

30 April 2009

Summary of the public consultation on the rules relating to gas transmission for power plants connected to natural-gas transmission networks.

Between the 3rd and 31st March 2009, the CRE conducted a public consultation in order to obtain the views of all market players on the rules which may in future be applied to gas-fired power plants, for gas transmission and balancing on the natural-gas transmission network.

CRE received 37 contributions (see list in the appendix), broken down as follows:

- 6 were from gas infrastructure operators and GDF Suez *Branche Infrastructures* ,
- 9 came from electricity generators operating gas-fired power plant (or companies with projects developing such plant) and from the UFE ;
- 7 came from shippers, non developers of projects for gas-fired power plants, and from Uprigaz;
- 12 came from industrial consumers and from Uniden ;
- 3 came from other energy-market players including the AFG.

Question 1:

Do you think that the technical analysis presented by GRTgaz is sufficient to justify a change in rules for transmission and balancing? If not, which additional elements are required in your opinion?

Thirty-four stakeholders have replied to this question: four from gas infrastructure operators, nine electricity generators, seven shippers, eleven industrial consumers, and two other energy-market players including the AFG.

❖ **Gas infrastructure operators**

The four gas infrastructure operators that responded agree with the technical analysis of GRTgaz concerning the need for flexibility, linked to the operation of gas-fired power plants connected to the natural-gas transmission network.

It is the opinion of three of these respondents and GDF Suez, that the specific nature of the flexibility requirements of the gas-fired power plants, justifies the rule changes for transmission and balancing. They add that these changes are necessary to guarantee proper operation of the gas system, making it possible to have fair allocation of the costs and giving the right signals for investment.

One gas infrastructure operator felt that the project developers of gas-fired power plants, had not given precise indications of their planned mode of operation, during the signing of the connection contracts. The assumptions on operation of the Combined-Cycle Gas Turbine (CCGT) used to carry out this study, correspond to the recent changes in incentives for the electricity market which led to the operation of CCGT for short cycles within a given day (12 hours, 8 hours or even less, in order to participate in a balancing mechanism for the electricity transmission system operator, RTE), and more generally, intermittent electricity generation linked to renewable energy.

❖ **Generators, shippers and their representatives**


All of the electricity generators and shippers, as well as the UFE and Uprigaz, consider that the technical analysis carried out by GRTgaz is not sufficiently precise to justify its proposal to change the rules, applied to gas-fired power plants, for transmission and balancing on the natural-gas transmission network. Two generators and one shipper believe that the GRTgaz proposition is both premature and disproportionate, in view of the results of the study that it carried out.

They consider that more detail needs to be produced on the following topics:

- **The need for a technical and economic study of the intraday flexibility that the entire French gas system (transmission network, storage facilities, LNG terminals and adjacent networks) is capable of providing**

The UFE, seven generators and two shippers request that the study be widened to determine the intraday flexibility that the French gas system in its entirety (transport network, storage facilities, LNG terminals and adjacent networks) is capable of offering.

The study must identify the intraday flexibility which will be generated by progressive commissioning of the various investment scheduled or planned, on the gas infrastructure and the gas network, in particular the gas stored in pipelines (gas “linepack”) released by developments of the transmission network for connections of gas-fired power plants.



Five generators and two shippers, would like a detailed description of the operational management of the intraday flexibility, planned in the operating contracts and agreements, and binding the natural-gas transmission network system operators (TSO) and the storage facility operators. According to three of these respondents, a technical and economic study should be performed, investigating the opportunities for optimising existing contracts and widening the contracts to LNG terminal operators and operators of adjacent networks, in particular those of GRTgaz and TIGF.

If the results of the study demonstrate that intraday flexibility available, on the scale of the entire gas system currently in existence or under development, is insufficient for a given timescale, then the UFE, four generators and three shippers, would like the study to describe the investments that need to be made, nationally and locally, and the costs associated with enabling the operation of the new gas-fired power plants.

One generator and one shipper are worried that the required investment, to meet the flexibility needs for the new gas-fired power plants, was not made in parallel with the signing of the connection contracts for these plants, onto the transmission network.

One generator notes that the transmission network operators will gain an extra income on the order of 3M€/year/CCGT, provided by the electricity generators capacity subscriptions, and this should cover the costs of making their additional investments.

The UFE and five generators hope that the current operating constraints for gas-fired power plants projects will be determined at the local level (grids) and at the level of each site.

- **Intraday flexibility used by current consumers**

Five generators and Uprigaz consider that it is too conservative for GRTgaz to assume a temperature of between 8 and 10°C when estimating the needs of residential and other tertiary consumers. The natural-gas network was designed to be of a size suitable to handle a cold winter, with a 2% risk. The respondents propose using the temperature conditions of a cold winter, with a 2% risk, to estimate the flexibility needs of the tertiary and residential markets.

Three generators believe that the study should be based on the hourly metering data from industrial connections to the natural-gas transmission network and on historic operating data from existing gas-fired plants, the CCGT DK6¹ and the Gennevilliers combustion turbine².


Two generators hope that the actual coverage will be accurately described on the technical level, including the markets current requirements for flexibility (including existing gas-fired power plants), in particular the sources of intraday flexibility used nationally and locally (gas linepack and storage facilities).

- **Assumptions concerning the connection and operation of CCGT**

The UFE, six generators, three shippers and Uprigaz consider that the GRTgaz decision, to adhere to the installation of 20 CCGT in 2012 is over estimated.

¹ Combined-Cycle Gas Turbine, used by GDF Suez since 2005, situated at Dunkirk

² Combustion turbine used by EDF since the start of the 1990's



Uprigaz, four generators and one shipper, suggest a first stage of the study, corresponding to the assumption from the investment programme, PPI 2008, of around ten CCGT by 2012. They would like to see the need for intraday flexibility established:

- at the national and local levels, depending on the CCGT's geographic location on the transmission network (requested by four generators and one shipper);
- over time, as a function of the planned commissioning dates for gas-fired power plants, (requested by four generators and two shippers).

The UFE, seven generators, three shippers and Uprigaz, suggest a change to the assumption of 8 hours operation per day for CCGT, applied by GRTgaz in its study. They feel this is a too infrequent use, considering the technical constraints of this means of power station and the economic incentives linked to the structure of the prices of gas and electricity.

The UFE and five generators note that the current operating standard for CCGT in France is that measured in 2007 and 2008 for the DK6 CCGT, where 90% of start-ups were followed by operation lasting in excess of 12 hours and, on 80% of occasions, lasting longer than 16 hours.


