GAS PRICE ARBITRATION

Handbook

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LAWYERS

EDITORIAL

Welcome to Gas Price Arbitration Handbook. This handbook covers the various aspects of international gas pricing disputes. It also covers the various stages of a gas pricing dispute, from drafting the clause to triggering a review, all the way through the various stages of the arbitral process. It is designed for legal practitioners, in-house counsels, academia, and everyone else interested in this area.

Yours,

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I. INTRODUCTION

The long-term Gas Supply Agreements (the "**GSA**") have dominated the natural gas markets in Continental Europe since their emergence in early 1960. Over time, many countries have made efforts to liberalize their natural gas markets. For example, the European Union has taken a variety of steps to liberalize gas markets in the Member States and across the EU, commencing with the First EU Gas Directive in 1998 and continuing through the third EU Gas Directive in 2009 [1]. In addition, in some markets in the late 2000s, a divergence occurred between hub prices for natural gas and the price of oil, and hence between hub prices and the prices payable under some oil-indexed contracts. A number of factors have contributed to this, including additional volumes of Liquified Natural Gas (the "**LNG**") entering the international LNG market as a consequence of increased North American shale gas production and other increased imports. At the same time, the global financial crisis in 2008 contributed to a reduction in demand for gas in a number of markets. Thus, the global economic crisis and the fall in oil prices resulted in events never seen before in international gas commerce with virtually all buyers seeking radical renegotiation of process and a major increase in international arbitration [2].

These shifts in supply and demand for natural gas had an impact on the price of gas available for purchase at hubs. Therefore, recent market developments reduced the gas price significantly. These developments are the liberalization of EU gas markets; the establishment of gas hubs [3]; the development of alternative sources of energy [4], as well as of alternative means to transport natural gas, have determined the parties to the long-term GSA to find solutions in order to adjust the gas price fixed in the contract, according to the market price.

The buyers reacted in a number of ways to these changes. Some sought to minimize their undertakings under their existing contracts to the extent permissible under their take-or-pay obligations [5]. Others commenced the price reviews, seeking a variety of revisions to reduce the contract price. The revisions sought have reportedly ranged from basic price discounts to revisions that would modify the contract price formulae to achieve a contract price that includes hub-based elements or, in some instances, is entirely hub-based. The sellers also responded in a variety of ways, with some proposing reductions in flexibility terms.

In light of these events, the past decade has seen a proliferation in price review requests. Moreover, many parties have been unable to resolve these price review requests during the contractually specified pre-arbitration stage, and the number of price review disputes that have moved to arbitration for resolution has increased significantly.

The handbook analyses the powers of the arbitrators to determine the gas price in Gas Price Review arbitration. It is structured as follows: (**II**) the second chapter gives an overview on price determination by arbitrators in Gas Price Review Arbitration; (**III**) the third chapter analyzes the powers of the arbitrators to determine the gas price in cases the Gas Supply Agreement does not contain an adaptation clause; (**IV**) the fourth chapter analyzes the powers of the arbitrators to determine the gas price in cases the Gas Supply Agreement contains an adaptation clause; (**V**) the fifth chapter analyzes the issues of jurisdiction, admissibility and *ultra petita* particular to the Gas Price Review arbitrations; (**VI**) the sixth chapter analyses the consequences of Gas Price Review disputes settled in arbitration, focusing on the issues of *res judicata* and estoppel; (**VII**) the seventh chapter briefly analyzes the future of the Gas Price Review arbitrations; and (**VIII**) the eighth chapter gives the conclusions on the subject-matter of the work.

II. DETERMINATION OF THE PRICE IN GAS PRICE REVIEW ARBITRATION

In long-term GSAs, the parties usually agree that the gas price to be paid for each delivery. For instance, the buyers have historically agreed to "take-or-pay" obligations, requiring the buyers to pay for a pre-determined volume of gas. The rationale for the inclusion of take-or-pay clauses was based on the nature of the energy projects, which are often very capital intensive. The required investment funds for research, design, and construction are significant for sellers and often backed by banks whose sole recourse is the project itself. Thus, the take-or-pay clauses ensure guaranteed income to sellers under the contract. Buyers usually agree to these conditions, but they need to ensure that, in turn, the price paid to the sellers would remain viable in the long run, despite changing market conditions affecting the price that they could obtain when reselling downstream to end-users [6].

The price is determined through a specific formula, the purpose of which is to calculate the contractual price by reference to specific indexes [7]. Traditionally, the gas price is fully or partially linked to oil products. These types of GSAs which are oil-linked are generally limited to geographical areas, such as East Europe [8]. During the lifetime of the long-term GSA, the originally contractual agreed formula may not represent the gas market conditions. For this reason, the parties to the GSA often include in their contract specific clauses providing for the adaptation and adjustment of the contract's terms and conditions [9]. However, sometimes the parties to the GSA may not provide a mechanism for the adaptation of the contract. Therefore, in the case of a dispute, the judges or arbitrators have to determine whether or not they have the power to adapt the contract instead of the parties.

The gas price disputes generally concern the interpretation of a single clause in a contract, which is traditionally written with extremely vague language. For instance, a typical price review clause that can be found in long-term GSAs is worded as follows: "*Each of the Parties shall be entitled to request a revision of the applicable Contract Sales Price, provided that the market of the country of the final destination of the Natural gas shall undergo changes of such nature and extent that would justify a revision of the Contract Sales Price to enable the Buyer to maintain a reasonable marketing margin assuming the application of the principles of sound marketing practices and efficient management by the Buyer*" [10]. Some clauses, however, may provide for more explicit terms, such as "v*alue of gas*", "*market the gas economically*" or "*market the gas competitively*".

This handbook refers to the cases when the parties to GSA concluded an arbitration agreement with respect to the disputes arising out or in connection with the GSA. Therefore, in the following two chapters, we analyze the power of the arbitrators to determine the price in both cases, when the GSA contains and when the GSA does not contain a mechanism according to which the contract is adjusted in case of unforeseeable events. In assessing the power of the arbitrators to determine the price in Gas Price Review Arbitrations, it should be referred simultaneously to four different legal sources: (a) the scope of the arbitration agreement and the law applicable to the arbitration agreement; (b) the underlying agreement and the law applicable to it (*lex contractus*); (c) the law applicable to arbitration (*lex arbitri*); and (d) the law applicable to the substance of the dispute (*lex causae*). Sometimes the Rules of the arbitral institutions may be relevant as well.

Gas Price Review Arbitrations require the tribunal to exercise both backward-looking and forward-looking judgment [11]. The purpose of a price review is to fix the contract price formula. To do so, the tribunal has to first determine whether a triggering event occurred at or before the review date. In that sense, when it comes to establishing whether a triggering event has occurred, the tribunals are expected to exercise backward-looking judgment only. Next, if the trigger is established, the tribunal must adjust the contract price formula in accordance with specified criteria in the contract. Sometimes the contract does not contain such criteria at all. While these criteria differ from contract to contract, broadly, a price review clause would try to relate the price revision to the change that triggered the review. Thus, the task of the tribunal is to determine the value of the change at a specific date.

