

Storage Capacity Allocation Rules 2011

(version – January 21, 2011)

1 PURPOSE

These rules set out the principles for allocating storage capacity that have been adopted by STORENGY, pursuant to Article 10 of current modified Decree no. 2006-1034 of 21 August 2006 regarding access to underground natural gas storage facilities (hereinafter “the Decree”), and in accordance with the provisions thereof, as well as with the provisions of the current Ministerial Order on storage profiles and unit rights (hereinafter “the Ministerial Order”).

In accordance with Article 10 of the Decree, this document was submitted to the Energy Minister on January 21, 2011.

This document is not intended to govern transfers of quantities of gas that are already stored.

2 GENERAL PROVISIONS

Article 3 of the Decree provides that *“the use of underground natural gas storage facilities shall be made available first to transmission system operators and operators of underground natural gas storage facilities for the proper operation and balancing of transmission systems connected to such storage facilities.”* The storage capacity needed to meet these requirements is the subject of specific contracts.

In accordance with Article 3 of the Decree, remaining storage capacity¹ shall be allocated in order to meet the gas requirements of:

- End customers, who are classified with priorities 1, 2, 3 and 5;
- Persons other than end customers, who are classified within priorities 4, 6 and 7.

The mechanisms for allocating storage capacity introduced by STORENGY are described in Chapter 3 of this document.

In accordance with Article 14 of the Decree, any storage capacity that remains available after the priority requirements listed in Article 3 of the Decree have been met, will be placed on the market in a transparent and non-discriminatory manner.

Specific terms and conditions of sale concerning, for example, auctions for bundled and/or unbundled storage capacity, will be drafted and published on a case by case basis before being implemented.

¹ In accordance with Article 2 of the Ministerial Order, in GRTgaz areas, TIGF contributes the capacities defined in Article 2 of the aforementioned Ministerial Order for the purpose of meeting priority requirements, as defined in Article 3 of the Decree.

3 ALLOCATION OF STORAGE CAPACITY TO MEET END CUSTOMERS' GAS REQUIREMENTS

3.1 General provisions

Article 2 of the Ministerial Order defines, by volume and withdrawal rate, the storage capacity for all rights associated with end customers for the 2010-2011 storage year (the period from April 1, 2010 to March 31, 2011). The rest of this document deals only with the allocation of the part of this capacity relating to customers connected within transmission balancing zones from which STORENGY offers can be accessed (hereinafter "the Envelope").

In compliance with Articles 7, 8 and 9 of the Ministerial Order, the capacity of such "envelope" will be allocated in 3 allocation runs that will take place in 2010:

- on April 1, on the basis of the requests submitted by the suppliers to the relevant storage operators;
- on July 1, pursuant to requests submitted by suppliers on the basis of rights newly acquired since the April 1 allocation of the storage operators concerned.
- on November 1, pursuant to requests submitted by suppliers on the basis of rights newly acquired since the July 1 allocation of the storage operators concerned.
- outside these three dates, by putting up for sale the Envelope's capacity not allocated on the previous allocation dates, in compliance with Article 8 of the Decree.

STORENGY will publish on its website:

- no later than February 15, the terms and conditions of storage capacity access offers for capacity under the Envelope. These offers are hereinafter referred to as "Access Offers".
- no later than March 10, capacity allocated at the conclusion of Stage 6 of the April 1 allocation in respect of the offers published as described in the previous paragraph.
- no later than March 10 (respectively June 10), the terms and conditions for the commercialisation of storage access offers for capacity under the Envelope not allocated during the April 1 (respectively July 1) allocation.

The mechanisms described in the rest of this document explain the various stages of the procedures followed for each of these allocations.

Unless otherwise specified, all dates given in the rest of this document refer to year n for the storage year defined as the period from April 1 of year n to March 31 of year n+1. Furthermore, within the framework of this document, the withdrawal rate is calculated as 55% of the working gas volume withdrawn, taking account of all available options.