To simulate the impact of future CCGT projects, they feel that it would be appropriate to select probable operating scenarios, based in part, on historic consumption of the DK6 and the Gennevilliers combustion turbine and in part on the technical specifications provided in the annex of the connection contracts signed with the generators.

One shipper considered, however, that operational characteristics from the DK6 plant and the Gennevilliers combustion turbine are unrepresentative, because their technical characteristics enable them to operate in the peak-load regime. To improve the analysis, this shipper proposes that the current operating modes (base, semi-base, peak, extreme peak) of CCGT in the countries who were involved in the benchmark presented by GRTgaz in its Statement of intent, should be specified.

Two generators and one shipper requested that the study be widened, in collaboration with RTE, to include an estimate of the flexibility requirements of the gas-fired power plants linked to their intraday re-nominations, for participation in the balancing mechanism, and to the power system services on the electricity grid. The shipper recommends that these requirements be established at the local level in order to identify the most heavily affected area of the transmission grid.

In the same way, one producer and the UFE would like the study to be based on records from DK6 participation in the balancing mechanism, for which lower infra-day variations are noted, in 90% of cases at 8% of the daily capacity of the site.

The generators are divided as to the relevance of the assumption made by GRTgaz on synchronous starting of the CCGT. Two of them consider that the start or stop time of each CCGT, will be a function of several factors; namely the conditions for supply of gas, the optimisation strategies of the various generators and the volume of calls received for balancing from RTE. By contrast, another generator considers that variations between the different CCGT demand programmes will be marginal, and will mainly result from differences in the conditions of gas purchase.



One producer proposes that a sensitivity study is performed on the flexibility requirements of CCGT as a function of the starting and stopping ramps of the gas-fired power plants. This study could enable the establishment of start-up or stopping protocols, for the power plants, which lead to reductions in TSO investment and/or delivery costs, required to provide the intraday flexibility for the CCGT.

Further, one producer stresses that the study should take account of the predictable and stable character of the operation of a CCGT when in use (very few breakdowns or other unexpected incidents).

- **Portfolio effect of the CCGT requirements and those of other consumers**

In the view of four generators, the CCGT flexibility requirements, and those of the current market without CCGT and combustion turbines, should be estimated for each season, in order to evaluate the possible portfolio effect, particularly during the winter, between the requirements of gas-fired power plants and those of other consumers. According to one of these generators, this part of the study should also be based on gas consumption records from the transmission networks of the DK6 CCGT and the Gennevilliers combustion turbine.

One generator and one shipper felt that gas-fired power plants should also be considered as a potential source of flexibility for the gas transmission network.

- **Transmission constraints of the intraday flexibility to the sites**

Two generators regret that GRTgaz proposes a contractual organisation for supplying flexibility, which does not correspond to the physical reality of gas transmission involved in load-balancing of the flexibility for the site. The optimum method is to transfer the required load balancing from the source of intraday flexibility closest to the site, in order to optimise the transmission network and hence avoid over investment. These two generators would like to see a more in-depth technical analysis of this subject and have it provide geographic identification of the intraday flexibility sources, evaluate the distances between gas-fired power plants and determine possible congestion, etc.

One of these two generators suggests basing this part of the study on the operational management set in place by GRTgaz for the DK6 CCGT, which is far away from any flexibility sources.


- **Methodology**

The majority of generators and shippers believe that this technical and economic study should be conducted by the TSO, who are the only ones who possess the necessary information and data. Moreover several of them would like it to be undertaken under the supervision of the CRE. One shipper calls for a strong collaboration between public authorities and the RTE, during the study and results analysis phases, to ensure uniformity in the approach to the gas and electricity markets, sending of good economic indicators and fair allocation of costs between the two markets.

One generator feels that the study should be audited by the CRE and more generally must be part of the drafting of *Technical Reference Documentation*, similar to that drafted by RTE for its own network, which brought greater transparency to the rules and management procedures of the gas transmission network and hence avoided any discrimination.

- ❖ **Industrial consumers and their representatives**

Industrial consumers who expressed opinions, felt that they did not have the technical skills necessary to assess the analysis carried out by GRTgaz. Eight of them noted that the CRE considered that the study needed to be carried out in greater depth.



Uniden observed that the flexibility requirements for gas-fired power plants described by GRTgaz would not be inconsequential for the operation of the French gas transmission network, except to say that there is currently a very significant over sizing of the network, which has been previously financed by consumers without their knowledge.

More precisely, Uniden and one other end-user question the assumption made by GRTgaz of 8 hours operation per day for the CCGT and recall that the 2006 long-term program for investment in electricity generation (PPI) put forward the CCGT as a means of "semi-base load" generation. They consider the assumption by GRTgaz to be incoherent with respect to the technical characteristics of CCGT and the electricity-market model. Uniden suggests that the study should analyse operation of CCGT in other European Union countries.

Uniden considers that it is incumbent upon the TSO to carry out the studies under the supervision of the CRE.

❖ **Other energy-market players including the AFG.**

The AFG is pleased that a study has been made of the integration of CCGT into the gas infrastructure but note that it does not yet address all the issues.

The AFG considers that the study should enable the capacity of the gas system, to provide intraday flexibility to all gas consumers including the CCGT, to be established in its entirety (LNG terminals, transmission network and storage facilities). In the event that the current flexibility will not be sufficient to meet the needs of the CCGT, the study must accurately quantify possible costs and the potential investment required.

One player in the gas market regrets that the basis of the study is the integration onto the gas network of the resources for semi base and peak electricity generation, intended for French domestic heating. He regards it as absurd to transform a clean energy source which can be transported below ground and is storable into one having an output efficiency, from production to consumption, of less than 50%.

Question 2:


Do you think that it is desirable to continue to perform daily balancing on the French natural gas transmission network?

Thirty-two stakeholders have replied to this question: four gas infrastructure operators, nine electricity generators, seven shippers, twelve industrial consumers and the AFG.

❖ **Gas infrastructure operators**

Three gas infrastructure operators are in favour of continuing daily balancing for the so-called "conventional" market.

However, in order to ensure the security of the gas system, they consider that shippers supplying the gas-fired power plants, and even the industrial consumers presenting an exceptional consumption profile (due to their size and intraday flexibility), must be given incentives to balance their consumption over a time schedule, as has been applied in other countries. One of these operators felt that continuing the daily balancing for gas-fired power plants, would have the consequence of distributing the overcosts that they



would generate amongst all gas consumers, and would not allow investments to be directed towards additional means of flexibility.