In the nutshell, the price review process involves the following steps:

- the first step is to determine if there were changes (also defined as 'triggers') in the given period of time (the Review Period);
- the second step is to verify if, at the review date, such changes are not reflected in the contract sales price;
- the third to determine if those changes have affected the relevant market value of gas; and
- the last is meant to adjust the contract sales price in such a way that the new price would meet the criteria set forth in the clause (e.g., marketing the gas economically, competitively) also known as the 'market test'.

In cases where a contractual authorization is given, *pacta sunt servanda* would not speak against but in favor of arbitrators' competence. Conversely, if no express or implied authorization has been given [12], then arbitrators must look for legal authority in the applicable rules of law. Consequently, the issue becomes more complicated because, as mentioned above, there are several laws that might be relevant. In relation to different *lex arbitri*, only a few arbitration laws contain express provisions dealing with arbitrators' authority to adapt the contracts [13]. Where the arbitration laws remain silent, a useful exercise is to refer to the competence of domestic courts in that particular jurisdiction and assess whether this power is procedurally available [14].

It can be argued that arbitrators' powers to modify contracts should be placed on equal footing with those of State judges. This is known as the principle of synchronized competences [15]. If the domestic procedural law does not provide for a rule applicable to judges, then one must resort to the substantive law of that jurisdiction. Therefore, in order to determine the arbitrator's power to determine the gas price, it shall be analyzed whether and to what extent the various legal systems allow the arbitrators to determine the gas price.

III. PRICE DETERMINATION IN CASE THE GSA DOES NOT CONTAIN AN ADAPTATION CLAUSE

The arbitrator's power to adapt the contract, as is mentioned above, has implications in four legal regimes: arbitration agreement; *lex contractus*; *lex arbitri*; and *lex causae*. While the arbitration agreement provides the basic authority and the limits of the arbitral tribunal power to adjudicate a particular dispute between the parties of a GSA, the *lex arbitri*, determines whether the arbitrators are procedurally authorized to adapt or supplement the GSA.

It is considered as procedural applicable law not only the *lex arbitri*, but also the procedural norms disciplining the court's power on the basis of the generally recognized principle of synchronized competence of judges and arbitrators. According to this principle, in case there is a lack of a specific provision in the *lex arbitri* governing a particular issue (e.g. adaptation of contract), if the courts are entitled to exercise a specific power, then the arbitrators also should be deemed to have the same authority [16]. Thus, if the judges are not provided with power, then the arbitrators are considered as not having. Also, the arbitration laws are often silent on the issue of adaptation power. That is why is needed to look at the laws of the place of arbitration which determines the competence of the judges to adapt the contracts.

Also, the substantive applicable law will also be analyzed since in some cases the procedural powers of courts and arbitrators are provided by *lex causae* [17].

The *lex contractus* is also relevant with regard to the issue of whether the concept of hardship is in general recognized by a specific legal system and which are the conditions required for its applications and the remedies granted to the parties. The contracts without an adaptation clause are not uncommon. Sometimes, the parties to the GSA cannot agree to include an adaptation clause. In other cases, the duration of the contracts is short, and the parties tend to not provide for an adaptation clause considering rarer the occurrence of events requiring a revision of their contract. This chapter explores the solutions given by different legal systems with regard to the price determination by arbitrators in case the GSA does not contain an adaptation clause.

1. The law applicable to arbitration (*lex arbitri*)

Before analyzing whether or not an arbitration clause can be considered sufficient to confer the power to adjust the contract upon arbitrators, it should be determined whether the *lex arbitri* allows the arbitrators to adapt the GSA. The determination whether the adaptation powers are provided by *lex arbitri*, implies a brief overview of some of the Civil and Common law systems.

1.1 Legal systems that do not recognize the concept of hardship or imprèvision and the power to adapt the GSA

In France, the French Civil Code of Procedure and the Civil Code does not provide the courts and the arbitrators with the power to adjust the contract in case of imprèvision [18]. The same conservative approach is followed by the Belgian legal system [19]. Although the Swiss legal system does not provide the possibility for the parties to adapt a contract upon the occurrence of unforeseen events changing its balance and making its performance for one of the parties burdensome [20], it allows a party to be discharged of a contractual obligation “where its performance is made impossible by circumstances not attributable to the obligor” [21]. Under Swiss law, when the contractual clauses impose a duty on both parties to negotiate a modification of an agreement, the parties must do so in good faith, although this duty does not imply a duty to reach an agreement. As is already mentioned, only a few arbitration laws contain provisions expressly addressing the arbitral tribunal’s authority to adapt or supplement a contract.

The Swiss Private International Law Act does not contain such express provision. Having said that, the Swiss Supreme Court held that an arbitral tribunal seated in Switzerland would have the jurisdiction and the power to fill gaps or to adapt a contract, even in the absence of an express authorization from the parties to do so [22]. The Swiss Supreme Court, therefore, ruled that a change in the circumstances surrounding a contract may be a ground for modification or even termination of the contract if the change results in a blatant and excessive disproportion of the respective obligations of the parties (c*lausula rebus sic stantibus* doctrine). Also, the arbitral tribunals seated in Switzerland should enjoy the same power as Swiss courts.

The principle of sanctity of contracts is also a cornerstone of the Common Law which considers the contracts as absolute and, consequently, to be performed even in case of supervening events, unless a specific clause in the contract expressly excuses one party from carrying out its performance. The English courts usually do not amend the contract upon the occurrence of unforeseen events that render the contract just commercially impracticable [23]. The same applies in arbitration in case the *lex arbitri* is the English law. The *ICC case n. 1512/1971* for instance, confirmed the strict application of the frustration doctrine according to English law [24]. In particular, the arbitral tribunal held that the application of the frustration doctrine has to be limited to the cases where compelling reasons justify it, having regard not only to the fundamental character of the changes but also to the particular type of the contract, to the requirements of fairness and equity and to all circumstances of the case. An example of the court's refusal to frustrate the contract when performance becomes commercially impracticable is *Thames v. Total* case regarding a long-term contract for the supply of natural gas. The agreement provided that the party unable to perform the contract upon the occurrence of a force majeure event would be relieved from its obligations. A dispute arose upon the request of one of the parties to be released from its obligations, due to the increase of the gas price. The English Commercial Court rejected this request holding that the party is unable to carry out that obligation if some event has occurred as a result of which it cannot do that. The fact that it is more expensive, even very greatly more expensive for it to do so, does not mean that it cannot do so. The supplier's obligation under the GSA in return for the price is not dependent on nor it is related to the market price of the gas. In these circumstances, if the supplier can supply gas it cannot be said that they are unable to perform their obligations under the agreement.

Unlike other countries, the United States has not generally adopted the doctrine of *rebus sic stantibus* which is designed to excuse contractual performance when changed circumstances impose hardship on a party. Rather, the overriding principle in United States contract law is *pacta sunt servanda*. This is expressly provided by section 1–203 UCC [25], and it would be against the UCC to ask a party to perform the contract when it has become extremely and excessively onerous due to supervening events changing the conditions on which the agreement was based and, consequently, altering its balance. However, in order to consider the performance commercially impracticable, it was clarified that it is not sufficient for an increase of costs unless the rise in cost is due to some unforeseen contingency that alters the essential nature of the performance [26]. At the same time, it does not make the performance impracticable a rise or a collapse of the prices in the market. Therefore, the price or market changes have to be severe and relevant.

