... It may, if necessary, be greater than or less than the nominal power of the group.
PCmax	The power unit is in frequency containment setting, not under automatic frequency restoration setting; it provides the highest possible net electrical power, while ensuring that the FCR is available in case of frequency deviation.
PC0max	The power unit is in frequency containment setting and participates in automatic frequency restoration setting; it provides the highest possible net power, while ensuring that FCR + aFRR can be released in case of frequency deviation.
MT	The power unit is out of frequency containment and automatic frequency restoration setting; it is at least technical.
PCmin	The power unit is in frequency containment setting and out of automatic frequency restoration setting; it provides the lowest possible net electrical power, while ensuring that the FCR can be released in the event of a frequency deviation.
PC0min	The power unit participates in the frequency containment and automatic frequency restoration setting; it provides the lowest net power possible, while ensuring that FCR+aFRR can be released in case of frequency deviation.
Pl x	The power unit is out of frequency containment and automatic frequency restoration setting; it provides a net power of x MW. We talk about power to the limiter.
PCinter x	The power unit is in frequency containment setting and out of automatic frequency restoration setting; it is controlled to produce a net power of x MW when the frequency is 50 Hz. It participates in the frequency containment setting up to the FCR in case of frequency deviation.
PC0inter x	The power unit participates in the frequency containment and automatic frequency restoration setting; it is controlled to produce a net electrical power of x MW when the frequency is 50 Hz and the automatic frequency restoration setting level 0; in case of a frequency deviation, it ensures that FCR + aFRR can be released
Low Load	The power unit is out of frequency containment and automatic frequency restoration setting; it is below the minimum technical power. This point corresponds to low load operation and only applies to certain thermal groups.

Note: all of these orders use declarative setting (or remote setting) band values transmitted by the Producer. Any use of a fuel supplement or other supplementary offer should be explicitly requested orally.

There is no implicit order that may require, for example, to go to maximum power while retaining an earlier FCR value that is less than the declared value.

Example of orders on EDAs subject to derating:

When the EDA is subject to derating (see Glossary), the FCR value accompanying the implicit code corresponds to the FCR expected by RTE within the time required by the reliability requirements of the Technical Reference Documentation.

Examples:

Either a generation group with a PMD of 400 MW, a derating coefficient of 1.5, reporting values of FCR = 6 MW and aFRR = 20 MW, the PCmax value is equal to PMD-1.5 FCR, or the following set points :

The triplet accompanying a PCmax operating point is (391,6,0)

The triplet accompanying a PC0max operating point is (371,6,20)

3.1.3 Implicit codes that can be used in quadruplets for nuclear groups

To give a list and meaning of codes that can be used in the first position of a quadruplet in the case of a nuclear EDA, we use the following concepts:

- Frequency Containment Reserve (abbreviated as FCR): defined as the active power reserve available for the Frequency containment Frequency/Power Setting;
- Automatic Frequency Restoration Reserve (abbreviated as aFRR): otherwise known as the remotely set half-band, it is the power available for the automatic frequency restoration power frequency setting (RSFP), which can be released when the level increases from 0 to +1;
- RpMax is the sum of FCR and aFRR: in other words, the power unit setting capabilities are all assigned to the frequency containment setting.

These frequency containment and automatic frequency restoration reserve contribution values are defined in the Technical Constraints Document and the Offer Terms of Use.

PMD	The power unit produces the Maximum Available Power (PMD), outside of frequency containment setting and remote setting. The PMD is the maximum net active power that the power unit can produce; its value depends on the conditions of the moment: weather, environment, state of the power unit... It may, if necessary, be greater than or less than the nominal power of the group.
PCmax	The power unit is in frequency containment setting, not under automatic frequency restoration setting; it provides the highest possible net electrical power, while ensuring that the FCR is available in case of frequency deviation.
PC0max	The power unit is in frequency containment setting and participates in automatic frequency restoration setting; it provides the highest possible net power, while ensuring that FCR + aFRR can be released in case of frequency deviation.

PcRpmax	The power unit is in frequency containment setting and out of automatic frequency restoration setting; it provides the highest possible net power while ensuring that RpMax can be released in case of frequency deviation.
MT	The power unit is out of frequency containment and automatic frequency restoration setting; it is at least technical.
PCmin	The power unit is in frequency containment setting and out of automatic frequency restoration setting; it provides the lowest net power possible, while ensuring that RpMax can be released in case of frequency deviation.
PC0min	The power unit participates in the frequency containment and automatic frequency restoration setting; it provides the lowest net power possible, while ensuring that FCR+aFRR can be released in case of frequency deviation.
Pl x	The power unit is out of frequency containment and automatic frequency restoration setting; it provides a net power of x MW. We talk about power to the limiter.
PCinter x	The power unit is in frequency containment setting and out of automatic frequency restoration setting; it is controlled to produce a net power of x MW when the frequency is 50 Hz. It participates in the frequency containment setting up to RpMax in case of frequency deviation.
PC0inter x	The power unit participates in the frequency containment and automatic frequency restoration setting; it is controlled to produce a net electrical power of x MW when the frequency is 50 Hz and the automatic frequency restoration setting level 0; in case of a frequency deviation, it ensures that FCR + aFRR can be released

Note: all of these orders use declarative setting (or remote setting) band values transmitted by the Producer.

There is no implicit order that may require, for example, to go to maximum power while retaining an earlier FCR value that is less than the declared value. To achieve this, an explicit order is required, which requires that the corresponding value of the setpoint power (PMD - $FCR_{desired}$) be calculated beforehand.

3.1.4 Priority rule

In principle, if Balancing Service Providers provide up-to-date information to RTE on the technical constraints of EDAs through the CUO (Bid Usage Conditions), and if RTE complies with these technical constraints, the operating points will be achievable by the power units that make up the EDA.

However, in the event that an inconsistency between the triplet and the implicit code is detected or where the set point is not feasible by the group in view of its characteristics and constraints at the time, the Balancing Service Provider shall seek a close set point by seeking:

- First to respect the participation in the frequency containment setting indicated by the implicit code

- Then respect the participation in the automatic frequency restoration setting indicated by the implicit code
- Then, finally, to set an active power value that adjusts to meet the two preceding terms

The Balancing Service Provider shall indicate to RTE the correct implicit triplet-code correspondence as soon as possible; RTE confirms the balancing order with the quadruplet indicated by the Balancing Service Provider.

3.2 Operating points for hydraulic groups

There are two possibilities for specifying a set point for a hydraulic EDA:

- Explicit power, with participation (or not) in remote setting,
- Explicit power, with no precision of participation (or not) in remote setting.

The first form is to be used as systematically as possible (§ 3.2.1). The second form is described where an order that does not decide on whether to participate in the remote setting has still been passed[2] (§ 3.2.2).

An exceptional form, known as "power in delta", is reserved for certain specific EDAs (§ 3.2.3). Its use must be the subject of a prior agreement between RTE and the balancing service provider.