One of the gas infrastructure operators wanted daily balancing to be continued in the gas transmission network. It considered that the requirements of the CCGT could be met by specific contractual management, by making available additional sources of intraday flexibility from the TSO and by requiring the advance notice periods to be adjusted according to the geographical location of each power plant.

❖ **Generators, Shippers and their representatives**

All the generators and all the shippers who replied, including the UFE and Uprigaz, wished to continue daily balancing on the natural gas transmission network, because this is necessary for the good operation of the natural gas market and for the development of competition, conforming with the recommendations of the ERGEG. One producer added that it is based on a time-step which is well suited to the physical properties of gas. Another noted that in the United Kingdom, Spain and Italy, countries in which there are large numbers of CCGT, balancing by shippers continues to be undertaken on a daily basis.

However, if the results of the study demonstrate that the resources of the gas system, current and under development, are insufficient for a given timescale, the UFE, five generators, Uprigaz and two shippers consider that challenging the concept of daily balancing should not be ruled out. The majority of generators and shippers consider, in contrast, that a move to hourly balancing should be considered as a solution of last resort, being undesirable, and should be avoided if at all possible.

The UFE, two generators and Uprigaz, stress that solutions other than hourly balancing could be considered and they should be the subject of a study addressing the implementation costs and expected benefits, in order to guarantee the relevance of the solution selected.

❖ **Industrial consumers and their representatives**

All of the industrial consumers and Uniden desire that daily balancing be continued for industrial consumers who are connected to the gas transmission network. Nine of them and Uniden consider that putting in place hourly balancing would constitute a barrier for new entrants into the natural gas market.

Uniden supports the idea that all the balancing systems on the European level should converge towards a daily timescale. To achieve this, Uniden believes that the TSO must have access to all the sources of flexibility which they need, to ensure physical balancing of their networks in real-time. Moreover, Uniden estimates that the setting up of a transmission offer, suitable for operation of gas-fired power plants, would be more relevant than the application of hourly balancing, which would encourage the plants to flatten their consumption and limit their opportunities for arbitrage.

❖ **AFG**

In cases where investments in additional flexibility resources prove necessary, to meet the needs of the gas system, the AFG estimates that hourly balancing could be put in place in order to guarantee fair allocation of costs between different categories of consumers, giving suitable economic signals to direct investment and reflecting the real production costs of the CCGT.

However, the AFG note that setting up of generalised hourly balancing would result in significant costs in development of IT systems.


Question 3:

Do you think that electricity generators should be required to supply the TSO on the previous day with their hourly programme of natural-gas consumption for the following day?

Thirty-one stakeholders have replied to this question: four gas infrastructure operators, nine electricity generators, seven shippers, ten industrial consumers and the AFG.

❖ **Gas infrastructure operators**

In order to permit the TSO to configure the overall balancing on their networks, the gas infrastructure operators would like the electricity generators to supply the TSO on the previous day with their hourly program for the following day.

Two among them believe that the hourly programme provided by the electricity generators should be binding; in the event of deviations between the actual consumption of the power plant and the scheduled plan delivered the previous day, penalties could be applied.

One gas infrastructure operator considers that sending this information does not represent a constraint for electricity generators, since they already have this obligation towards RTE.

Another gas infrastructure operator estimates that all changes to the programme for day J, sent on day J-1, must be subject to agreement by the TSO, which will depend on the physical capacity of the gas transmission network.


❖ **Generators, Shippers and their representatives**

All the generators and shippers who responded are in favour of the obligation to supply the TSO on the previous day with the hourly programme of the gas-fired power plants for the following day, in a way analogous to that which exists with regard to the RTE, in order to allow the TSO to plan the physical management of their gas transmission network. One of these respondents added that the transmission of this information must not result in limitations to day J-1 operation.

The UFE, seven electricity generators and one shipper desired that the schedule sent on day J-1, for day J, should remain indicative, and should not have financial consequences if the schedule carried out turns out to be different from that delivered the previous day, as is the case with respect to RTE.

One shipper is in favour of financial penalties being applied in the case of deviations between the actual schedule performed by the gas-fired power plant and the forecast schedule sent the previous day. However, it opposes a similar obligation being applied to other consumers on the gas transmission network, particularly industrial consumers.

For five generators and one shipper, this obligation of the electricity generators needs to be matched by the setting up of a system by the TSO for intraday re-declaration of schedules, linked to calls by RTE under the balancing mechanism. In order to take account of the physical constraints of the natural gas transmission network, four generators are agreeable to an advance notice period being required by the TSO, provided that it is demonstrated, in a transparent manner, that the period is technically necessary due to local constraints of the gas transmission network.



Several generators and shippers, consider that it is the responsibility of the electricity generator (not the shipper supplying the gas-fired power plant) to manage directly transmission of schedules to TSO on day J-1, and the intraday re-declarations of the schedule, because the objective of this information is to manage local constraints in the gas transmission network through real time reactivity of the site and the TSO. The generator, however, reserves the right to delegate operational management of this undertaking to a third party, for example, the shipper.

❖ **Industrial consumers and their representatives**

Given the potential impact on the natural gas transmission network and the needs of the gas-fired power plants for flexibility, the supply by the electricity generators on the previous day of their hourly schedule for the next day seems indispensable to all the industrial consumers who expressed an opinion.

❖ **AFG**

For the AFG, it is important that the generators supply the TSO on the previous day with an hourly schedule, indicating the operation of their plants for the next day, in order to enable them to take account of these and to balance supply and demand on their gas transmission network.

Question 4:

What are your views on the GRTgaz proposal to introduce an hourly balancing requirement for gas-fired power plants, or more generally, for strongly modulated large consumers?

Thirty-two stakeholders have replied to this question: four gas infrastructure operators, nine electricity generators, seven shippers, twelve industrial consumers and the AFG.


❖ **Gas infrastructure operators**

Three gas infrastructure operators consider that application of hourly balancing for gas-fired power plants, and even for strongly modulated consumers, is imperative to guarantee security of operation of the gas transmission network.

One gas infrastructure operator recalls that some neighbouring countries have put in place an incentive for hourly balancing for certain large strongly modulated gas consumers. In the absence of harmonised rules across frontiers, there is a large risk that intraday flexibility will be exported, at a cost which will not be its real cost, and hence gas users in France will be subsidising gas and electricity markets in adjacent countries.

One other gas infrastructure operator estimates that, shippers entering into contracts directly with suppliers of intraday flexibility, as proposed by GRTgaz, is coherent with genuine access by the shippers to storage, to meet the needs of seasonal, monthly, and weekly variations of customers and their portfolios.