In some cases, the rejection of the application of the impracticability doctrine was justified on the basis of the concept of foreseeability. For instance, in *Northem Illinois Gas v. Energy Co-operative* case [27], the Appellate Court of Illinois affirmed that "*the question of whether the non-occurrence of an event was a basic contract assumption is a question of foreseeability… adverse shifts in oil and gas prices were foreseeable and NI-Gas was charged with knowledge that it might not always be able to raise its rates*" [28]. The effect of frustration is the termination of the contract with the consequent discharge of the parties from future contractual obligations while the already accrued rights remain enforceable. Therefore, the rule is that no adjustment of the contract to the changed circumstances by courts and arbitrators is recognized [29].

1.2 Legal systems that recognize the concept of hardship or imprèvision and the possibility for parties to adjust the contract but do not expressly provide the power for the judges and arbitrators' adaptation power

Italian legal system recognizes the concept of hardship and the relevant possibility for the parties to adapt the contract when it becomes unbalanced, but it does not provide courts and arbitrators with the same power [30]. According to Art.1467 of the Italian Civil Code, the courts and arbitrators do not have the power to adapt contracts in case of hardship being such a possibility only granted to the advantaged party. Only the latter can offer to equitably modify the agreement in light of the new situation in order to maintain it in force, while the party affected by hardship can only claim for the termination of the contract.

1.3 Legal systems that expressly provide the courts and arbitrators with the power to adapt the GSA

The German legal system can be considered a non-conservative one being favorable to the adaptation of contracts by courts, and consequently by arbitrators, upon the occurrence of unforeseen events changing the contractual equilibrium. Indeed, the German Civil Code expressly recognizes the hardship concept and provides for the courts' authority to adjust the contract in such case [31].

The German legal system is an example of situations in which a procedural power of the courts (and arbitrators) is included in the substantive law and not in the procedural law. The first paragraph of Art. 313 of the Civil Code deals with the occurrence of unforeseen events while the second paragraph regards the case in which the circumstances representing the basis of the contract are absent since the beginning due to the mutual error of the parties. According to Art. 313, if the *lex arbitri* is German law, then the arbitrators have the authority to adapt the agreement upon the occurrence of unforeseen events that alter the relevant balance between the parties even without an express adaptation clause providing them with such power.

In the same vein as German law, the Swedish legal system provides for the power of courts and arbitrators to intervene on the contractual terms in both the Contract Act and the Arbitration Act. In particular, Art. 36 of the Contract Act [32] provides for the adaptation of the contract in case of supervening events changing the contractual equilibrium. It provides that a contractual term may be adjusted or held unenforceable if the term is unreasonable with respect to the contract's contents, circumstances at the formation of the contract, subsequent events or other circumstances.

Also, Art.1(2) of the Swedish Arbitration Act expressly provides that the arbitrators have the power to adapt the contracts [33]. However, this article only refers to the possibility for the arbitration tribunal to fill the gaps originally left open by the parties at the moment of the conclusion of the contract, provided that the parties have expressly conferred such power on arbitrators.

1.4 Clausula Rebus Sic Stantibus doctrine and its application in Gas Price Review arbitrations.

The following conditions must be met in order to trigger the application of the *clausula rebus sic stantibus doctrine*:
1) there is a change in circumstances leading to a fundamental distortion of the economics under parties' agreement;
2) the change of circumstances must not have been reasonably foreseeable;
3) the party availing itself of the *clausula rebus sic stantibus* doctrine had not accepted to bear the risk of this change (implicitly or explicitly) at the time of concluding the contract;
4) the change of circumstances must not be attributable to the party which claims the application of the doctrine; and
5) the disproportion between the respective obligations of the parties that results from the change of circumstances must be exceptionally important [34].

It is worth recalling that the *clausula rebus sic stantibus doctrine* derives from the so-called parties' presumptive intent, meaning that that the parties had no intention to leave their contractual relationship unchanged despite the occurrence of fundamental and unforeseen changes [35]. The question is somewhat more problematic when the parties, without including a general hardship clause, have agreed on a price revision mechanism, which is limited to the revision of the contract price. In that situation, the parties have expressly agreed on a specific procedure for price revision but have not included any provision to modify or adjust the other obligations included in the contract. In those circumstances, one could therefore argue that the intention of the parties was to leave those obligations untouched, despite the occurrence of a fundamental change in circumstances. That being said, there is also a basis for an argument that, through the choice of *lex arbitri* that recognizes the *clausula rebus sic stantibus* doctrine, the parties indicated their intention to grant each other the possibility to adapt the contract terms according to that governing law.

Another issue concerns the arbitral tribunal's jurisdiction and power to adapt a contract in form of an enforceable award. When a long-term GSA contains either a hardship clause or a price revision provision, the parties have authorized the arbitral tribunal to modify or complete the GSA. However, the answer is less straightforward when a party requires the adaptation of a contract under the *clausula rebus sic stantibus* doctrine.

This was explained by one commentator in the following terms: "*where the applicable substantive law allows the adaptation of a contract under the hardship concept ... it may still be arguable whether an arbitral tribunal has the procedural power to adapt a contract when the substantive law requirements of the hardship test are met*" [36]. The answer will very much depend on whether this issue is characterized as one of substantive or procedural law [37]. Absent any specific indication of the parties in the arbitration agreement, this issue will usually be examined according to the *lex arbitri* [38].

In general, legal systems that recognize the *clausula rebus sic stantibus* doctrine as a matter of substantive law, have enacted *lex arbitri* that gives arbitral tribunal jurisdiction and power to adapt a contract in unforeseen hardship situations. By contrast, systems that are less inclined to follow the doctrine of hardship, such as English law, will usually reject arbitral tribunals' jurisdictional power to adapt and modify the terms of a contract [39].

Under Austrian law, for instance, arbitral tribunals are restrained to the decision powers of courts. In the context of price revision disputes they may, therefore: (a) grant or dismiss a specific revision of the pricing terms; or (b) declare that a party is or is not entitled to a (specific) price revision or amend the pricing terms of the agreement in question [40]. However, they do not have the power to amend the pricing terms of the GSA on the basis of a price revision clause instead of the parties even if the parties expressly referred in the price revision clause to arbitration in the case, they fail to agree on an amendment of the pricing terms [41]. The role of the arbitral tribunals is limited to interpreting and applying contracts, they do not have constitutive powers [42].

In case the *lex arbitri* expressly provides that the arbitrators have the power to adapt the contracts [43], then, consequently, the arbitrators may determine the price of the GSA, if the scope of the arbitration agreement allows it. In those frequent cases where the applicable arbitration law remains silent on the arbitrator's authority to fill gaps and adapt contracts, one has to refer back to the competence of domestic courts in that particular jurisdiction. In this case, the principle of synchronized competences is applied [44].