3.2.1 Explicit power with or without remote setting

In this type of operating point pass, only the desired value for the setpoint value to be produced by the EDA is indicated and whether the EDA should (or should not) participate in the automatic frequency restoration setting.

`x MW on XXX without remote setting`

The producer’s expected interpretation is as follows:

- the operating points of the groups are modified so that the overall power produced by EDA XXX increases to x MW;
- if the EDA groups are in a automatic frequency restoration setting, they leave — if they are not there, they do not return;
- if the groups are suitable for frequency containment setting (specified in the DCT - Technical Constraints Document), they must participate.

`x MW on XXX with remote setting`

This case is identical to the previous one, except that it is specified that the EDA must participate in the automatic frequency restoration setting:

- if the EDA groups are in automatic frequency restoration setting, they stay there — if they are not there, they go back.

It is the producer who determines the number of groups that need to be in operation to achieve this setpoint, optimising the overall performance of the facility. Participation in the

[2] In particular, when the network is no longer in the situation of normal operation and speed of action is a priority.

frequency containment setting can be inferred[3] from the power produced by each group[4], it is therefore unequivocally inferred once the number of groups in operation and the power assigned to each group are known. Participation in the automatic frequency restoration setting depends on the set point, it is provided in the DCT through the description of that set point.

The setpoint value may be accessible by different group start-up configurations, depending on whether the EDA is in automatic frequency restoration setting or not. However, there is no ambiguity since participation (or non-participation) in remote setting is explicitly specified[5].

3.2.2 Explicit Power, participation in remote setting not specified

It should be recalled that this formulation is considered a "degraded" version of the previous one, and that its use should be avoided.

In this type of operating point pass, only the desired value for the setpoint value to be produced by the EDA is indicated.

280 MW out of XXX

Participation (or non-participation) in the automatic frequency restoration setting must remain the same before and after the balancing order[6]. When the EDA is fully in reserve and has a Null Forecast Dispatch Schedule before balancing, participation in the setting then takes place according to the capacities indicated by the DCT: if the EDA is declared suitable for automatic frequency restoration setting, then it participates in it (with the level given by the operating point), otherwise it does not participate.

3.2.3 Delta power

This case — exceptional, let's remember — is similar to the previous one, except that the new setpoint power is given as a deviation from the previous power.

For example,

Raise 300 MW on ZZZ

Lower 200 MW on XXX

will lead the producer to set up a 300 MW overpower band relative to the previously planned schedule.

Participation (or non-participation) in the setting must remain the same before and after the balancing order[7]. When the EDA is fully in reserve and has a Null Forecast Dispatch Schedule before balancing, participation in the setting then takes place according to the capacities indicated by the DCT: if the EDA is declared suitable for automatic frequency restoration setting, then it participates in it (with the level given by the operating point), otherwise it does not participate.

[3] Information exchanged under the System Services contract
[4] In a few specific cases, it may vary significantly during the day depending on the upstream reservoir's rating: in this case, an exchange with the order recipient may enable RTE to refine its vision of the actual setting possibilities.
[5] This volume of participation can be modified to fit the new set point.
[6] This volume of participation can be modified to fit the new set point.
[7] This volume of participation can be modified to fit the new set point.

3.2.4 Case of hydroelectric pumped storage generation units

For hydroelectric pumped storage generation units, the use in pumping or turbine works must be systematically specified. However, in the event of an omission, the default turbine works will apply.

Pumping stations not participating in remote setting[8], the word "without remote setting" can be omitted without the risk of ambiguity.

Examples:

x MW on XXX without turbine works remote setting

y MW on YYY pumping

4. Balancing orders

4.1 Balancing orders with deferred effect

The purpose of a deferred balancing order is to request an amendment to the planned schedule of an EDA, at some point before the implementation of that amendment. This amendment can be expressed as follows:

- In a basic order — the schedule is modified over a single hourly range (an hourly range is defined as an interval between two time points);
- In a composite order — the schedule is modified over successive hourly ranges.

A time point allows you to identify a moment of the day. This may include:

- either one ***½ hour period***, of the set 00:30, 01:00,..., 24:00;
- or any other arbitrary point, for example 13:05.

A ***time range*** allows you to designate a time period framed by two points

For example, the hourly range]10:00, 14:30] refers to the total of the points between the two ½-hourly points 10:00 and 14:30 (excluding 10:00).

It should be noted that the concept of a ½-hourly point should not be confused with that of a ½-hourly interval, which refers to a time interval of one ½ hour, one of which is a ½-hourly point:

⇒ for example, the 2nd half-hourly interval of the day is the interval]00:30, 01:00] (also described as the “01:00 interval").

The dialogue code uses only the notion of points and not the notion of intervals, so there is no ambiguity of notation in the text in this regard.

It is possible that the hourly range(s) specified by the balancing order may include the time 00:00. However, there is no implicit end of balancing or return to the forecast dispatch

[8] At least for the current French stations.

schedule at when 00:00 is reached: the requested modulation must continue until the end of the range concerned, beyond 00:00.

In practice, deferred-effect balancing orders are set at ½-hourly points; however, even if this is not common, there may be times when delayed-effect balancing orders use time points that are not ½-hourly points, for example for a market coupling, decoupling or peak demand periods.

4.1.1 Condition of use

Generally, a deferred order has been moved to a time point P for action to begin at point P' (i.e. start of FAT) (P' of course being later than P). Following on from the principle that RTE passes balancing orders "as close as possible to real time" means that P cannot be too long before P'.

In practice, the slot in which a deferred-effect balancing operation can be passed is as follows:

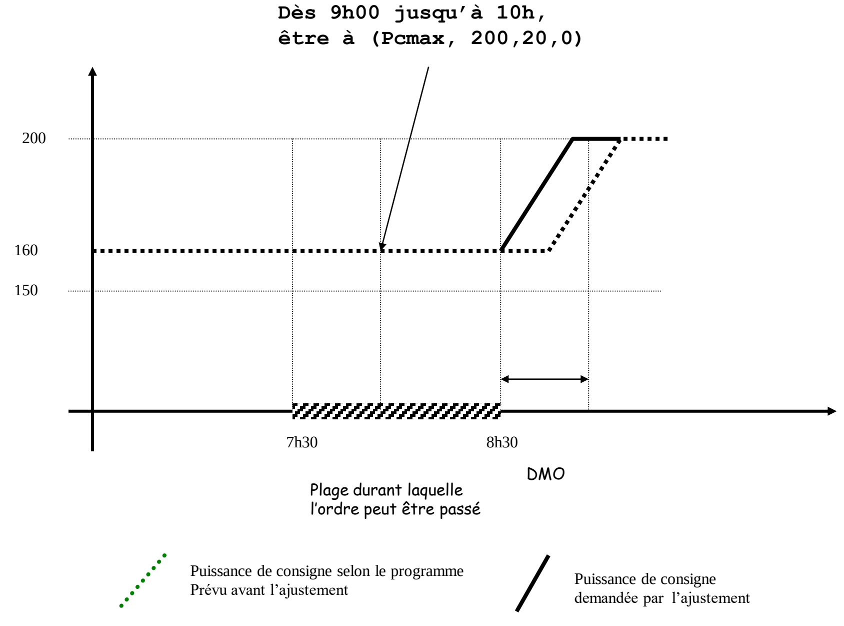
- The practice of exploitation will endeavour to ensure that P and P' are not too close so as not to cause confusion with orders with immediate effect.
- P may not be earlier than P'-1hour

Example:

Order

```
From 08:30 until 10:00 Increase to <PCmax, 200,20,0>
```

can be passed between 07:30 and 08:30. 08:30 is in fact (see next paragraph) the time at which the preparation of the transition begins, and from which the FAT runs, the transition to be completed no later than 08:30 am + FAT.