3.2 Operational implementation

3.2.1 Preamble: subcontracting of transmission

Any supplier engaging a third-party shipper to transport natural gas to customers in its portfolio and wishing to exercise its storage rights for the said customers, must forward its own details to the relevant transmission system operator together with a list of the customers supplied by each subcontracted shipper.

Hereafter in these rules, the supplier will be deemed to be the holder of the transmission contract on the date of despatch by the system operators, except in the event of a transmission or distribution subcontracting procedure duly declared no later than February 1 (respectively May 1 and September 1) for the April (respectively July and November) allocation run.

3.2.2 Timetable

Hereafter in these rules, the latest date at which a stage in an allocation run must be completed will be referred to as the Deadline. These dates are specified in the table below:

Run	April	July	November
Stage 1	Feb 8, 2010	May 10, 2010	Sep 08, 2010
Stage 2	Feb 11, 2010	May 12, 2010	Sep 10, 2010
Stage 3	Feb 15, 2010	May 18, 2010	Sep 15, 2010
Stage 4	Feb 18, 2010	May 20, 2010	Sep 17, 2010
Stage 5	Feb 22, 2010	May 25, 2010	Sep 21, 2010
Stage 6	Feb 26, 2010	May 27, 2010	Sep 23, 2010
Stage 7	Feb 26, 2010	May 31, 2010	Sep 27, 2010

3.2.3 Procedure for allocation runs

3.2.3.1 Stage 1: Communication of portfolio characteristics

The system operators are the operators of transmission systems and public distribution systems operating in the transmission balancing zones from which STORENGY offers are accessible. Please refer if necessary to the respective documents published by the systems operators detailing the process during the stage 1.

3.2.3.1.1 *Establishment of supplier portfolios*

The following dates have been set:

Run	April	July	November
Observation Date	February 1	May 1	September 1
Date of Request	April 1	July 1	November 1

The system operators will determine each supplier's customer portfolio by totalling the following elements:

- all customers actually supplied by the supplier on the Observation Date;
- for customers connected to the transmission system, customers added and/or lost² no later than the Date of Request, as specifically documented by contracts in the system operator's possession on the Observation Date; and
- for customers connected to the distribution system on the Observation Date and subject to option T4 or TP rates for access to the distribution system, as defined in the rates applicable for the use of the natural gas distribution systems, customers added and/or lost² no later than the Date of Request³, as shown by suppliers' requests received by the system operators on the Observation Date.

² including including commissionings and decommissionings

³ by way of exception for the July run: effective no later than 42 days after the Observation Date

3.2.3.1.2 Communication of supplier portfolios

In application of Articles 5 and 6 of the Decree, the system operators shall provide the following information no later than the Stage 1 Deadline:

- to each supplier, the total Annual Reference Consumption of the customers in its portfolio, by consumption profile and by Transmission-Distribution Interface Point (hereinafter "PITD"), for customers connected to a distribution system, and the list of Consumer Delivery Points (hereinafter "PLC") and the associated historical data of daily consumption (or of the estimated annual and winter consumption for PLC with no historical data), for customers connected to a transmission system.
- to each supplier, with a copy to STORENGY for information, the total Annual Reference Consumption of the customers in its portfolio, by consumption profile and by weather station for customers connected to a transmission system, and the list of PLCs and associated daily consumption (or estimated annual and winter consumption for PLCs with no historical data) for customers connected to a transmission system;
- to STORENGY, the contact details of all suppliers holding a customer portfolio.

3.2.3.2 Stage 2: Processing of assignments, exemptions and transfers

3.2.3.2.1 *Transfer of a supplier's rights to its own supplier*

Pursuant to Article 7 of the Decree, every supplier that intends to assign its storage capacity access rights to at least one of its own suppliers must, no later than the Stage 2 Deadline, inform:

- each supplier-assignee of the rights assigned to it in each weather station, expressed as a working gas volume and a withdrawal rate;
- STORENGY, for each supplier-assignee, of the rights assigned to it in each weather station, expressed as a working gas volume and a withdrawal rate.