2. The law applicable to the dispute (*lex causae*) and the law applicable to the contract (*lex contractus*)

The tribunal's authorization by the parties and its procedural competence to adapt contracts and fill gaps have to be distinguished from the substantive requirements and validity of that decision. A strict distinction has to be drawn between the formal question of whether the contractual intervention required from the arbitrator may be called arbitration in the proper sense and the related but distinct inquiry of whether the tribunal considers the requirements of the adaptation process to be met or not. These substantive standards are governed by the *lex causae*. It is the law applicable to the substance of the dispute which has to be consulted to decide on the methods of adaptation that shall be applied by the arbitrators if the contract does not contain specific instructions for the tribunal. Also, the *lex contractus* has an important effect on the outcome of the adaptation or supplementation of the contract by the arbitrators. The contract terms established by the tribunal in adapting or supplementing the contract shall not violate the mandatory rules of the law applicable to the contract.

Among the provisions of national law that permit adjustment of contract terms, the most notable rely on theories of good faith and abuse of rights as it is in Switzerland [45], or the notions of *Treu und Glauben* as it is in Germany [46]. Sometimes, a duty to re-negotiate the GSA might arguably exist under principles of international trade law. Such a duty may arise in the case of the substantial upheaval of the economic equilibrium between the two sides [47]. Similar principles may be found in the UNIDROIT Principles, which attempt to suggest how commercial parties should react to dramatic and unforeseen circumstances that interfere with the performance of the contractual duties, either through the excuse of performance and adaptation of the contract obligation, or a duty to re-negotiate, failing which the contract terminates [48]. A duty to renegotiate can also be found in the *lex contractus* itself, regardless of the contractual stipulations [49]. There are many similar examples of such a duty in various jurisdictions that are important in the energy sector [50]. In contrast, the other legal systems have adopted a solution leading to the termination of the contract when its performance becomes excessively onerous for one of the parties [51].

3. Rules of the arbitration institutions

Institutional arbitration rules, usually, are silent on the powers of the arbitrators to adapt the contract. The UNCITRAL Arbitration Rules are silent as well on this matter. However, some institutions provide specific rules for the adaptation of contracts. These rules are separate and distinct from those regarding arbitration proceedings. Art.1 of the Belgian Centre for Arbitration and Mediation (CEPANI) Adaptation of the Contracts Rules, for instance, provides that the rules apply only if the parties have so agreed with a specific clause and if they wish to have recourse to a third person whose mission shall be to complete the contract on items unforeseen by them or to adapt their common intent to new situations. The third appointed party issues a written recommendation or a decision that is binding for the parties but that does not constitute a judicial decision or an arbitral award.

Similarly, the ICC issued specific rules for the adaptation of contracts. The ICC published in 1985 the Rules for the Regulation of Contractual Relations, providing guidelines on the drafting of the hardship clause. The document proposed three options in case no agreement could be found by the parties: (1) the maintenance of the original contract; (2) the recourse to courts or arbitrators; (3) the recourse to the Standing Committee for the Regulation of Contractual Relations. However, the last version of the hardship clause suggested by the ICC does not provide either for arbitration or the Standing Committee upon the parties' failure to find an agreement. Indeed, the only option proposed in such a situation is the termination of the contract [52].

The analyzed legal systems show a different approach towards the issue of the adaptation of contracts by courts and arbitrators upon the occurrence of unforeseen events that alter their balance. If the *lex arbitri* allows contractual interference by the arbitrator but the *lex causae* does not provide for an adequate substantive basis for this interference, the arbitrator is acting in a legal vacuum and cannot modify or adapt the contract [53]. In terms of *lex arbitri*, the first approach is adopted by the French, Belgian, and Swiss legal systems and, in the common law area, by the English and US systems (although with some differences). Therefore, these laws provide two solutions in case of supervening events making the contract unbalanced by rendering the performance of one of the parties excessively burdensome: termination of the contract or performance without adaptation to the new circumstances.

The second approach is taken by the Italian legal system, and the third approach is taken by the German, Dutch and Swedish laws that expressly provide courts and arbitrators with an adaptation power (even in this case the solution of the legislator is mainly based on the principle of good faith).

We can conclude that, from a procedural perspective, if the *lex arbitri* is the German, Dutch or Swedish law, then the arbitrators should be entitled to adjust long-term GSA which does not contain an adaptation clause, provided that all the relevant triggering conditions established by the *lex causae* are met. The problem arises in case the procedural applicable law is silent regarding the arbitrator's power to determine the price of the GSA. It is assumed that, if the procedural law is silent on this matter, then the arbitrators are entitled to determine the price of the GSA on the basis of the arbitration agreement. A similar problem can also be found in case the procedural applicable law, although not expressly denying the power of arbitrators to adjust the contract, belongs to a legal system that in general does not recognize the concept of hardship or imprèvision and only in some exceptional cases expressly provides the courts and arbitral tribunals with the power to modify agreements. In this situation, it seems possible to identify, in light of the general characteristics of the legal system, a sort of implicit mandatory provision denying the adaptation power of courts and arbitrators.

IV. PRICE DETERMINATION IN CASE THE GSA CONTAINS AN ADAPTATION CLAUSE

The second category of GSA analyzed is those which contain an adaptation clause. The main issues that arise in relation to this kind of agreement are the possible conflict between the arbitrator's authority provided by the GSA and the provisions of the *lex arbitri*.

The concept of adaptation is used to identify the activity of adjusting and amending the contract upon the occurrence of unforeseen events changing the market conditions and affecting the contract's balance, called "*supervening gaps*". It does not include the function of filling the gaps voluntarily left by the parties at the moment of the conclusion of the contract, which is called "*original gaps*" [54]. Thus, unless a specific adaptation clause is included in the agreement or a force majeure event occurs [55], or there is an express statutory exception [56], the parties remain bound by the original agreement even if its balance has been altered [57].

1. Types of adaptation clauses

Contracting parties have developed several mechanisms that help to maintain, as far as possible, the original bargain of the contract and allow renegotiation of the contract, in case the change in circumstances prove to be too onerous for one of the parties [58]. This applies where a change in circumstances that is beyond the control of the parties makes the performance of the contract excessively onerous for one of the parties. In such circumstances a hardship clause offers a flexible approach for dealing with such an unforeseen change in circumstances, thereby providing a framework for the parties to renegotiate. Contrary to Price Revision Clauses, the hardship clauses can usually be triggered at any time and cover all of the rights and obligations arising under the contract, not just the price. In other words, the purpose of hardship clauses is to readapt the whole contractual equilibrium, and modify the initial bargain, following a major and unforeseeable change of circumstances. As such, their scope of application can be fairly broad, in order to allow for a complete rebalancing of the parties' respective rights and obligations. Because of their broad and general character, some authors consider that hardship clauses will generally give way to price revision provisions, which shall therefore prevail as *lex specialis* in the context of any modification of the price indexation formula in long-term GSA [59]. Put differently, when the parties have agreed on specific requirements for a price revision, it can generally be assumed, according to those authors, that they intended said requirements to govern exclusively any modification of the price formula [60]. However, the general hardship clauses will apply to the modification of the remaining contractual provisions.