For another of the gas infrastructure operators, the principle of an obligation for hourly balancing for specific needs is clear, but its application on a system built around the principle of daily balancing risks becoming



complex, particularly from the point of view of IT systems, and could be discriminatory if it only relates to one category of consumers.

The operator also remarks that the distances between the site and the source of flexibility subscribed by the electricity generator, will cause spatial and temporal difficulties for the TSO in its mission to transmit flexibility. Setting up contracts which bind the TSO with the gas infrastructure operators, commercialising the flexibility for the electricity generators could, according to this operator, be an alternative to the application of hourly balancing.

Finally, according to a last gas infrastructure operator, the GRTgaz proposal conforms to the 2006 *Guidelines for Good Practice for Gas Balancing* which envisage that the rules for balancing will be designed to minimise the role of residual physical balancing by the TSO.

❖ **Generators, Shippers and their representatives**

The UFE, four electricity generators, Uprigaz and four shippers, think that the GRTgaz proposal is premature because it is based on a study which needs to be carried out in greater depth and the assumptions of which need to be reviewed. One electricity generator and one shipper think, moreover, that GRTgaz has not provided sufficient detail on the nomination and balancing system which it proposes to put in place on the scale of the French gas system.


Furthermore, two electricity generators raised the issue that the incapacity of TSO to respond to the needs of intraday flexibility required by users of the gas transmission network, would be in complete contradiction with its public service mission. This relates, in particular to the obligations of gas transmission network operators to put in place all the resources required for their public service mission, given under article 22 of French Law n°2003-8 passed on 3 January 2003 relating to the gas and electricity markets and to energy public services: *"The operator will ensure the security and effectiveness of its network at all times, as well as the balancing of natural-gas flows, taking account of the technical constraints on these. It will take care of availability and implementation of services and reserves required for the operation of the network and for respecting the rules relative to the interconnection of transport networks and the distribution of natural gas"*. In consequence, and through some of the operating constraints which the TSO may bring to bear on the network, the TSO has an obligation to respond and to install the resources required; these resources consisting, in particular, of its priority access to storage.

The GRTgaz proposal, to put in place hourly balancing for all of some shippers according to the type of consumer whom they are supplying, would be, according to the UFE, six electricity generators and three shippers, a very significant source of complexity and additional costs, due to the change required in IT systems over all of the gas infrastructure and the general application of the management of hourly data.

Moreover, six electricity generators and three shippers considered that setting up hourly balancing would create an entry barrier for newcomers and a distortion of competition between incumbent shippers and small size shippers from the point of view of portfolio effects, or the holding of infrastructure, or access to infrastructure suitable for supplying intraday flexibility. These impacts on the shippers could have the consequence of increasing the price of gas for end-user consumers.

Two electricity generators and two shippers note that such a solution would require the creation of hourly products on the Day-Ahead and Within-day natural-gas markets, for which a lack of liquidity is to be feared, in view of that observed for daily products on the same markets.

Four electricity generators and one shipper make the analysis that the GRTgaz proposal will lead to a loss of optimisation of the management of flexibility offered by the collection of infrastructure of the gas system.



On the one hand, management of the flexibility currently operated by one unique stakeholder, GRTgaz, enables it to benefit from the portfolio of requirements between different shippers and between different consumers, which it will not be possible to realise in future should hourly balancing be put in place.

On the other hand, this mechanism, by having a daily and an hourly system cohabiting on the same infrastructure, would prevent shippers from using all of the intraday flexibility available on the scale of the gas system, in particular storage facilities at LNG terminals. By way of illustration, a shipper supplying household or professional customers, and a holder of reserved capacities on a daily timescale at a storage facility, would not have the capacity to sell the intraday flexibility that he possesses, to another shipper supplying a gas-fired power plant, because it could not be assigned on an hourly basis.

Moreover, the situation where a shipper could subscribe to infrastructure flexibility far from the power plant, and which the gas infrastructure network operator would then have responsibility for transmitting, does not represent the expected optimum for the physical and economic management of the network. One electricity generator, furthermore, raises the issue that this point is clearly indicated by GRTgaz in its statement of intent when it specifies that it is "*important that GRTgaz has the power to operationally manage the sources of flexibility*" so that it can "*deviate temporarily from the choices of the shippers, to make use of available flexibility on the network and on the adjacent infrastructure*".

According to one shipper, in contrast, the flexibility should be contracted by the shipper from the storage facility operators, but operationally managed by the TSO, who is the only stakeholder having the visibility required to deal with unbalance in real time.

The UFE, two electricity generators and Uprigaz, believe that alternative solutions to hourly balancing could be envisaged and progressively introduced to deal with flexibility requirements on the natural-gas transmission network.


One of these agrees that the TSO should set in place priority procedures for transparent connections, giving long-term visibility to investors. It is also in favour of introducing geographic incentives for locating projects close to sources of flexibility on the gas transmission network. Secondly, it demands more transparency in the real-time use by TSO of gas linepack and of its priority access to storage, and even to other infrastructure or adjacent networks, following the example of publications produced by the National Grid in the United Kingdom. Only such transparency will be able, in its opinion, to guarantee optimisation of the system.

Six electricity generators and two shippers estimate that the application of hourly balancing to gas-fired power plants, and even to strongly modulated industrial consumers, would generate discrimination between users of the gas transmission network, which is not justified by the technical constraint objectives put forward by GRTgaz. In particular, this system would support management costs, and other possible additional costs of the intraday flexibility, only for the CCGT, or even strongly modulated consumers, whereas all gas consumers, including domestic, tertiary, co-generation facilities, etc., are users of intraday flexibility.

In the event that no further legislative or regulatory provisions are made to confer on GRTgaz the mission to be responsible for prevention or resolution of possible competition problems between electricity and gas, one electricity generator regrets that GRTgaz is proposing to treat users of its network in different ways dependent on the threshold use which they make of gas.

Hence, if real physical constraints concerning the delivery of intraday flexibility result, so that it is planned to set up an hourly balancing system, this should then be applied to all users of the gas transmission network in the opinion of four electricity generators.

On the other hand, one shipper considers that the hourly constraints should only be introduced for consumers exhibiting intraday flexibility comparable to that of a CCGT.



For their part, one electricity generator and one shipper are opposed to anything which imposes hourly balancing of industrial consumers, considering the operational difficulties that they would encounter to establish their hourly schedules.