Special cases:

- *supplier supplied on a PITD:*

Pursuant to Article 5 of the Ministerial Order, any supplier supplied with natural gas on at least one PITD transfers to each of the suppliers that supplies it on this or these points, under the provisions mentioned above, the rights calculated from the characteristics, communicated in Stage 1, of the customers connected downstream from this or these points.

- *for allocation runs after the April run: check for any supplier that has transferred capacity previously acquired under rights on the secondary capacity market:*

Any supplier that has transferred on the secondary market capacity acquired under its rights from previous runs, waives the rights, both in working gas volume and withdrawal rate, corresponding to the capacity transferred.

3.2.3.2.2 *Request for exemption in the calculation of rights*

No later than the Stage 2 Deadline, all suppliers that wish to request that their rights be calculated pursuant to the exemptions laid down in Articles 4 and 4 *bis* of the Ministerial Order must provide STORENGY with a list of all PLCs for each weather station, as communicated during Stage 1.

3.2.3.2.3 Transfer of rights to the TIGF zone

Any supplier that intends to exercise some or all of its rights in respect of storage capacity services offered by TIGF as part of the latter's contribution to meeting the storage capacity requirements defined in Article 3 of the Decree in the balancing zones defined by GRTgaz, shall, no later than the Stage 2 Deadline, notify STORENGY of the rights it wishes to transfer to the services offered by TIGF, expressed as a working gas volume and a withdrawal rate, and detailed by weather station. At the same time, that supplier must submit to TIGF its subscription request for the transfer of rights, which will handle it under the rules for allocating storage capacity published by TIGF.

For each weather station, STORENGY will verify that the supplier is requesting to transfer rights on which the working gas volume and withdrawal rate are lower than or equal to the supplier's "net" rights for the weather station (as defined in Stage 3). Otherwise, no later than the Stage 3 Deadline, STORENGY shall inform the supplier and TIGF that the supplier's request is invalid.

3.2.3.3 Stage 3: Calculation of "net" rights

3.2.3.3.1 Calculation of "gross" rights

Pursuant to Article 5 of the Decree and Articles 3 and 6 of the Ministerial Order, each supplier's "gross" access rights to storage capacity for each weather station will be calculated using the figures provided in Stage 1.

In the event that at Stage 2 the supplier has requested that its rights be calculated under the exemptions laid down in Articles 4 and 4 *bis* of the Ministerial Order, its "gross" storage capacity access rights will be determined in accordance with the procedure described in Appendix 1.

In the event that a customer is supplied by more than one supplier, the rights allocated to each supplier for the purpose of supplying that customer will be determined on the basis of specific information on the customer, which will be provided by the operator of the system to which the customer is connected or by the suppliers that supply that customer. The gross rights of the suppliers in question will be adjusted accordingly.

3.2.3.3.2 Calculation of "net rights before adjustment"

Each supplier's rights for each weather station, calculated as above, will then be reduced (respectively increased) by any storage capacity access rights assigned to (respectively acquired from) other suppliers, based on the information provided during Stage 2.

If applicable, each supplier's rights for each weather station, calculated as above, will be reduced by any storage capacity access rights transferred to services offered by TIGF, provided that the transfer requests have been approved at the conclusion of the Stage 2 assessment process.

These various operations will be used to calculate each supplier's rights of access to storage capacity for each weather station, known as "net rights before adjustment".

3.2.3.3.3 Calculation of "net" rights

Each supplier's "net" rights of access to storage capacity for each weather station will be calculated on the basis of "net rights before adjustment", as follows:

- if a supplier's total "net rights before adjustment" for all weather stations, expressed as a working gas storage volume and a withdrawal rate, are negative or nil, "net" rights for each weather station will be zero;
- if a supplier's total "net rights before adjustment" for all weather stations, expressed as a working gas storage volume and a withdrawal rate, cannot be subscribed in respect of the Access Offers, storage capacity or withdrawal rate rights will be increased by the minimum value required to make subscription possible. The values thus obtained will be divided proportionally

between all weather stations on the basis of the "net rights before adjustment" for each weather station, thereby establishing the "net" rights for each weather station.