In case of hardship, the triggering events are considered the changes in the market conditions that alter the contract's balance, by making the performance of one of the parties excessively onerous, and that have to be: (1) substantial; (2) unforeseen; and (3) beyond the control of the parties.

There is a hardship where the occurrence of events fundamentally alters the equilibrium of the contract and: (a) the events occur or become known to the disadvantaged party after the conclusion of the contract; (b) the events could not reasonably have been taken into account by the disadvantaged party at the time of the conclusion of the contract; (c) the events are beyond the control of the disadvantaged party; and (d) the risk of the events was not assumed by the disadvantaged party [61].

Notions of foreseeability play a vital role in commercial risk allocation in the transactions of natural gas. Bargains should not be shirked through the invocation of predictable events. When the risk allocation occurs through explicit contract language, seemingly subtle word choices may be determinative [62].

Another key mechanism for adaptation of the contract is the force majeure clause. This operates as an express risk allocation mechanism between parties in situations that are beyond the parties' control. Examples include the outbreak of war, strikes and so-called Acts of God. There is usually an onus on the parties that they should exercise reasonable diligence to avoid or mitigate such an event. The key element here is that exercising a force majeure clause would result in the suspension, reduction, or exemption of the parties' obligations under the contract, according to the language of the force majeure clause. Again, such a clause would have to be interpreted by an arbitral tribunal, which would establish the boundaries of what is considered as force majeure.

Another mechanism for adaptation of the is the Price Review Clause, which will be analyzed in the following paragraphs. The price review provisions can be included in the category of the adaptation clauses since they give the parties the possibility to renegotiate the price formula used for the determination of the price, in case the unforeseen events change the conditions of the relevant market and, consequently, such formula does not reflect anymore the actual market situation and makes the contract unbalanced [63]. A price review is distinct from a force majeure claim. Although they can coexist, they are different, and one common distinction between them is foreseeability [64]. While the force majeure requires that the trigger event be unforeseeable, the price review does not provide for such a requirement. Generally, unforeseeability is more difficult to prove as it contains a higher threshold.

2. Price review clause

The history of the price review clause can be traced back to the early days of the North Sea gas industry. The buyers of the natural gas were willing to undertake the volume commitment, but they needed to be assured that the price paid to the sellers would remain viable over the long term, even the changed market conditions affect the price that they can obtain when reselling downstream in the end-user markets. The parties therefore might reach a balance. That balance is achieved when the contract price is determined by reference to the price that end-users pay for natural gas in the market where the gas is delivered. The objective is that the contract price that the buyers pay to the sellers will self-adjust, according to a formula, as the end-user prices evolve over time. However, the issue is how do sellers and buyers agree on the contractual price, in a way that the agreed price will adequately track the changing value of gas in the end-user market? The answer, in general terms, is through a netback formula. For example, the gas sold to the US gas market has been sold at a price tied to US-traded gas prices spot markets,[65] thereby ensuring that the price remains aligned with the conditions under which the gas can be sold into the downstream market.

Historically, however, this option was not available in many gas markets. When Asian and European importers first began contracting for natural gas supplies, there were no developed natural gas markets in their countries. The buyers were creating demand downstream by importing gas and selling it to consumers in competition not with other importers (because the importers usually are state-owned companies which are the sole importers in the respective market) but, rather, with other competing fuel products, primarily the oil products. Therefore, the parties to the GSA included the clauses allowing them to review the price for the delivered gas, in accordance with the price of the oil products.

These Price Review Clauses started to become standardized in the 1980s, when contracts were signed concerning the Norwegian Troll gas reserves. These so-called "*Troll contracts*" were organized through a centralized process, by which all producers and all the buyers were involved in the negotiations. As a result, a standardized form of agreement was used, which included the price review language [66].

The development of spot markets determined the parties to the GSAs to introduce a new mechanism for the determination of gas prices. The market or "hub-pricing method" was applied instead of oil indexation. Thus, the formula was linked to a Gas Index [67]. The parties may also want to link the prices to the market for alternative sources of energy, such as fuel oil or coal.

The boom in shale gas, primarily in the US, has also eroded the link between oil and gas production, with better facilities for LNG export and import. Consequently, the GSAs that link the contract price to oil prices risk departing significantly from the real market conditions affecting the parties. Over the last few years, the European spot gas prices have fallen relative to oil prices, but buyers are still tied into lengthy and expensive GSAs. As a result, an increasing number of buyers have triggered the price review mechanisms according to their GSAs and sought to renegotiate the contract price by disconnecting it from the oil price.

There are a lot of recent high-profile Gas Price Review disputes which involved the interpretation of the price review clauses and the change of the price formula from oil-indexed price to hub-indexed price. For instance, in *Gazprom v. Naftogaz* case, the Arbitration Institute of the Stockholm Chamber of Commerce ("**SCC**") tribunal in February 2018 decided that the gas price formula provided in the GSA between the parties is no more oil-indexed and the nearest German Gaspool hub price becomes the new reference for deliveries at the Russian-Ukrainian border [68(a)]. Another dispute regarding the determination of the price formula is the *Edison v. Gazprom* dispute. In 2011, Edison got a favorable award by which the price formula in the GSA between Edison and Gazprom was linked to hub price, instead of oil price. The hub indexed formula was sought by Edison because it was cheaper than the oil price formula [68(b)]. Another dispute involving the change of the price formula was *Edison v. RasGas* with respect to the import of the gas from Libya according to the GSA which was previously linked to the oil-price index. Lastly, a relatively recent award issued by an ICC tribunal on 23 April 2013 resolved the dispute *Edison v. Sonatrach* with respect to the change of the price formula according to which the price was reduced. The same issues were settled in *Eni v. GasTerra* dispute by an ICC tribunal in 2007.

All these disputes involved the reduction of the gas price following the change of the price formula and of the indexation methodology. These cases have an important impact on the gas market given the sums at the stake.

3. The interpretation issues of the Price Revision Clauses and the power of the arbitral tribunal to determine the gas price

Price review clauses can provide for a periodic review of the price formula in order to adapt it to the current market conditions, and/or for reviews to be carried out upon the occurrence of unforeseen changes of the market conditions that are not reflected in the original formula. As to the first category, the condition triggering the renegotiation and adaptation of the contract (the "**trigger event**") is the passing by of time. An example of this kind of clause can be found in the LNG contract concluded in 1976 between Sonatrach and Distrigas, providing that: "*The Parties agree to meet regularly to proceed with the revision of the Contractual Sales Price defined in Article 9 above. They shall so meet for the first time during the first quarter of the year 1980 and thereafter every four (4) years. The revision of the price shall consist in adapting it in a reasonable and fair manner to the economic circumstances then prevailing on the imported Natural Gas market and on the market for the other imported energy supplies competing with its production in the East Coast and Gulf Coast areas of the United States of America within the framework of long-term contracts*" [69].