The cancellation of a balancing order is achieved by the transmission of a "counter-balancing operation", i.e. a new balancing order which gives the EDA instructions identical to those assigned to it before the first balancing. There is therefore no "**`Cancel`**" order as such.

Continued example

Order

`From 08:30 until 10:00 Increase to <PCmax, 200,20,0>`

passed at 07:30 may be cancelled at 08:00 in the following order:

`Return to Forecast Dispatch Schedule`

4.1.2 Elementary orders "As of", "From",

These orders are expressed as follows:

As of <P_1> until <P_2> increase to <Operating point>

As of <P_1> until <P_2> decrease to <*Operating Point*>

As of <P_1> until <P_2> <Operating Point>

Or, equally:

From <P_1> up to <P_2> increase to <Operating Point>

From <P_1> up to <P_2> decrease to <Operating Point>

From <P_1> until <P_2> <Operating Point>

`Increase` is used where the setpoint power required by the balancing order is greater than previously requested by the power unit (or plant); **`Decrease`** shall be used where the setpoint power required by the balancing order is less than previously requested by the power unit (or plant); finally, the third form (with no verb) can be used in all cases (including when the setpoint power is not changed[9]).

When the order requires a change in the setting setpoints, the setting setpoints must be implemented as soon as possible, starting at the time point P1.

For example, suppose that at 08:30 the schedule specifies the set point **`(600,20,0)`**, and that the EDA XXX is given the following basic order:

`From 09:15 until 10:00 (Pcomax, 600,20,40) on XXX`

So, from 09:15 until 10:00 XXX moves at the earliest to automatic frequency restoration setting, with a reserve set at 40.

[9] This may be the case with a change in participation in system services.

When the order requires a change in the EDA's setpoint power, the load variation must begin as soon as possible, from point P1, and the set power must be reached at the latest at P1+FAT. The contractual slopes of load variation may not be strong enough to be able to reach the initial setpoint power in less than one ½ hour (at point P1) and final setpoint power (at point P_2). In this case, the triplets given for the intermediate ½-hourly points are optional and indicative; only the triplets specified for the start and end points of the transition are prescriptive.

In the case of an EDA subject to compliance with a preparation leadtime, (EDA the generation of which is derived from gas), the preparation leadtime (DP) shall be predicted so that the change in load begins <P1>.

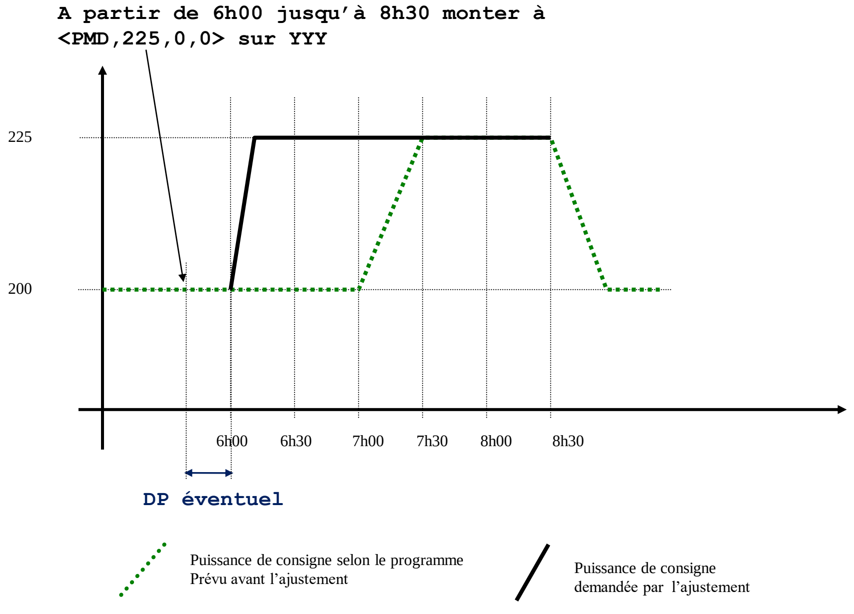
Example of an upward modulation in less than half an hour:

The EDA YYY being before 06:00 at the set point <**200.0.0>**, RTE sends the following balancing order:

From 06:00 until 08:30 increase to <PMD, 225,0,0> on YYYY

Assuming that the EDA’s capabilities allow it to modulate quickly (in less than 30 minutes), the expected behaviour is: from 06:01 am the EDA YYY begins to modulate as quickly as possible to <PMD, 225,0,0>. YYY may have reached its setpoint for example 10 minutes later, 20 minutes before 06:30. It then levels at <PMD, 225,0,0>.

If the EDA is subject to a preparation leadtime, the deadline is predicted so that the load change begins at 06:00. If the preparation leadtime is 10 minutes, it shall apply from 05:50.



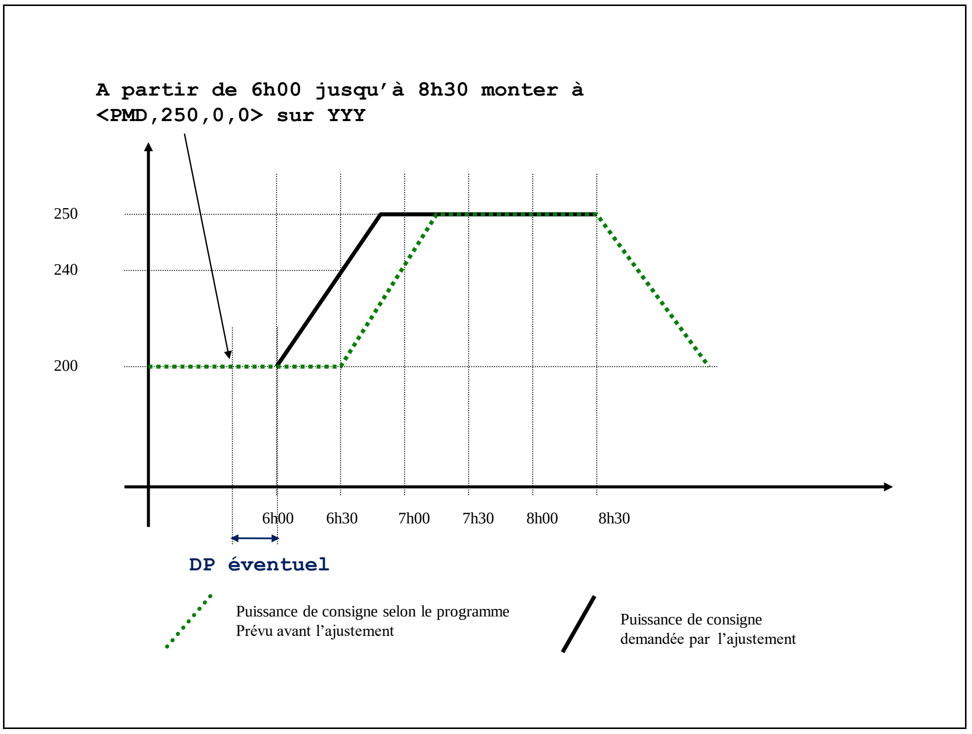
Example of an upward modulation in more than half an hour:

The EDA ZZZ being before 06:00 at the set point <**MT,200.0.0**>, RTE sends the following order:

From 06:00 until 08:30 go to <PMD, 400,0,0> on ZZZ

Assuming this time that ZZZ's capabilities do not allow it to modulate within ½ hour, the expected behaviour is: from 06:01 ZZZ starts the transition towards <PMD,250,0,0>. ZZZ may have reached this setpoint, for example, at about 06:40, and then maintain this policy until 08:30 as specified. The value of the 06:30 point is not necessarily specified[10] and is in any state indicative.

If the EDA is subject to a preparation leadtime, it is predicted so that the change in load begins at 06:00. If the preparation leadtime is 40 minutes, it shall apply from 05:20.



In some cases, the desired behaviour may be a "gentle slope" climb, i.e. below the minimum contractual slope; this situation is rare and is the subject of further discussion with the ITR, it is not dealt with in a normal order of the dialogue code.

4.1.3 Compound order

A compound order is a series of elementary orders. The time slots of these elementary orders cannot overlap and must be contiguous.

[10] If we want to clarify it, we must use a compound order, see 4.1.3 below

Example 1:

The next balancing operation, composed of two orders,

From 08:00 until 10:00 (PCmax,600,20,0) on XXX

From 09:00 until 10:00 (PC0max,560,20,40) on XXX

is incorrect.

However, this one is correct:

From 08:00 until 9:00 (PCmax,600,20,0) on XXX

From 09:00 until 10:00 (PC0max,560,20,40) on XXX

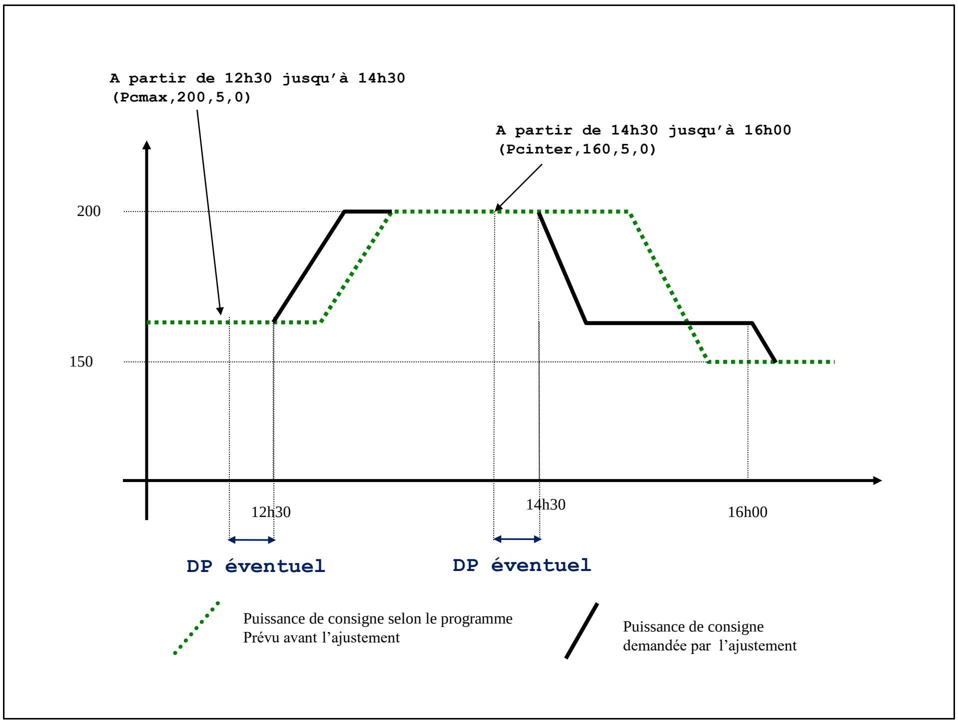
Example 2:

The following compound order:

From 12:30 to 14:30 (PCmax,200,5,0)

From 14:30 until 16:00 (PCinter,160,5,0)

will, assuming previously the schedule in the illustration, have the following effect:



It should be noted that the balancing order extends until 16:00. Beyond that, the policy value is specified by the last redeclared Forecast Dispatch Schedule: there is therefore a decrease to 150 MW (not explicitly requested), which is necessary to achieve the return on the values provided for in the forecast dispatch schedule.

4.2 Balancing orders with immediate effect

The order is not associated with a ½-hourly point and must start to be executed ***as soon as it is received***[11] (whether it is an upward or downward modulation).

When a balancing operation with immediate effect is in progress, the crossing of the hour 00:00 does not interrupt it implicitly. There is no automatic return to the forecast dispatch schedule ; on the contrary, the balancing continues until it is explicitly interrupted by RTE in accordance with the following paragraphs:

- by an order returning to the forecast dispatch schedule,
- by another balancing operation,
- or when the schedule is joined in the particular case of the “Predict" order.

Unlike deferred orders, immediate balancing orders are always elementary orders.

In the case of an EDA subject to compliance with the preparation leadtime, the preparation leadtime (Dp) shall start to apply from the time of receipt of the order.

4.2.1 With the words "until further notice"

The orders **`Increase, Decrease, Maintain, Skip to`** specify a set point that the EDA must reach as quickly as possible (if it is not already there). The term **`until further notice`** included in the order expression indicates that this set point must be complied with until a new balancing order is sent to amend it.

For the thermal sector, RTE uses this type of order when the operating conditions do not allow it to know the necessary length of the balancing at the time the order is to be made.

To end an order of the **`until further notice`** type, RTE may request a return to the forecast dispatch schedule (see 3.2.1.3) or make a new balancing order (see 3.3).