- In all other cases, "net" rights will be equal to "net rights before adjustment".

No later than the Stage 3 Deadline, STORENGY shall inform each supplier of its "net" rights for each weather station.

3.2.3.3.4 Calculation of "actual" rights

For the April run :

The "actual" rights are equal to the "net" rights.

For allocation runs after the April run :

The difference in each supplier's "net" rights for each weather station is equal to the difference between the "net" rights for the weather station, calculated as above, and that supplier's "net" rights for the weather station, calculated during Stage 3 of the previous allocation run. This difference is expressed as a working gas storage volume and a withdrawal rate.

As specified in Article 9 of the Ministerial Order, the total "actual" rights for all the weather stations expressed in working gas volume⁴ are defined as follows:

- if the total differences between the "net" rights on all the weather stations, expressed in working gas volume⁴ is positive or nil, the total "actual" rights expressed in working gas volume⁴ correspond to the cumulative total:
 - of the rights exercised on all the weather stations, expressed in working gas volume⁴ defined in Stage 7 of the previous run,
 - and of the total differences between "net" rights for all the weather stations, expressed in working gas volume⁴.
- if the total differences between the "net" rights on all the weather stations, expressed in working gas volume⁴, is negative, the total "actual" rights expressed in working gas volume⁴ correspond to the minimum between:
 - the total "net" rights for the weather stations, expressed as working gas volume⁴;
 - and of the rights exercised on all the weather stations, expressed in working gas volume⁴ defined in Stage 7 of the previous run.

The total of the "actual" rights expressed in working gas volume⁴, is divided between the different weather stations proportionally to the net rights on each station.

No later than the Stage 3 Deadline, STORENGY shall inform each supplier of its "actual" rights for each weather station calculated in this way.

3.2.3.4 Stage 4: Suppliers' initial subscription requests

All suppliers must send STORENGY, no later than the Stage 4 Deadline, their initial subscription requests relating to Access Offers, subject to the following conditions:

- This procedure contains two types of requests: one with associated rights, the other without associated rights (the latter being processed pursuant to Article 8 of the Decree, up to the maximum capacity allowed under the Envelope).

⁴ respectively withdrawal rate

- The initial request with associated rights cannot exceed the total of the “actual” rights, whether in terms of working gas volume or withdrawal rate.
- The initial request without associated rights on each Access Offer cannot exceed 5% of the capacities of the Access Offer.
- For allocation runs after the April run:
 - taking into account of “minimum” rights arising from commitments in the previous run:
 - the total working gas volume⁵ corresponding to the initial request with associated rights cannot be less than the difference between the rights exercised on all the weather stations expressed in working gas volume⁵ (as set following Stage 7 of the previous run), and the absolute value in working gas volume⁵ of the total differences in “net” rights, on all the weather stations, if that value is negative;
 - the total minimum working gas volume or total minimum withdrawal rate of the initial request with associated rights, as defined above, will be reduced, where applicable, by the minimum value that allows the supplier to satisfy these minimum amounts with all or part of the subscriptions made in the previous allocation run.
 - for requests without associated rights, requests from the previous run will be taken into account:
 - requests without associated rights on each group, which exceed requests without associated rights made in Stage 4 of the previous run deadline and in between the two deadlines, will not be taken into account in Stage 5.

3.2.3.5 Stage 5: Handling of suppliers’ initial requests and indicative allocation

Initial requests submitted by suppliers during Stage 4 will be processed in accordance with the procedure described in Annex 2.

No later than the Stage 5 Deadline, STORENGY shall send each of the suppliers that have submitted a request in Stage 4:

- acceptance of its initial subscription request for Access Offers, in the event that its initial request submitted at Stage 4 has been satisfied at the conclusion of the procedure described in Appendix 2; or
- a new proposal for subscription for Access Offers, based on the procedure described in Appendix 2 and called indicative allocation, in the event that its initial request submitted at Stage 4 could not be fully satisfied.