With regard to the second category of the price review clause, the trigger events are the changes of the market conditions that have to be: (1) substantial; (2) unforeseen; and (3) beyond the control of the parties. Moreover, these changes have not to be reflected in the original price formula and their effect on the value of natural gas has to be lasting. An example of the second kind of price review clause can be found in the *ICC cases no. 9812/1999* and *no. 13504/2007* that dealt with the same contract. In particular, the GSA provided for a revision of the price "*if the economic circumstances in the country of the Buyer which are beyond the control of the Parties should change significantly compared to what is reflected in the prevailing price provisions under Articles 6.1-6.4 hereof, then each Party shall be entitled to an adjustment of the price provisions under Articles 6.1-6.4 hereof, reflecting such changes, in particular, the value of Natural Gas in the end-user market of the buyer as such value can be obtained by a prudent and efficient gas company*".

Price review clauses typically require the requesting party to show that certain qualitative changes have occurred in the relevant market that merit revision of the price formula. In particular, they usually require the requesting party to establish that:

- A "significant" or "substantial" change has occurred in the buyer's market;
- The change occurred before the "review date";
- The change was beyond the control of the party requesting a price review;
- The change must have, or be likely to have, an effect on the market value of gas in the buyer's market [70].

Price revision clauses in long term GSAs commonly follow a common structure, providing for:

(i) substantive criteria which have to be applied in revising the gas price as well and the factors to consider when adjusting the pricing formula, which means that the arbitral tribunal has to determine the price according to the formula determined by the parties;

(ii) criteria triggering the right of either party to request a revision of the gas price. As is described above, the trigger event permits the review procedure to be invoked either automatically or at some defined date;

(iii) the process for seeking a price revision. This includes an obligation for the party seeking a price review to set forth the basis for the adjustment it seeks and requires the parties to meet to discuss the mandatory requirements for giving notice and a process for negotiation of a revision of the contract price. This includes the form of binding dispute resolution (commonly arbitration) in case the negotiation fails.

Thus, even though the specific wording of a price-review clause may vary, an arbitral tribunal confronted with a Gas Price Review dispute will generally have to consider three different questions: (i) whether the trigger event occurred; (ii) whether the Claimant followed the procedure outlined in the price-review clause before seeking to use the arbitration; and (iii) how to adjust the pricing mechanism between the parties in order to maintain their contractual relationship [71].

3.1 Substantive Criteria

The price formula will obviously have been a key part of the original negotiations between the parties, who will have analyzed the effect of the draft pricing provisions on their position based on various foreseeable scenarios (such as at different oil prices). The price formula may include mechanisms that will limit the effect which fluctuations in the published prices of the other fuels will have on the contract price. For example, some pricing provisions adopt "*top stop*" and "*bottom stop*" formula, where two formulas operate so as to limit the upward or downward effect of price movements. Once the new price is determined, provision is made for accounting adjustments, including any balancing payments, typically so as to give retroactive effect to the adjusted price from the price review date [72].

3.2 Timing

Timing is an essential element in the price review process. The wording usually used in a price review clause refers to the time element only to make clear that a price review request can be requested at specific intervals. Generally, there are four key temporal terms used in GSA and in the price review: the reference date, the review date, the review period, and the new price period. The following key timing elements are considered: (a) the reference date is when the price was the last set by the parties or by the arbitrators; (b) the review date is generally the first date of effect of any new revised contract price; (c) the review period is the period between the reference date and the review date; and (d) the new price period refers to the time from the review date to the date when a new price review will be requested [75].

3.3 Fair market value

The GSAs price is usually compared with the market value of the gas at the beginning and the end of the review period. In most circumstances, the value of gas is the price of gas obtained in the relevant market in arm's length transactions at a certain point in time. To determine the market value of gas, certain data (e.g. prices) must be considered [75]. Also, an important issue is the period for assessing the market data. In general, market data should be analysed to determine whether changes occurring during the review period caused the contract sales price to disconnect from the gas market as of the review date [76].

3.4 Trigger event

One of the most important parts of a reopener clause is the trigger, or condition that must occur before parties can give notice of a price review. If an arbitral tribunal does not find the contractual trigger is satisfied, it lacks jurisdiction to adjust the gas price. Triggers often require some combination of a change in the underlying energy market that affects the value of gas supplied, where the change in value is large enough to justify the change in the price formula.

There are different approaches regarding how a price review is triggered. For example, it is less common for GSAs that the parties may include a provision providing for automatic price adjustments at regular intervals based on the levels of published fuel prices or tax rates. More commonly, many GSAs provide that a party may request a price revision when certain criteria have been established, such as a substantial and unforeseen change in circumstances that were beyond the parties' control [77]. The requesting party of a review will generally have to prove that: (i) a change of economic circumstances has taken place within the review period; (ii) the change is significant; (iii) the change has occurred in the country or market of the buyer; and (iv) the change is outside of the control of the parties [78]. Furthermore, the trigger event may only be taken into consideration where the requesting party has previously sent an adequate trigger letter [79].

Alternatively, there may be provision for regular price reviews to take place at defined intervals and for a limited number of additional special price reviews to be initiated by either party at any time over the life of the contract. The aim of prescribing a minimum period between price reviews is to try to avoid the possibility of the parties constantly being engaged in price disputes, which would destabilize the contractual relationship between the parties. Another possibility is that economic hardship must be established on the part of one of the parties in order for a price review to be carried out, or for a certain minimum percentage change between the contract price and the market price to be demonstrated [80].

A number of points will need to be considered when drafting trigger requirements. The most significant include:

(a) Should the change required to trigger the review be assessed mechanically (e.g., whenever the price generated by the formula changes by more than X% or if the specified collar/cap is exceeded for more than a specified period) or be more fluid (e.g., "significant change" in the energy market of the buyer since the contract commencement date or last price review). For example, in *ICC Case No 15051* [81(a)] the tribunal determined that a sustained 25% increase in Brent Crude prices during the review period was a significant change.

(b) For what period: whichever approach is taken, a sustained rather than short term change may be required to trigger a review for obvious reasons. The period considered in assessing whether a review can be triggered may differ from the period considered when determining how the price should be adjusted. Subject to the terms of the clause, the price review generally will focus on the position as of the review date and will set a new contract price from that date. However, it may be necessary to look back to determine whether events that the requesting party claims constitute the triggers have occurred and qualify as the relevant changes for adjusting the price [81 (b)].

(c) The relevant market: if the trigger requirements refer to a market, then some definition of that market will normally be provided. In doing this, some clauses will refer, for example, to the end-user market of the buyer or the wholesale market of which the GSA is part. Even with such a definition, there can be disputes over the scope, both geographically and its nature; is it the whole of the market or certain segments (e.g., industrial users, household or certain competing fuels).

(d) Unforeseeable/outside party's control: the inclusion of this requirement can be intended to address two issues: one is to avoid reviews being triggered for changes already catered for in the existing price bargain for the reference period; the second is to prevent a change which has been brought about by the actions of one of the parties to the GSA being relied upon by that party. In both cases, finding evidence to establish the facts definitively may be challenging.

Thus, in case the tribunal considers that the trigger event has not occurred, then the tribunal does not have jurisdiction to adjudicate the case.