The wording of these orders is as follows:

`From now, Increase to <Operating Point> until further notice`

`From now, Decrease to <Operating Point> until further notice`

`From now, Maintain <Operating Point> until further notice`

`From now, Block <Operating Point> until further notice`

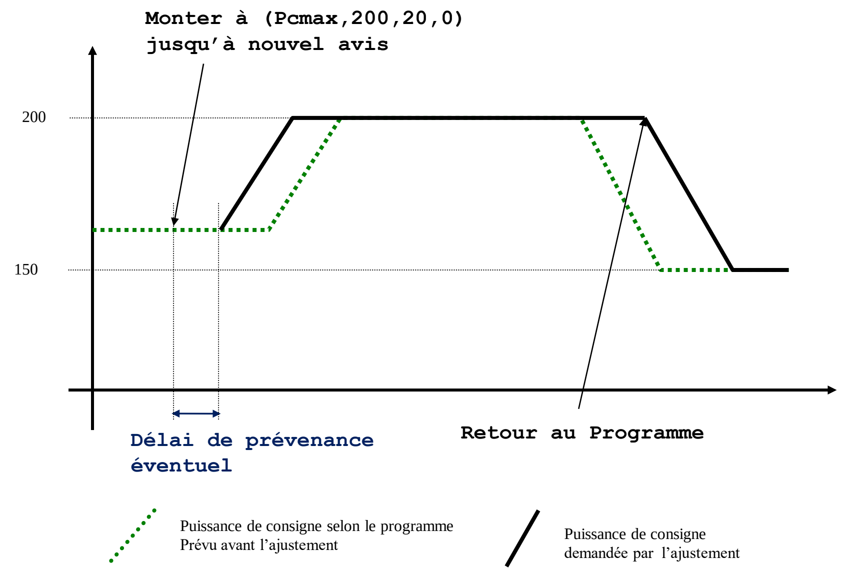
`From now, Skip to <Operating Point> until further notice`

`Increase`, **`Decrease`**, **`Maintain`** or **`Block`** are used respectively if the new operating point specifies a setpoint power, respectively, greater than, less than, or identical to, that of the operating point before the order is passed. You can use **`Skip to`** similarly, always valid regardless of the value of the previous operating point (only the form **`Skip to`** can be used when adjusting a hydraulic EDA whose operating point is expressed in delta (see 3.2.3).

[11] This is done within the necessary operating time limits: for example, a phase of preparation for the transition may be necessary — it is this phase of preparation that must begin as soon as the order is received.

Example:

An balancing order for predicted increase includes the words "until further notice": the EDA remains on the setpoint set by the balancing order and does not make the decrease provided for in the Forecast Dispatch Schedule. The decrease is subsequently caused by a new balancing order.



4.2.2 With Explicit End Date

When making an immediate order and knowing the duration of the balancing operation, the following formulations may be used:

From now, Increase to <Operating Point> up to <P1>

From now, Decrease to <Operating Point> up to <P1>

From now, Maintain <Operating Point> up to <P1>

From now, Block at <Operating Point> up to <P1>

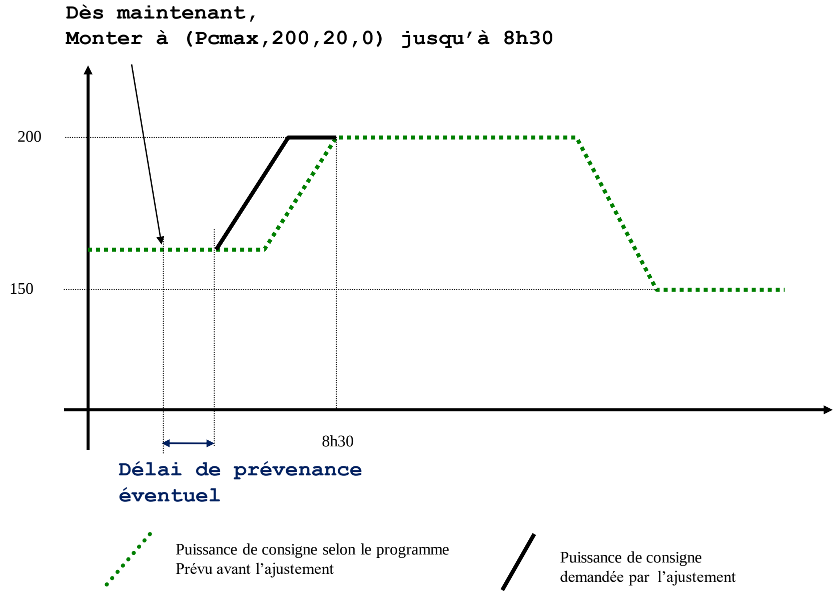
From now, Skip to <Operating Point> up to <P1>

Only the **Skip to** form can be used when adjusting a hydraulic EDA whose operating point is expressed in delta (see 3.2.3).

As soon as the time point P1 has been crossed, the EDAs concerned shall return as soon as possible to the planned forecast dispatch schedule, as soon as possible after acceptance of the order, within the time limits necessary for the management of the transition.

Example:

A thermal EDA is requested to predict an increase. This can be done by using an order of type "Increase", specifying the ad-hoc set point (the level value provided by the forecast dispatch schedule), and specifying the time point at which the balancing stops (08:30 in the example). Compared to the example in the previous paragraph, it should be noted that the EDA is making the expected decrease, without the need to make a specific order for this.



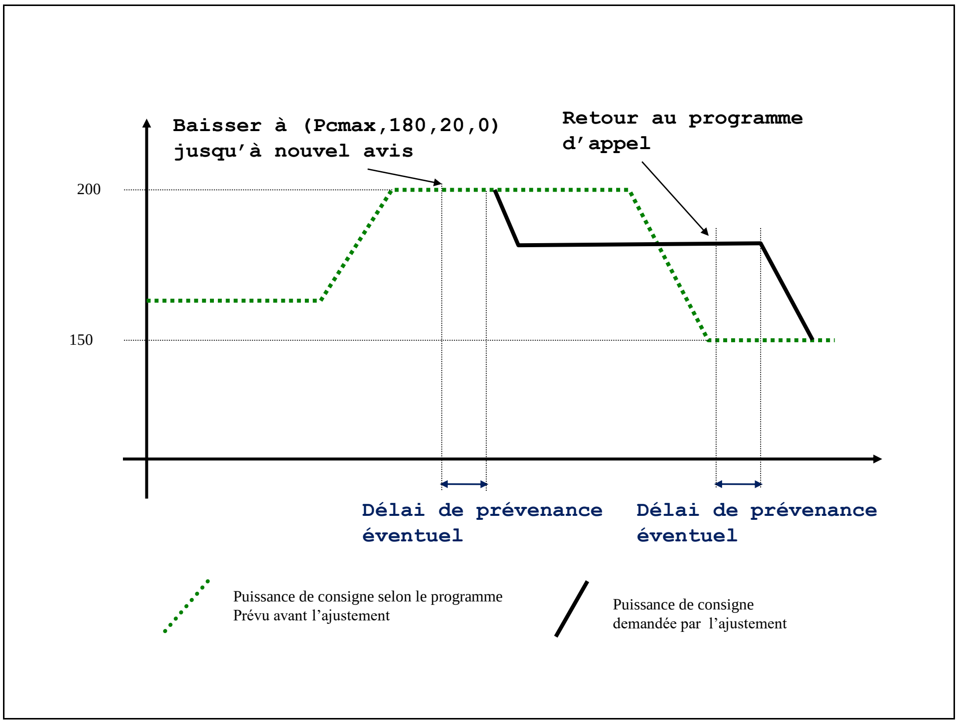
4.2.3 Return to Forecast Dispatch Schedule

The order **`Return to Forecast Dispatch Schedule`** is used to terminate an ongoing balancing operation and all possible deferred balancing operations already transmitted that would have taken effect later.