3.2.3.6 Stage 6: Suppliers’ final subscription requests

No later than the Stage 6 Deadline, any supplier that submitted an initial request in Stage 4 shall send STORENGY a final subscription request containing only a overall request for each Access Offer, satisfying the following conditions:

- For the Access Offers where Storengy confirmed at the end of the stage 5 a value strictly lower than 70 % of the global initial request (with associated rights plus without associated rights) of the supplier expressed in the stage 4, the final request is either zero or equal to the indicative allocation of the stage 5.
- For the Access Offers where Storengy confirmed at the end of the stage 5 a value included between (inclusive) 70 % and (inclusive) 100 % of the global initial request of the supplier expressed in the stage 4, the final request is equal to the indicative allocation of the stage 5.
- For the Access Offers where Storengy confirmed at the end of the stage 5 a value strictly superior to the global initial request of the supplier expressed in the stage 4, the final request is included between the initial request and the indicative allocation of the stage 5.

⁵ respectively withdrawal rate

- For allocation runs after the April run: request for “minimum” rights arising from commitments in the previous run:
 - the total working gas volume⁶ corresponding to the total final request cannot be less than the difference between the rights exercised on all the weather stations expressed in working gas volume⁶ (as set following Stage 7 of the previous run), and the absolute value in working gas volume⁶ of the total differences in “net” rights, on all the weather stations, if that value is negative;
 - the total minimum working gas volume or total minimum withdrawal rate of the overall final request, as defined above, will be reduced, where applicable, by the minimum value that allows the supplier to satisfy these minimum amounts with all or part of the subscriptions made in the previous allocation run.

3.2.3.7 Stage 7: Handling of released capacity, contract execution and calculation of rights exercised

3.2.3.7.1 *For allocation runs after the April run: processing of released capacity*

No later than the Stage 7 Deadline, STORENGY will calculate the difference, for each supplier and for each offer, between the capacity stated in the supplier’s final request and the capacity it has already subscribed (sum of capacity allocated at the end of the previous run plus any additional subscriptions as specified in Paragraph 3.3).

- If this difference is positive, it represents the capacity to be allocated to the supplier in respect of the offer.
- If this difference is negative, it represents the capacity in respect of the offer that the supplier may be required to release.

For a given offer, capacity to be allocated to suppliers will be met by taking the following series of steps:

1. The capacity to be allocated under the offer will preferably be taken from the available capacity on the offer, as published on the STORENGY website on May 1 for the July run (respectively September 1 for the November run). The allocation made will be proportional to the capacity allocated to all suppliers under the offer.
2. The remaining capacity to be allocated under the offer will then be allocated by reallocating all or part of the capacity that all suppliers may be required to release under that offer. The capacity to be released will correspond to the minimum between the capacity remaining to be allocated and the potentially releasable capacity under the offer. At STORENGY’s request, suppliers with potentially releasable capacity under the offer must release such capacity proportionally to each of their of their potentially releasable capacity. Such capacity will then be reallocated to suppliers entitled to a capacity allocation under the offer, proportionally to the capacity to be allocated to each supplier.

3.2.3.7.2 *Subscription of capacity*

Suppliers sign a contract with STORENGY no later than 10 calendar days after the Stage 7 Deadline.

In the April run, these contracts are based on the final requests (Stage 6), and in the runs after the April run on the capacity allocated or released under points 1 and 2 of the previous paragraph.

3.2.3.7.3 *Calculation of rights exercised*

No later than the Stage 7 Deadline, STORENGY shall calculate the rights exercised on all the weather stations for which subscription contracts have been signed, subject to the following conditions:

⁶ respectively withdrawal rate

- the rights exercised for all weather stations, expressed as working gas volume⁷, are equal to the lower of the following two values:
 - the working gas volume⁷ subscribed for all Access Offers,
 - the total "actual" rights for the weather stations, expressed as working gas volume⁷;

The rights calculated in this way and exercised in the April (respectively July) run will be used to determine rights on the July (respectively November) run.