3.5. Notice and negotiation period as an admissibility pre-condition of the Gas Price Review arbitration

Typically, GSAs contain a mandatory negotiation period of several months during which parties must discuss their differences in order to seek an amicable settlement. Only if parties are unable to reach a commercial agreement during this period that a price review ends up in arbitration. Most price reviews were historically resolved at the negotiation phase and rarely submitted to arbitration. However, there has been a notable increase in arbitrations involving European gas markets in recent years, suggesting that buyers and sellers are finding it difficult to resolve their differences through negotiations [82]. The party seeking the price review must normally serve a notice setting out the trigger event which it believes has given rise to the right for it to request a price review. There may be strict requirements in relation to the notice which must be complied with. For example, it may be a requirement to include the revised price formula which the requesting party contends is appropriate in light of the significant change. Also, the notice shall explain the reasons for the price review. Following the service of a compliant notice, the price review clause is likely to provide for a set number of days in which the parties may negotiate. This will enable the parties to try to reach a negotiated solution. If the parties fail to come to an agreement, the matter is then referred to arbitration. Therefore, besides determining whether the trigger event occurred, the arbitral tribunal has to verify whether the procedural conditions of admissibility of the claim outlined in the price-review clause are met. In particular, the notice given to the other party not only has to be valid but also has to be complete, since only changes in economic circumstances mentioned in the price review request may be invoked before the arbitral tribunal at a later time [83 (a)]. Sometimes, the arbitral tribunal or the court may impose the parties to renegotiate the gas price. For instance, in *EDF v. Shell* case, the Court of Appeal of Paris not only ordered the parties to renegotiate the contract upon the occurrence of unforeseen events, notwithstanding there had already been a previous failed attempt to modify it, but it also held that, upon the failure of the renegotiations, it would have adapted the contract by means of the determination of a new price formula, on the basis of the solutions proposed by the parties, provided that the latter would have not implied any alteration of the contract terms other than the price. The decision was taken by the arbitral tribunal in *Cosarma v. Agip* case, where the arbitral tribunal ordered the parties to fulfill the negotiation procedure [83(b)]. Conversely, if the negotiation requirement is not fulfilled, the claim is not admissible, and the arbitral tribunal cannot exercise the power to determine the price of the GSA.

4. The scope of the price review process

The price review clause will determine the scope of the review that may be undertaken. If the price under the GSA is determined by the arbitral tribunal, then the tribunal's authority will be determined by the terms of the GSA.

Disputes may arise, for example, as to whether the words in the price review provision mean that the tribunal is mandated only to amend an existing price formula so far as is necessary to reflect the changes proven, or whether the tribunal is entitled to start with a blank sheet of paper. Parties may contend that the base price ("P0") should be changed and/or that there should be adjustments to other aspects of the formula, such as the indexation element. Issues may arise as to whether the tribunal has the power to change the basis of indexation. For example, is oil-indexation locked in, or is the tribunal permitted to order an amendment from oil indexation to hub-based pricing. As it was noted, "it is common for price review clauses to refer to a separate arbitration provision that applies generally to all disputes arising under the agreement. These arbitration clauses are of the kind normally found in commercial agreements" [84]. This means that in assessing the scope of the price review process, the tribunal has to interpret the price review clause in combination with the arbitration clause. Therefore, the scope of the price review process, in case the price is fixed by arbitrators, is determined within the limits of both the arbitration clause and price review clause.

One of the illustrative cases which refers to the interpretation of the scope of the price review is the Esso case. This case dealt with a dispute that arose out of a fifteen-year natural gas sale agreement concluded on 27 November 1997 between Esso Exploration & Production UK ("**Esso**") and Electricity Supply Board ("**ESB**") and providing for two kinds of review of the price: its Energy Charge element and the other component of the price was a Delivery Point Capacity Charge, that was not subject to adjustment. The first was a periodic review of every six months to be conducted in light of four factors: the price of gasoline, the price of low sulfur fuel oil, the price of natural gas, and the rate of inflation in Ireland. Such factors had to be determined by considering the relevant average calculated with regard to a period of twelve months ending three months before the review date. Moreover, the agreement provided that, as reference prices of the above-mentioned energy sources, the spot prices for the delivery in northwest Europe had to be taken.

The second type of review was, based on the change of the market conditions, applicable in case "it is reasonably satisfied in good faith that the Energy Charge is at the time of giving such Price Review Notice 85% or less than the Comparator" [85].

The Comparator was defined as "*the market price ... at the date of the relevant Price Review Notice for natural gas being supplied on the basis described above, that is, on the basis of the sale of reasonably similar quantities over a reasonably similar period on reasonably similar terms and conditions between parties of reasonably similar commercial and financial standing for use in a reasonably similar type of power station in the UK or Ireland*" [86]. In addition, the agreement established that the party requesting a price review had to submit a notice specifying the value of the Energy Charge which it is requesting ... a reasonable and detailed explanation of how it has reached that figure and to provide it with all reasonably available published and other non-confidential information to support its position. Upon the submission of the price review notice, the parties had to negotiate and, in case no agreement could be reached within 90 days, the requesting party had to either withdraw the notice or start arbitration in order to determine the Comparator and the consequent adjustment to the price.

On 1 November 2002, Esso sent its review notice to ESB claiming that the Energy Charge was 85% or less than the Comparator. As to the determination of the latter, it affirmed to have calculated it by taking as reference other short-term contracts since it was impossible for confidentiality reasons to obtain information on other long-term GSAs similar to that in force between the parties. ESB rejected such a request alleging that it did not comply with the contract since the latter provided that the Comparator had to be determined by referring to other GSAs. Thus, according to ESB, due to the wrong calculation of the Comparator made by Esso, the condition triggering the review (that the price had to be equal to 85% or less than the Comparator) did not occur and, consequently, the price review request was invalid.

Upon the parties' failure to reach an agreement, Esso referred the matter to arbitration, which later issued an award accepting Esso's claims. However, ESB challenged the jurisdiction of the arbitration tribunal on the ground that, since the price review request was invalid, the condition necessary to establish its authority was lacking.

Esso, then, brought the matter before the English High Court. The High Court agreed with ESB arguments regarding the calculation of the Comparator and the consequent invalidity of the price review request, on the one hand, and the lack of jurisdiction of arbitrators, on the other.

As to the latter issue, the Court made a further consideration. In particular, it affirmed that the part of the review clause providing that, in the lack of an agreement between the parties, the matter could be referred to arbitration to determine the Comparator and the consequent adjustment to the price, had to be interpreted as granting arbitrators only the power to determine the amount of the Comparator and not the issue of its nature and how it had to be calculated. According to the Court, since the real dispute between the parties concerned whether the Comparator had to be determined by taking as a reference long-term or short-term gas sale agreements, the arbitration tribunal did not have the jurisdiction to decide this matter. The Esso case, which is one of the fewest publicly available decisions regarding a Gas Price Review arbitration, shows how the particular wording of the price review clauses determines the limits of the arbitrator's power in the determination of the gas price.