The EDA returns to the last redeclared forecast dispatch schedule as soon as possible (from the acceptance of the order, within the time required for the management of the transition).

`From now, back to the forecast dispatch schedule on ZZZ`

In the case of an EDA subject to compliance with the preparation leadtime, the preparation leadtime (DP) shall start to apply from the time of receipt of the order.



4.2.4 Predict

When an EDA[12] has to make an up or down modulation, a balancing operation may request an immediate prediction of this modulation — this modulation may be required by the last redeclared schedule or by a deferred balancing operation.

The order is as follows:

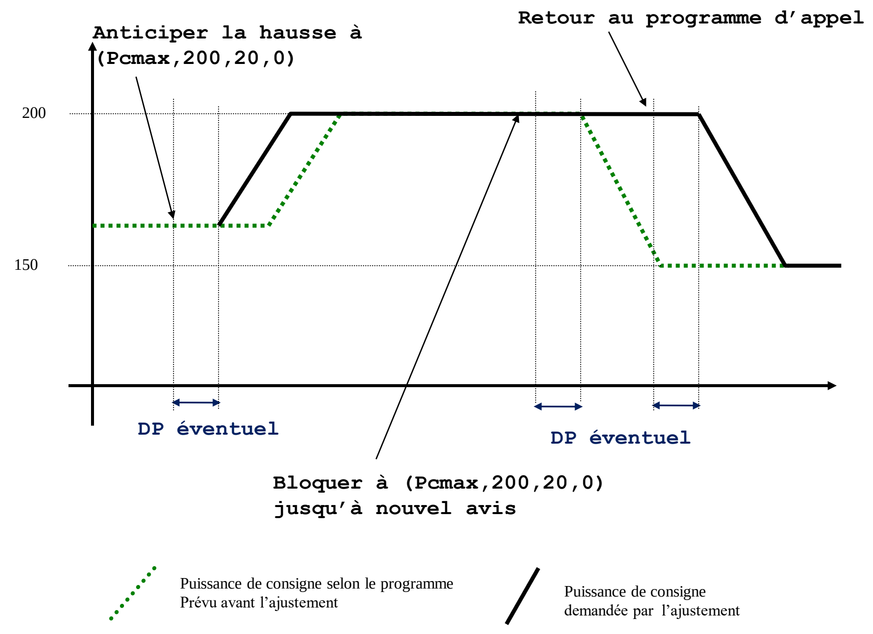
Predict the increase [to <Operating Point>] on <EDA>

Predict the decrease [to <Operating Point>] on <EDA>

The square brackets [] indicate that the set point to be reached after the increase or decrease is not necessary for the order to be made. However, the receiver of the order may ask RTE to remove any ambiguity. The balancing shall cease as soon as the date originally planned for modulation is reached.

[12] Interpreted as the sum of the constituent EDP schedules where appropriate.

With these orders, the balancing operations illustrated in the example in 4.2.1 may be rephrased as follows:



It should be noted that it is now necessary to prevent the decrease at the time originally foreseen by a new balancing order.

4.3 Specific market coupling cases and generation unit decoupling

When a generation unit has to connect to the network, the information that is important for the operation is not the actual time of market coupling, but the time from which the generation unit can effectively debit the desired setpoint power. The order is thus formulated as:

Market coupling of <EDA> to reach <Operating Point> at <P'$_1$>

If RTE wants to know the actual time of market coupling, it can ask the producer to provide the information in return as soon as possible (not necessarily immediately).

In the case of decoupling, RTE specifies the time at which the generation unit starts its decoupling in order to decouple. The actual decoupling time may be requested from the producer in return when the order is sent to it:

From now, Decrease with view to stop <EDA>

From <P$_2$> Decrease with view to stop <EDA>

Examples:

The market coupling of the EDA ZZZ must allow it to produce <PCmax,250,20,0> from 08:00:

ZZZ market coupling to reach <PCmax,250,20,0> at 08:00

YYY starts its decrease at 19:00 to stop:

From 19:00, Decrease with view to stop YYY

4.4 Superimposed balancing orders

This paragraph sets out the expected behaviour of an EDA when RTE issues a new balancing order for a previously adjusted time slot. For this purpose we will distinguish several cases, depending on the nature of the initial balancing and the new order received:

- Initial balancing is unrestricted
- The initial balancing is restricted and the new balancing is restricted,
- The initial balancing is restricted and the new balancing is a **JNA** " with no end date,
- The initial balancing is restricted and the new balancing is a **return to forecast dispatch schedule**".

It should be recalled that a restricted balancing operation is a balancing operation whose effect is explicitly or implicitly restricted in time when transmitted. This category therefore includes the following orders:

- **As of <P1> until <P2>...**
- **From <P1> until <P2>...**
- **Market coupling**
- **From <P2> Decrease with view to stop...**
- **From now,... until <P2>**
- **Predict...**

By contrast, the only unrestricted balancing operations are:

- **From now... until further notice**
- **Return to Forecast Dispatch Schedule**

In summary, the principles outlined in the following paragraphs are as follows:

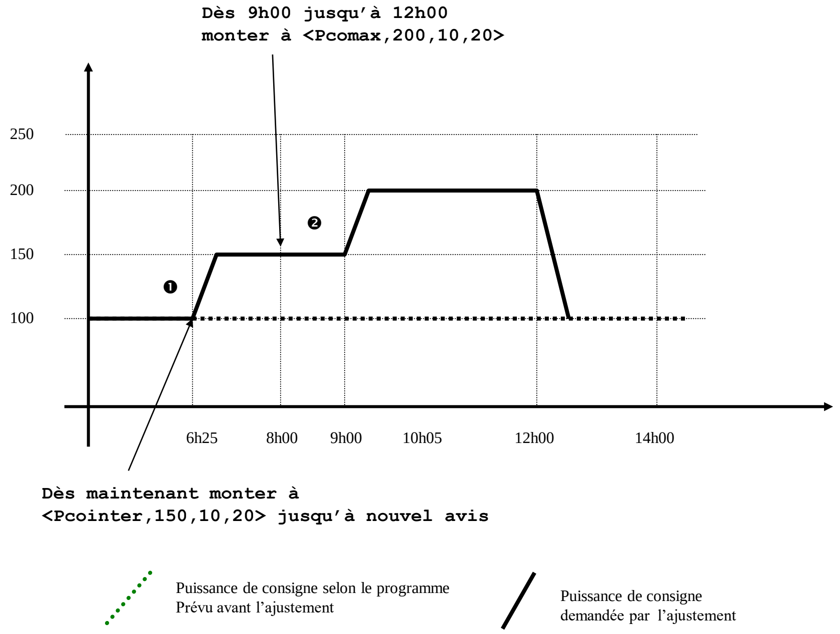
- A new restricted balancing operation overwrites a possible restricted balancing operation previously passed on the only intersection time slot;
- An until further notice order overrides any previous balancing operations;
- A return to the forecast dispatch schedule order overwrites any previous balancing operations.