3.3 Storage capacity put on the market pursuant to Article 8 of the Decree

In accordance with Article 8 of the Decree, storage capacity for non-exercised rights may initially be subscribed under the process described in paragraph 3.2 (request for capacity without associated rights).

In addition, the Envelope capacity that has not been allocated following the process described in paragraph 3.2 will subsequently be put on the market in a transparent and non-discriminatory manner, on the terms stipulated in paragraph 3.1.

The above capacity is releasable (capacity without associated rights) and reallocated as required for the July 1 and November 1 deadlines under the mechanisms described in paragraph 3.2.

⁷ respectively in terms of withdrawal rate

Appendix 1

Calculation of a supplier's "gross" rights under the exemptions laid down in Articles 4 and 4 *bis* of the Ministerial Order

The portfolio of a supplier having requested that its rights be calculated under the exemption is made up of:

- customers connected to the transmission system, for which the contact details of the Consumer Delivery Points have been communicated to STORENGY by the said supplier;
- customers connected to the distribution system, for which, at the conclusion of Stage 1, the total Annual Reference Consumption by consumption profile is available to STORENGY possesses .

"Gross" access rights to storage capacity associated with customers connected to the distribution system will be calculated as specified in Article 5 of the Decree and Article 3 of the Ministerial Order.

"Gross" access rights to storage capacity associated with customers connected to the transmission system will be determined as follows:

- 1) establishing the consumption history for the reference gas years⁸ used by GRTgaz to calculate Annual Reference Consumption: "Consu(*d*)" (where *d* represents one day of the reference gas years).
 - this history is the aggregate consumption history of customers connected to the transmission system for whom the calculation is made, as communicated by GRTgaz to STORENGY.
- 2) Calculation of storage requirements for each reference gas year:
 - For each reference gas year, these requirements are equal to the storage capacity, expressed as a working gas volume and a withdrawal rate, that is necessary to supply the customers connected to the transmission system for whom the calculation is made, assuming:
 - that their consumption is the same as in the consumption history for the relevant gas year, established under point 1;
 - supply required each winter day (Appro^{max}) is equal to 1.1/365 times the consumption of these customers in the relevant gas year.

The calculation is made on the basis of the winter of the gas year (period from November 1 to March 31) by the procedure described at the end of this Appendix.
- 3) calculation of the resulting storage requirements:
 - These storage requirements will equal:
 - in terms of working gas volume, the maximum value of storage requirements for the reference gas years, expressed as a working gas volume, calculated in accordance with the previous paragraph.
 - in terms of withdrawal rate, the maximum value of withdrawal rate requirements for the reference gas years, calculated in accordance with the previous paragraph.

⁸ Gas year n/n+1 corresponds to the period between November 1 of calendar year n to October 31 of calendar year n+1.

- 4) breakdown of requirements for the weather stations
- calculation of rights by the non-exemption method on each of the weather stations d , – WGV_d^* and WR_d^* –;
 - calculation of the proportional assessment basis in terms of working gas volume (WGV) and withdrawal rate (WR) for each weather station:
 - in terms of working gas volume: $AssWGV_d = WGV_d^* - Min_d WGV_d^*$ if WGV_d^* is other than 0, otherwise $AssWGV_d = 0$
 - in terms of withdrawal rate: $AssWR_d = WR_d^* - Min_d WR_d^*$ if WR_d^* is other than 0, otherwise $AssWR_d = 0$
 - the WGV_d working gas volume requirement (respectively withdrawal rate requirements) for each weather station corresponds to the breakdown of the total working gas volume requirement (respectively total withdrawal rate requirements) calculated in paragraph 3 as a proportion of $AssWGV_d$ (respectively of $AssWR_d$)
- 5) the gross right under the exemption and for each weather station corresponds:
- under Article 4 of the Ministerial Order:
 - to $Max(WGV_d; WGV_d^*)$ in terms of working gas volume
 - to $Max(WR_d; WR_d^*)$ in terms of withdrawal rate
 - under Article 4bis of the Ministerial Order:
 - to $Max[Average[WGV_d; Max(WGV_d^*; 0)]; WGV_d^*]$ in terms of working gas volume
 - to $Max[Average[WR_d; Max(WR_d^*; 0)]; WR_d^*]$ in terms of withdrawal rate