One electricity generator noted that the GRTgaz proposal does not guarantee an exact recovery of costs and of receipts for the management of modulation by the TSO, the modulation of consumers being purchased at non-regulated prices. By way of illustration, the offer of intraday flexibility from Storengy represents potential revenues of 1.5 M€/year/CCGT, which is not enough to recover any new investment. This electricity generator is also astonished that GRTgaz indicates that it can not guarantee the transfer capacities for flexibility before day J-1, whereas it perceives, under the heading of transmission to CCGT, revenues of between 2.5 and 3.5 M€/year, based on daily capacities equal to 24 times their hourly maximum.

One other electricity generator considers unacceptable, the principle of conditional transmission of intraday flexibility, called for by GRTgaz in its statement of intent, not knowing which criteria would use to determine when transmission of the intraday flexibility could be interrupted or when one shipper would be interrupted rather than another.

Finally, the GRTgaz argument of harmonisation with the German system appears highly debateable according to five electricity generators.

One electricity generator notes that the German system has recently moved from an hourly system to a daily system, and not the other way round as proposed by GRTgaz, and further that sufficient feedback cannot be given at this stage in its operation.

Another electricity generator explained that in Germany, the largest industrial consumers are officially "balanced" in an hourly way, but that they have the possibility to request a daily balancing, which is usually agreed by the TSO. In fact German TSO cannot refuse this regime unless they are able to demonstrate and document that the consumer is endangering the stability of the network. Hence, the most recent CCGT installed in Germany are, for the most part, subject to daily balancing because they do not endanger the stability of the gas transmission network.

Finally, two other electricity generators have underlined two other points of divergence between the German and French models. On the one hand, the capacity and operating mode of the CCGT in Germany are very different, since new power plants in production operate at their peak (between 1,000 and 3,000 hours per year) being positioned after nuclear and coal-fired generation in the German *merit order* for electricity. On the other hand, there are hourly capacities at all points in the system (entry, storage, delivery), which make the system efficient, by enabling shippers in particular to benefit from portfolio effects from the variation in demand within their portfolios.

One shipper considers that the GRTgaz proposal could have the effect of importing flexibility from other countries, which could increase the price of gas for French gas-fired power plants.

One electricity generator is astonished that the United Kingdom and Spanish models, based on daily balancing, are not being studied more carefully, in particular the reasons why they rejected a move to an hourly system that had been envisaged for CCGT in the United Kingdom.

❖ Industrial consumers and their representatives

All industrial consumers who expressed an opinion were opposed to setting up an hourly balancing system as proposed by GRTgaz.

One industrial consumer estimates that the theoretical operation of CCGT at semi-base, cannot justify, in any event, changing the existing rules. In fact an electricity generator cannot reasonably expect to systematically use a CCGT at peak, because of the technical characteristics of this type of installation.

❖ AFG

In the case where the studies showed that significant investment is required to provide for the intraday flexibility needs of the gas system, the AFG agrees that it is appropriate to put in place hourly balancing.

Question 5:

How do you view the model in which “Intraday flexibility is provided by the TSO as part of their regulated transmission offering”, described in paragraph 4.4.2 of the Consultation Document? Do you think that the corresponding offer, if it involved payment, should be optional?


Thirty-three stakeholders have replied to this question: six gas infrastructure operators, nine electricity generators, seven shippers, eleven industrial consumers and the AFG.

❖ Gas infrastructure operators

The gas infrastructure operators were not in favour of the model where “Intraday flexibility is provided by the TSO as part of their regulated transmission offering”, described in paragraph 4.4.2 of the Consultation Document. For them, it is not part of the mission of the TSO to commercialise products which are not strictly necessary for gas transmission activities. Moreover, it does not seem to them to be optimal for the system, that the TSO be defined as uniquely responsible for commercialising resources for flexibility, in as much as other resources for flexibility, such as gas linepack, raise the issue of the responsibility of independent operators for these (storage facilities, LNG terminals or generators). They consider, however, that the TSO should be responsible for coordination and optimisation of the supply of intraday flexibility from the entire gas infrastructure.

Two of the gas infrastructure operators recall that the existing or projected LNG terminals have not been designed for a modulated transmission service. Given the current state of the LNG terminals of Fos-Tonkin and of Montoir and according to the studies which are being undertaken, a frequent intraday flexibility could be proposed by exploiting these installations in a down-graded manner. One such service would present a risk for these installations and would generate additional charges, which it would be necessary to limit and to deal with. In any event, this service should not harm the rights of current customers of the terminal. These gas infrastructure operators consider that the exploitation costs and the investments made for intraday flexibility should be paid for exclusively by the users of this flexibility.

Three gas infrastructure operators stress that this model is not of a nature which will give the necessary long-term signals for infrastructure development of intraday flexibility suitable for needs. One of these adds,



in particular, that spreading these costs across all of the LNG terminals' customers, would penalise LNG terminal operators situated in France, with respect to other European LNG terminal operators.

Two gas infrastructure operators consider that this model does not enable adherence to the principle of charging expenditure for intraday flexibility to the stakeholders who use it.

Finally, one gas infrastructure operator insists on the need to have an incentive for electricity generators to adhere to the hourly profile schedule supplied the previous day for the next day, in order to limit the potential impact on the running of the network, of an unplanned change in consumption. Moreover, the operator estimates that a solution which consists of having the supply of flexibility by the TSO cohabiting with direct supply by the holder of the flexibility, would be complex to implement operationally and, from an economic point of view, would put two methods for selling the same product in competition with each other. Finally, in the case where resources for flexibility would not be sufficient to cover consumers' needs, this model makes allocation of intraday flexibility between consumers, by the TSO, difficult.

❖ Generators, Shippers and their representatives


The UFE and three generators consider that it is too early to respond to this question given that the results of the economic and technical study, concerning coverage of the needs for flexibility by the entire gas infrastructure, are not available.

However, the model which is based on TSO handling of the intraday flexibility needs of consumers, within a framework of daily balancing by the shippers, corresponds to the preference of seven electricity generators and six shippers. By contrast, UPRIGAZ estimates that the need for intraday flexibility of gas-fired power plants should be covered contractually by the shippers, with the TSO taking responsibility for the physical balancing of the network and in particular the supply of intraday flexibility to the CCGT, in the event of failure of supply by the shipper.

According to four electricity generators and two shippers, the TSO have a global, real-time, vision of the supply and demand balance on the network. They are therefore the only ones with the ability to integrate and optimise delivery of the required flexibility to all the network's users, in the best way and at the lowest cost.