4.4.1 Initial balancing is unrestricted

This is a simple case, because sending a new balancing operation simply closes the balancing operation as soon as the transition corresponding to this new balancing commences. So there is no balancing superimposition as such.

Example (without preparation leadtime):

- The forecast dispatch schedule is constant at 100 MW.
- At 06:25 RTE passes an immediate order to increase to <PC0inter, 150, 10, 20> until further notice.
- At 08:00, RTE passes a deferred balancing order for an increase to 200 MW from 09:00



From 08:00 to 09:00, the EDA remains in balancing at 150 MW, as requested by the first order. At 9:00 it starts the increase transition corresponding to the second balancing operation, and simultaneously the first balancing order is closed. At 12:00, the second balancing operation stops and the EDA returns to its forecast dispatch schedule, the first balancing operation being closed.

4.4.2 The initial balancing operation is restricted and the new balancing operation is restricted

In this case, the order that came last predominates and cancels the previous order on the intersection part of the time slots. This implies in particular that when the second balancing operation ceases, where appropriate the first may resume its application if its time range is not yet completed.

Example (without preparation leadtime):

Suppose that the initial schedule of EDA XXX is as follows:

active power of 150 MW from 6:00 until 12:00

(See black unbroken line in illustration)

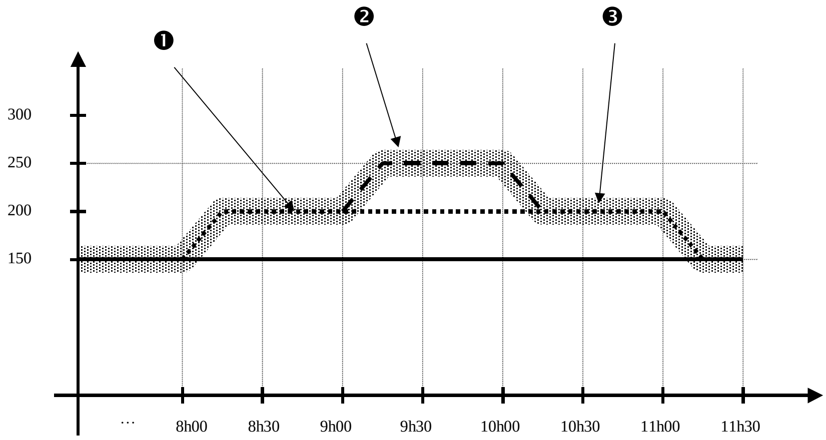
At 07:00, RTE passes the following balancing operation:

From 08:00, Increase to 200 MW until 11:00

Then at 08:00, RTE transmits the new balancing order

From 09:00, Increase to 250 MW until 10:00

The expected behaviour will then be as follows:



In ❶, the EDA shall enter the transition period corresponding to the first balancing order. In ❷ the transition period begins for the second balancing operation. Finally, ❸, at 10:00, the EDA returns to the point of operation prescribed by the first balancing operation whose time slot is not finished as it lasts until 11:00.

4.4.3 The initial balancing operation is restricted and the new balancing operation received is unrestricted

An unrestricted balancing operation wipes out all previously reported balancing operations. In particular, unlike in the previous case, if the unrestricted balancing operation is interrupted, any deferred balancing operation that may have been passed before becomes ineffective.

Example (without preparation leadtime):

Case of prediction for lack of system service, followed by a decrease until further notice to ensure supply - demand balance.

In its forecast dispatch schedule, the EDA XXX is planned at maximum available power (<PMD,250,0,0>), then on the interval 18:00 (]17:30; 18h00]) passes as frequency setting (<PC0max,220,10,20>).

Due to a lack of system services found throughout the generation fleet, a first balancing operation passed at 14:00 allows prediction of the setting of XXX being passed:

`Anticipate a decrease to <PC0max,220,10,20> on XXX`

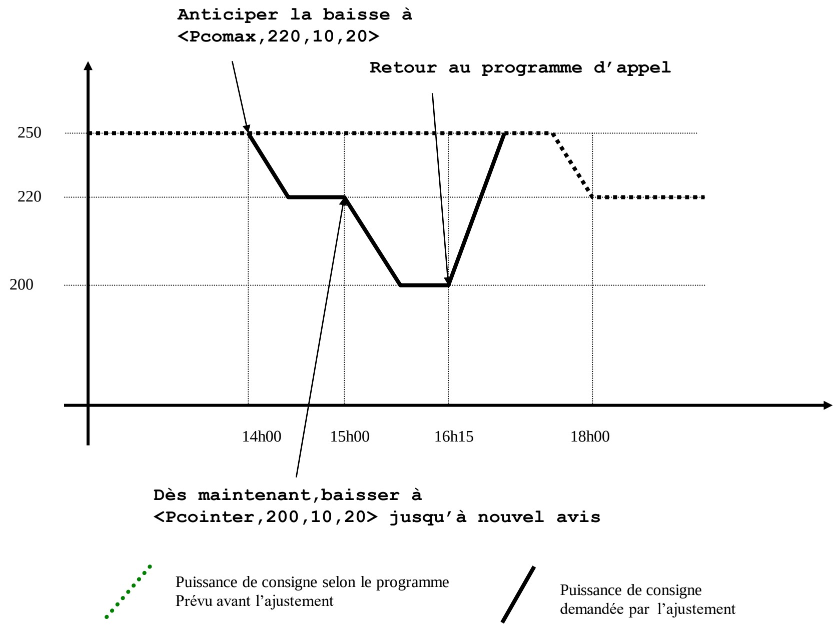
A second balancing operation is passed at 15:00 to adjust the demand balance following an afternoon trough more marked than expected:

`From now, decrease <PC0inter,200,10,20> until further notice`

At 16:15, following the loss of a generation unit, the decrease must be halted for XXX; RTE then sends the order:

`Return to Forecast Dispatch Schedule`

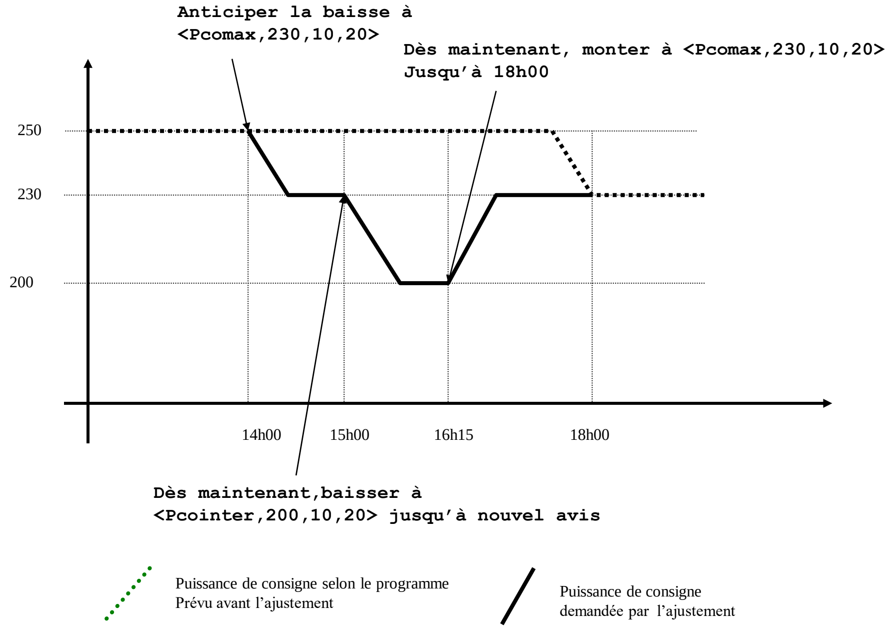
The unrestricted balancing operation "**From now, decrease <PC0inter,200,10,20>**" ceases, any balancing operation previously passed on XXX is no longer valid, notably the one passed at 14:00 requesting prediction of the passage to frequency setting. As a result, the EDA reverts to its originally planned forecast dispatch schedule, i.e. to the point of operation <PMD,250,0,0>. The switch to frequency setting will be on the 18:00 interval, as specified by the forecast dispatch schedule.



If at 16:15 RTE wishes to put an end to the decrease requested at 15:00, while retaining the advance setting requested at 14:00, RTE must make an explicit order including the triplet:

From now, increase to <PC0max,220,10,20> until 18:00

The balancing stops at 18:00 and the EDA then resumes the planned schedule, so remains on the point <PC0max,220,10,20>



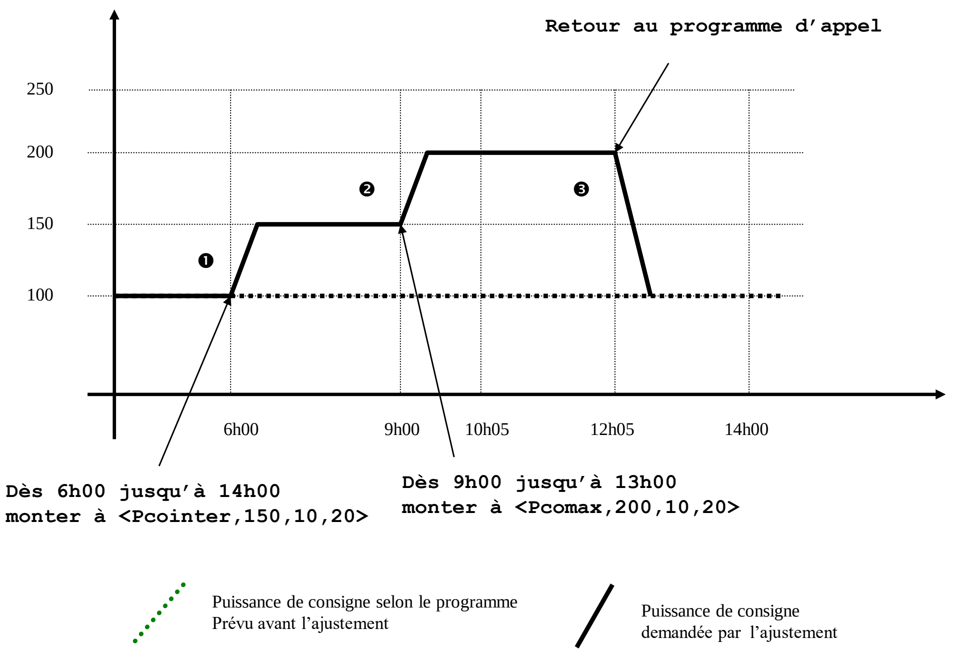
4.4.4 The new balancing received is a return to the forecast dispatch schedule

This order is sent to request a return to the last redeclared forecast dispatch schedule. It therefore interrupts not only any balancing in progress, but also all possible deferred balancing operations previously requested whose time range is not yet completed.

Example (without preparation leadtime):

The initial schedule is constant at <100,10,20>

- **Order ❶ passed at 05:03: From 6:00 until 14:00 increase to <PC0inter,150,10,20>**
- **Order ❷ passed at 08:04, From 9:00 until 13:00 increase to <PC0max,200,20,30>**
- **Order ❸ passed at 12:06: Return to Forecast Dispatch Schedule**



Order ❸ not only interrupts the order ❷, but also order ❶, which however covers an hourly range up to 14:00.

If RTE wishes to maintain the balancing of order ❶, it must make an explicit order mentioning the triplet:

From now until 14:00, go to <PC0inter,150,10,20>

5. Glossary

CCP (Generation Operation Centre): The physical entity of a producer acting directly on the controls of one or more Scheduling Entities.

Derating: This term applies to generation units consisting of two thermal generators, dependent on each other, where frequency response dynamics of the second are significantly slower than those of the first.

DP (Preparation Leadtime): Minimum time between the telephone notification of GRTgaz by the producer of the modified schedule of gas-powered generation of a quantity greater than or equal to Flexibility Tolerance and the beginning of its effective implementation by the producer.

FAT (Full Activation Time)**:** Deadline required to activate an Offer by an EDA

EDP (Scheduling Entity): Elemental scheduling unit corresponding to one or more Generation Units of an Injection Site Connected to the RPT or, if applicable, the RPD, for which a Forecast Dispatch Schedule is established by a Scheduling Agent.

EDA (Balancing Entity): An elemental unit of balancing, consisting of one or more geographically localised EDPs or one or more Extraction Points or Exchange Points, capable of responding to an RTE demand intended to inject or extract a given amount of power on the Network for a given period of time.

ITR (Real Time Contact): Entity that ensures Real Time interactions[13] with RTE on behalf of a Producer. In particular, this entity receives balancing orders sent by RTE and transmits them to the relevant CCPs.

Order recipient (RO): Individual designated under the scheduling* and/or Balancing to receive schedules* and/or Balancing Orders

END OF DOCUMENT

[13] These are asynchronous interactions, as opposed to the Intra-Daily ones for which interactions can only take place on the dates of gates closures.