Calculation of storage requirements for a gas year:

The working gas volume (WGV) requirement is calculated for the the gas winter (period from November 1 to March 31 of the gas year), on the basis of the working gas volume requirement ($WGV^{Current}$) by applying the following formulas:

$$\begin{cases} WGV^{Current}(0) = 0 \\ WGV^{Current}(d) = Max(0; WGV^{Current}(d-1) + Consu(d) - Appro^{max}) \\ WGV = Max_d [WGV^{Current}(d)] \end{cases}$$

The withdrawal rate requirement (WR) is equal to maximum daily consumption for the gas winter, as shown by the relevant consumption history, reduced by the maximum daily supply.

$$WR = Max_d [Consu(d) - Appro^{max}]$$

where d is the gas winter day and $Appro^{max} = \sum_{gas\ year} Consu(i) \times 1.1/365$

Special case: portfolio of a supplier that has requested calculation of its rights under the exemption and including a least one customer with no historical data.

In this particular case, the supplier’s exemption rights are the sum of the exemption rights calculated using the above method on the sub-portfolio made up of customers with historical data, plus the rights calculated using the non-exemption method for customers with no historical data.

Appendix 2

Processing of suppliers' initial requests

The objective of this process is to come as close as possible to the suppliers' initial requests, within the limits of the storage capacity published for each of the Access Offers and corresponding to the capacity of STORENGY's End Customer Rights Envelope.

Accordingly, subscriptions obtained for each supplier in respect of each Access Offer are the result of an optimisation calculation subject to certain constraints.

The aim of the optimisation is to reduce, for all storage groups, the total of the interval lengths for ratios "obtained subscription" divided by "initial request" for all suppliers, which is to minimize the *Objective* function described below:

$$Objective = \sum_{g \in Group} \left(\max_{f \in Supplier} \left(\frac{Subscription(f, g)}{Request(f, g)} \right) - \min_{f \in Supplier} \left(\frac{Subscription(f, g)}{Request(f, g)} \right) \right)$$

where *Supplier* means all suppliers and *Group* means all storage groups.

Constraints on subscriptions are as follows:

- Allowance for capacity under Access Offers:
 - The total of subscriptions obtained for all suppliers on each of the offers is less than or equal to the capacity published for Access Offers.
 - The total of subscriptions with associated rights obtained for all suppliers on each of the offers is less than or equal to the capacity with associated rights reserved on the Access Offers in anticipation of the global development of portfolios by November 1.
- Consistency with rights and initial requests with associated rights :
 - The total capacity with associated rights expressed as working gas volume and withdrawal rate, obtained for each supplier, is:
 - higher than or equal to the total of the requests with associated rights,
 - less than or equal to the total "actual" rights;
- Consistency with rights and initial requests with associated rights and without associated rights:
 - The total capacity in working gas volume and withdrawal rate corresponding to the subscriptions obtained for each supplier is less than or equal to the maximum of total requests associated rights and without associated rights and of the total of "actual" rights.
- For allocation runs after the April run:
 - Consistency with "minimum" rights" : the total capacity in terms of working gas volume and withdrawal rate corresponding to the subscriptions obtained with associated rights for each supplier is greater than or equal to the "minimum" rights as defined in the 3rd clause of paragraph 3.2.3.4.
 - Acceptance of requests without associated existing rights: requests without associated rights on each group cannot exceed requests without associated rights made in Stage 4 of the previous run deadline and in between the two deadlines.
 - Consistency with the request with associated rights and the current subscription : the subscription obtained for each supplier on each storage group is equal or superior than the minimum between the request with associated rights and the current Rights Envelope capacities subscription of this supplier on this storage group.