One electricity generator and one shipper, hope that the detailed model selected enables, both assessment of the cost of importing additional flexibility resources, existing or planned, from adjacent networks, and also enables sending of adequate economic signals to the main flexibility suppliers for them to invest in new sources of flexibility. One shipper abounds in the sense of a specific offer from the TSO, for which the cost of subscription would be a function of the daily operating profiles of the power plants.

In cases where the TSO could demonstrate that the current pricing rules were not sufficient to cover all the costs of supplying flexibility by the gas system on a given date, it would be necessary, in the view of six electricity generators and two shippers, that the costs were shared between the shippers on the basis of fair and non-discriminatory criteria. In particular, three electricity generators and one shipper insist that the price for access to the gas transmission network, proposed in this case by the CRE, should take account of both the revenue generated, understood to be an amount between 2.5 and 3 M€/year per CCGT, and also the use by gas-fired power plants of 1/24th of their daily supply capacity, whereas the current tariff includes utilisation of an hourly delivery capacity equal to 1/20th of the daily delivery capacity. Two shippers are in favour of this, which incurs additional costs due to this contribution to flexibility being supported by the CCGT.



The optional nature of the transmission offer for the gas-fired power plants, and even for strongly modulated consumers, leads to a move away from optimisation of the management of the network, in the opinion of four electricity generators and one shipper.

According to one of these, this approach favours too clearly the dominant players in the gas market. One shipper is opposed to the optional nature of the transmission offer to the CCGT, who would represent a risk for the TSO, in cases where their investments did not result in subscriptions by the shippers. One electricity generator considers that it could, however, be necessary to study the implementation mechanisms of the market and financial incentives for modulated consumers, as soon as the available resources on the entire gas infrastructure prove insufficient.

Finally one electricity generator is in favour of the coexistence of two models, so long as the flexibility suppliers (Storage facility operators, LNG terminals) propose a commercial offer that is suitable, transparent and non-discriminatory.

❖ **Industrial consumers and their representatives**

Industrial consumers, who expressed an opinion and Uniden, agree with the model "supply of intraday flexibility by the TSO, as part of the regulated transmission offer" described in paragraph 4.4.2 of the consultation document, with the reservation for eight of the industrial consumers and Uniden, that the costs incurred by the supply of additional intraday flexibility be borne by the CCGT.

One industrial consumer and Uniden oppose the idea of this specific offer for the CCGT being optional. They insist that the offer of the TSO should be suitable for the needs of the gas-fired power plants. Uniden proposes that the offer for the TSO be broken down as a function of the daily operating profiles. Some *a posteriori* financial adjustments could be applied by the TSO to compensate for possible variations between actual consumption of the power plant and the subscribed profile.

❖ **AFG**

AFG believes it is too early to respond to this question, given that the study has not yet been finalised.

Moreover AFG is not in favour of the offer from the TSO being optional for the CCGT. In fact, investments in new flexibility sources, except the gas linepack, raise the issue of the responsibilities of the LNG storage facility operators and of the gas producers who should not have to support the stranded costs in the event that subscriptions are not taken up by the shippers.

Question 6:

Irrespective of which model is selected, are you in favour of different treatments based on a gas-fired power plant's geographical location, or based on a project's state of progress? If so, what differences and according to what criteria?

Thirty-one stakeholders have replied to this question: four gas infrastructure operators, nine electricity generators, seven shippers, ten industrial consumers and the AFG.

❖ Gas infrastructure operators

A majority of the gas infrastructure operators consider that the distance between the flexibility source and the site is an objective discriminatory element which could be used as a vector for the distribution of costs between different strongly modulated consumers. One gas infrastructure operator considers that the geographical location of the power plants will also feature in the estimate by the TSO of the advance notice period required for intraday re-nominations by the power plant.

Two gas infrastructure operators are not in favour of differences in treatment as a function of the state of progress of projects for natural-gas-fired power plants.

One gas infrastructure operators recalls that incentives to locate plant close to entry points of the network were introduced for gas-fired power plants from 2006, based on seasonal operation of these power plants. Technical studies carried out to date, show that these signals are globally relevant but that they must, possibly, be refined from the perspective of the very recently identified, intraday modulated operation. When the technical studies are finalised, and if they prove that there are sustainable areas, favourable or unfavourable, for location of gas-fired power plants, then these elements will be brought to the attention of the market.

❖ Generators, Shippers and their representatives

Notwithstanding the indications on the operation of the CCGT, presented in the 2006, long-term investment program for investments in electricity generation and in the gas infrastructure, the existence of two gas-fired power plants on its network, and the supply by the project developers to the TSO of the operating characteristics of their power plant projects within the "*Dossier de Spécifications Fonctionnelles*" - *Operational Specifications File* -, the electricity generators note that no exploitation constraints relating to intraday flexibility have been specified by GRTgaz in its reports on the feasibility study which it has submitted, nor in any connection contract that it has signed to date.

The UFE, five electricity generators, Uprigaz and one shipper insist on the necessity not to threaten the technical and economic foundations of existing power plants, or those under construction, for which investment decisions have already been taken.


Three electricity generators and three shippers oppose transmission or balancing rules being applied according to the state of progress of projects, because this threatens the technical and economic foundations of the project and could lead to discrimination between installations, once these are brought into service.

One electricity generator estimates that the volume of intraday flexibility could be an objective criterion for differentiated treatment between consumers.

Another electricity generator estimates that all criteria for differentiated treatment should only be applicable for a limited transition period, until sufficient measures have been introduced to ensure the required intraday flexibility to all the gas-fired power plant projects.

In any event, possible changes to the rules must be made transparently and in a non-discriminatory manner between the shippers.

The UFE, six electricity generators, Uprigaz and two shippers agree that the TSO should rapidly put in place transparent, non-discriminatory, connection procedures, which provide long-term visibility for investors of the costs and constraints which they will have to face, to connect or use their site according to the estimated impact on the gas transmission network.



These electricity generators, would in particular like the TSO to replicate the "queuing system" mechanism put in place by RTE if constraints on the availability of capacity and of the intraday flexibility are proven. In fact, this "queuing system" mechanism enables project developers to visualise the undertakings of RTE regarding costs, exploitation constraints and timescales for lifting those constraints. It also protects the installations which are already connected to the gas transmission network from modification of their conditions of use, following the arrival of new consumers.

One of these respondents requests that the connection procedure be validated by the CRE.

If it should prove necessary in view of the results of the study, the UFE, six electricity generators and four shippers, state that they are in favour of the introduction, into the gas transmission pricing rules, of a geographical incentive for locating of gas-fired power plants near to flexibility sources, in particular storage facilities. Project developers must be informed, well in advance, of areas which would be subject to a pricing incentive, in order to enable them to integrate these into their strategy for assessing and selecting sites, according to one electricity generator.

Three electricity generators and two shippers estimate that the pricing incentive must have the objective of minimising costs for both the gas transmission network and the electricity grid. Hence, they could be applied to areas which are deficient in terms of electricity generating resources and for which gas transmission capacity is available.

❖ **Industrial consumers and their representatives**

Seven industrial consumers and Uniden are surprised at the lack of collaboration existing between project developers and the TSO to optimise the locating of power plants on their networks.

Eight industrial consumers are in favour of different treatments existing as a function of the extent of the congestion that the power plants create.

One industrial consumer and Uniden, declare themselves in favour of possible differences in treatment according to the location of power plants on the gas transmission network, in order to reflect the physical constraints of the TSO. However, they consider that it would be discriminatory to apply such different treatment according to the progress of a projects connection progress.

❖ **AFG**

The AFG is in favour of the physical constraints of the network, inherent to the location of a power plant, being taken into consideration by feasibility studies for connection of power plants.

The AFG would also like the TSO to define connection procedures giving sufficient visibility to project developers of the risks associated with connection of their power plants.

Question 7:

Assuming that hourly balancing obligations are introduced, do you think that they should apply to shippers just for supplies to gas-fired power plants, to shippers for supplies to all the largest consumers (based on thresholds to be defined), or to all shippers for all their customers?

Thirty-two stakeholders have replied to this question: four gas infrastructure operators, nine electricity generators, seven shippers, eleven industrial consumers and the AFG.

❖ Gas infrastructure operators

Considering the technical constraints created on the gas transmission network by the operation of gas-fired power plants, three gas infrastructure operators are in favour of the gas-fired power plants being subjected to hourly balancing. For the sake of fairness, this obligation should, according to them, be widened to all strongly modulated large consumers.

By contrast, one gas infrastructure operator considers that, if an obligation for hourly balancing must be applied, it should be kept very limited. To-date, it has not been identified which gas-fired power plants require such a measure.

❖ Generators, Shippers and their representatives

The UFE and two electricity generators consider that this question is premature because the studies carried out by GRTgaz are insufficient to justify a move to hourly balancing. Before putting in place such a system, it is necessary to measure the economic impact of changes to the balancing regime on transmission contracts and on the profitability of CCGT projects.

If an obligation for hourly balancing was to be introduced, although this does not appear appropriate to them, seven electricity generators and one shipper state that they would then be in favour of its application to all shippers regardless of the type of customer that they were supplying. The move to hourly balancing for all consumers guarantees, in fact, non-discriminatory access of third parties to the network, conforming to 4.1.a of European regulation 1775/2005 and article 2 of French law n°2003-8, and an optimisation in the use of flexibility sources available on the network, notably by portfolio of needs.

One electricity generator and four shippers are in favour of the obligation for hourly balancing being limited to consumers who are likely to significantly disturb the operation of the gas transmission network through large and unpredictable intraday variations in consumption.

❖ Industrial consumers and their representatives


The industrial consumers restate their desire to continue daily balancing on the natural-gas transmission network. Since industrial consumption is constant throughout the day, and the tariff for using the gas transmission network covers the actual hours when residential and tertiary consumers require intraday flexibility, if the obligations for hourly balancing were to be put in place, then they should only apply, according to these respondents, to gas-fired power plants.

❖ AFG

The AFG considers that there is no objective reason to apply different treatment to large consumers and to gas-fired power plants, since their consumption is very strongly modulated.

Question 8:

What are your views on the follow up to the public consultation and the further work of the Consultation Group as set out in paragraph 4.5 of the Consultation Document?



Twenty-nine stakeholders have replied to this question: four gas infrastructure operators, nine electricity generators, seven shippers and nine industrial consumers.

❖ **Gas infrastructure operators**

Three gas infrastructure operators are in favour of the definition, by late summer 2009, of new rules for transmission and balancing on the gas transmission networks. These should ensure network security and pass on additional costs for supplying intraday flexibility, once the first power plant projects are brought into commercial service.

One gas infrastructure operator suggests these rules should be regularly reviewed in order to respond better to the feedback received. Another proposes operating a test phase before definitively setting in place the GRTgaz proposal for hourly balancing for strongly modulated consumers.

One gas infrastructure operator declares that he will look closely to see whether the rules put in place conform to French and European legislation.

Finally one gas infrastructure operator regrets that public consultation by CRE has been initiated whereas several meetings about this subject within the consultative body dealing with transportation on French gas-transmission networks (*Gas Consultation*) existed. Such meetings would have allowed interested stakeholders to express their views. It hopes that the meetings on this subject will take place quickly.

❖ **Generators, Shippers and their representatives**

Uprigaz and three shippers agree with the planning of work proposed by the CRE.


Notwithstanding their wish to clarify the technical and economic conditions used in making investment decisions in future, CCGT, the UFE, six electricity generators and one shipper consider that the schedule, proposed by the CRE for definition, in the summer of 2009, of the rules applicable to the gas-fired power plants, is very ambitious. They favour the performance of a high-quality piece of work, within the *Gas Consultation*, based on an in-depth study being performed by the TSO, which would make available an exhaustive view of the constraints and their possible solutions, between now and the end of 2009.

In order to explain the absence of urgency for changes to the rules which are applicable on the gas transmission network, one of these respondents wishes to point out that only two additional gas-fired power plants will be brought into commercial service in 2009. Since these are situated at opposite ends of the GRTgaz network, their impact on the system should be limited and, in any event, should have no greater impact than the commissioning of the DK6 in 2005.

Four electricity generators restate their desire for the technical analysis, carried out by the TSO, to be audited by the CRE.

One electricity generator requests that the CRE confirms the application-without-conditions of the connection contracts of the gas-fired power plants, already signed by GRTgaz.

One shipper is worried about the consequences of commissioning a large number of CCGT, with access tariffs to the gas transmission network and to storage facilities, for shippers supplying industrial consumers. It will be pay close attention to whether new offers from the gas infrastructure operators for the CCGT also harm not the interests of other gas consumers.



One electricity generator, Uprigaz and one shipper wish to participate in the group of *Gas consultation* which is responsible for defining the transmission rules applicable to the gas-fired power plants.

❖ **Industrial consumers and their representatives**

Seven industrial consumers and Uniden are astonished that there has been no challenge to the increase in peak electrical consumption and that there has been so little consultation between the TSO and the project developers regarding the availability of flexibility sources for good operation of the CCGT.

One industrial consumer requests that the technical study, carried out by the TSO, is validated by the CRE, before the results are presented to the stakeholders.

Question 9:

Have you any other comments or suggestions?

❖ **Gas infrastructure operators**

One gas infrastructure operator hopes that the work of the *Gas Consultation* will address the question of covering the costs required to strengthen the core of the network, ready for connection of the new gas-fired power plants.

❖ **Generators of electricity (or project developers) and their representatives**


The UFE and four electricity generators recall that the CCGT participate in the good operation of the French electricity system and contribute to the objective to reduce greenhouse gas emissions. It agrees that the analysis carried out by the TSO considers the development of CCGT in France, which is based on the needs to increase electrical capacity at semi-base and at peak loads, and which strengthens the correlations between these two energies. This interdependence implies that the constraints and costs of gas transmission by the CCGT are manifest directly in the form of higher costs of electricity production, and that this leads, as a consequence, to higher prices in the electricity market and higher prices offered to end-user consumers.

One electricity generator insists that transmission and balancing rules, applicable to gas-fired power plants, are not made worse by the discrimination resulting from the philosophy of using "postage-stamp tariffs" for electricity and "price by distance tariffs" for gas.

In particular, this electricity generator proposes that a pricing incentive should be planned to encourage location of gas-fired power plant in areas that are congested from an electricity point of view, and for which intraday flexibility sources of gas exist.

One producer proposes two alternative solutions which could make it possible to continue balancing on a daily timescale and still cover the requirement for flexibility of modulated consumers, in case of insufficient flexibility sources being available to the TSO.

The first solution consists of use of the balancing market by the TSO on day J-1, for day J, to cover the intraday needs of modulated consumers when the gas infrastructure can not supply it. This system requires a transparent increase in the role of the TSO in the operational management of the system, in particular at



the level of use of its intraday flexibility resources on day J-1 and on day J, over all of the gas infrastructure (gas linepack, underground storage, LNG terminals and even terrestrial entry points).

The second solution would involve the TSO calling the RTE, on day J-1 for day J, and for a given site, in the event of an insufficiency of intraday flexibility resources from the gas system, to request a change of operation for the gas-fired power plant, in quantity and/or in duration.

RTE could then apply a new reason, "Gas Modulation", for the balancing mechanism. The RTE would then instruct the CCGT, conforming to the request from GRTgaz. If the gas and electricity systems have opposing tendencies for a given half-hour period, and in order to guarantee balance of the electricity system, RTE could compensate this adjustment by an opposed type of adjustment (also of the "Gas modulation" type) on another electricity generating site. Financial neutrality could be ensured by a repayment from GRTgaz to RTE of the shortfall if the adjustment call to the CCGT did not match the economic plan of the adjustment mechanism.

The financial outcome for the TSO, whatever the solution chosen, would be followed up by a balance statement, including all the costs and revenues from hourly purchases and sales.

One electricity generator considers that the GRTgaz proposal, for differentiated treatment depending of gas usage by the consumers, constitutes a judgement directed at cases where intraday flexibility used by the gas-fired power plants supplies the electrical needs of industrial tertiary and residential customers. Moreover, GRTgaz must adopt an equivalent scheme to those of the gas transporters in the United Kingdom and Spain, and gain competence in the operation of the electricity market, in order to better anticipate the different needs of intraday flexibility of the CCGT.


❖ **Shippers, non-developers of gas-fired power plants projects and their representatives**

Uprigaz is pleased with the development of gas-to-electricity production facilities, which utilises the complementarity of the two energies. Hence, it seems essential to Uprigaz to make sure that they take suitable account of the real costs incurred by these new installations with regard to investment and exploitation of the gas infrastructure (transmission and storage), so as not to aggravate the existing distortion of competition between the use of gas and electricity for heating requirements in the tertiary and residential sectors. Furthermore, it hopes that the issue of access by the CCGT to storage facilities, and the rights which will be assigned to them, will be addressed. Finally, it appears essential to them that all of the constraints which impact on the CCGT, relating to balancing, access to storage facilities or the effects on transmission tariffs, will be clearly laid out for the project developers before their investment decisions are made.

❖ **Industrial consumers and their representatives**

Seven industrial consumers hope that the CCGT will be disrupted as a priority, before other industrial consumers, in the event of a crisis impacting on gas transmission.

Uniden wonders at the relevance of the long-term investment plans for electricity production and for the gas infrastructure since GRTgaz affirms in its document that "*the time required for the construction of power plants is shorter than that required to carry out the strengthening of the major network. This situation will lead in the short-term to a risk of congestion, particularly in the current context of rapid growth in the number of power plants*". It would have preferred that the required investment to cover the needs for intraday flexibility had been integrated, in advance, into the overall energy strategy for France. Furthermore, it regrets that the last *Storage order* led to a doubling of the negative coefficients attributed to slightly modulated profiles, in order to release new storage rights for the CCGT and it fears that industrial sites will



face severe challenges from pressure conditions on the gas transmission network as they attempt to continue operating in the same condition.

❖ **Others**

One player in the energy market stresses that the intraday flexibility required by the CCGT can also be met by the intraday flexibility offered by tertiary and residential consumption sites. On the energy plane, this flexibility would result, on the one hand, from the thermal inertia of buildings and, on the other hand, from optimisation of consumption which currently exists neither locally nor on the scale of the gas system. By controlling gas counters remotely (e.g. for heating), this stakeholder proposes adding together the intraday flexibilities of residential and tertiary consumers in order to compensate for the impact on the TSO of other users, such as CCGT.

List of respondents:

Elengy GDF Suez Branche Infrastructures GRTgaz STMFC Storengy TIGF	Gas infrastructure operators.
Direct Énergie EDF EON FRANCE GDF Suez Branche Energie France Poweo Atel Énergie Novawatt Statkraft UFE	Electricity generators and developers of projects for gas-fired power plants and organisations representing them.
ENI Gas Natural Commercialisation France Gazprom Rhodia Energy Statoil Hydro Total Gas & Power Limited and Total Energie Gaz UPRIGAZ	Shippers, non-developers of gas-fired power plants projects and organisations which represent them.
Alcan Rhenalu Aluminium Dunkerque Aluminium Pechiney Arkema France Carbone Savoie Groupe Impress Packaging PSA Peugeot Citroën Recovco AFFIMET Saint Gobain Arcelor Mittal Société des Fonderies d'Ussel Uniden	Industrial consumers and organisations which represent them
AFG U-TECH Voltalis	Others