4.1 Role of experts

Expert evidence often is voluminous, setting out, among other things: the economics of the parties' transaction (e.g., explaining the take-or-pay obligations under the GSA); analysis of the trigger criteria (e.g., whether or not there has been a change in circumstances that meets the contractual criteria); and the appropriate level of adjustment (in cases where the tribunal finds that the criteria for triggering the price review have been met). In fact, experts usually provide the majority of the evidence in a gas price review arbitration: factual witness statements are rarely submitted and, even if they are, they are often limited to short accounts of pre-contractual negotiations (a party may wish to explain the circumstances in which the GSA was concluded) or pre-arbitration negotiations (a party may wish to explain how it followed, or the other party failed to follow, contractually required procedures before commencing an arbitration) [87].

5. Power of the arbitral tribunal to determine the gas price

5.1 Changing the indexation formula

One of the issues in price determination by arbitrators in Gas Price Review arbitration is whether the arbitrators have the power to change the indexation formula. Firstly, the arbitrators may be entitled to determine the fixed price by taking the hub reference price and adjusting it, as the case may be, by adding or deducting a value expressed in the price of the contract and eliminating the P0 element of the GSA. The final result should be a price that would allow the buyer to re-sell the gas in his own market, to the final consumers. However, today this methodology is frequently used for sales of gas into end markets and it is also frequently used in the gas industry when the seller and the buyer agree to revise the GSA price by changing indexation, or when they enter.

The second methodology relates to the scenario where the parties or the tribunal decide only to partly change the indexation formula from oil-linked products to the hub prices. In this case, it is still needed for a P0 element [88]. This happened in *Edison v. Eni* dispute, where the tribunal changed the indexation from oil to spot gas prices in the buyer's market [89]. Also, in *RWE v. Gazprom* dispute, the tribunal introduced an element of indexation to spot gas prices, when the contract originally provided for oil indexation [90].

Thirdly, the process of reviewing the price by changing the indexation formula and eliminating the P0 element would not be much different from the process of reviewing a P0 element in case the price is oil-linked [91]. With the change to hub-price indexation, the contract price would automatically adjust to the price of the market, as such that it could be defined as an automatic adaptation clause [92].

Finally, the competence of the tribunal to change the indexation formula will be determined by the price review clause. Thus, if the GSA contains a broad price review clause, then the arbitrators have the jurisdiction to change the indexation formula. Otherwise, there may be an issue of jurisdiction of the arbitral tribunal, given the possible limitations of the scope of the price review clause.

5.2 Hub Indexation

In the recent models of GSAs, the contract sales price indexed to oil has been replaced by indexation to market prices. These more recent long-term sales and purchase contracts do not contemplate any sort of price review clause [97], comparing to the old contracts that sought a review of what is known as the „Po" element of the contract sales price. The new contracts seem to be oriented differently. The main reason for this is that the contract sales prices in the existing long-term sales and purchase contracts were disconnected from market prices, and this disconnection was obvious with the occurrence of decoupling [98].

Following the European gas market liberalization, and the subsequent creation of several gas trading hubs where the gas prices reflect the market value of gas, this approach is today considered as pertaining to a bygone time. Long-term GSAs are no longer just oil-linked. In the United States and the United Kingdom, the GSAs have for a while generally been linked to hub prices, with an adaptation to market prices that generally do not require a price review process. This change has had the effect of modifying the nature of GSAs from a take-or-pay to a take-and-pay structure, especially because such contracts bear, together with the deletion of the right to reopen the sales price, the elimination of any form of flexibility: namely the make-up rights of the buyer, and the introduction of the 100 percent take-and-pay level. This new structure can be found in all long-term contracts for the delivery of LNG from the United States, as well as in some of the most recent contracts to import gas to continental Europe from other parts of the world. Under this scheme, there will not be price review requests and arbitrations anymore. Consequently, the issues in a price review of a hub link contract price would regard the take or pay contracts entered before the change only.

With the indexation of the contract price to the hub level, the parties are not seeking a different value of the price to be paid for the gas delivered, but a change of the price formation mechanics [99].

5.3 Approaches in determination of the price

There are two approaches to price reviews; (1) the evolutionary approach, where an arbitral tribunal will have regard to the parties' original bargain and seek to restore the original economic balance between them; and (2) the revolutionary approach, where the agreement will provide for the price to be revised with little or no regard to the original bargain [93]. Which of these approaches the arbitral tribunal will take, depends on the wording of the price review clause. However, it is suggested that in the absence of clear drafting to the contrary, the intention of the parties is likely to have been that a price review should be aimed at restoring the economic balance split between the parties to what it was at the time the parties entered into the GSA, or the last time that the price was reset. In a price review dispute, a tribunal will only have regard to the price formula, not to the other terms of the GSA. However, a long-term GSA is a complex agreement containing rights and obligations which will all have been negotiated between the parties in conjunction with the original price [94]. It has also often been stated that the traditional allocation of risk in long-term GSA is that the seller assumes the price risk and the buyer assumes the volume risk [95]. However, it is highly questionable whether this statement can still be supported today, especially in liberalizing markets [96].

There are other approaches that the tribunal might take. For instance, the tribunal could seek to peg the price to market movements so that the price revision reflects proven changes in the market. In doing this, the tribunal would need to determine any delta between the contract price and market price when the deal was struck, or the price last reviewed, and maintain that in the revised price. This exercise would have the effect of valuing the change and seeking to reflect it in the revised price, rather than valuing the gas afresh. It is necessary to identify a market price at the date that the deal was struck and an equivalent market price at the date of the adjustment.

Alternatively, the tribunal could establish the revised pricing provisions by reference to named benchmarks or criteria. Unless this is how the parties originally arrived at the price and that can be established, the tribunal may take a different view on the benchmarks than the parties, if the provision is lightly drafted.

5.4 The case law illustrating the approaches in the determination of the gas price.

There are a few Gas Price Review cases that illustrate the different approaches in the determination of the price by arbitrators. One of the cases is *ICC Case no.10351/2001* which involved a price adjustment by arbitrators in an LNG contract. The parties agreed to use as reference prices the FOB Breakeven [100] prices published by Platts [101] linking the LNG price to that of crude oil.

The contract included a renegotiation clause providing for the obligation of the parties to meet in order to agree on a new index for the calculation of the price in three cases: (a) if one of the parties contests the publication of the above-mentioned Platt's Breakeven prices; or (b) if Platts ceases to publish reliable information with regard to such prices; (c) if Platts ceases to publish prices at all. The place of arbitration was Geneva, and therefore the Swiss law was applicable to arbitration. The Swiss Private International Law Act is silent on the issue of the adaptation power of arbitrators. In case the parties provide for an adaptation clause, the prevailing view in international arbitration is in favor of the adjustment of the agreement by arbitrators independent of the *lex arbitri*. The arbitral tribunal expressly referred to the principle of good faith as a principle that is generally applicable to international contracts and that implies the duty of the parties to adapt the agreement in order to rebalance it.

Another case that referred to the approaches taken by the arbitrators in the determination of the gas price is the *ICC Case no.9812/1999* and *ICC Case no.13504/2007*. Both of these decisions dealt with the same contract. Both of the GSAs contained an arbitration clause, referring to the arbitration seated in Stockholm. The GSAs were long-term agreements with a duration from 1986 to 2026, for the sale of gas whose price was determined according to a formula that indexed it to the price of oil products in order to reflect the increases and decreases of competing energy sources in the buyer's market. In particular, such a clause provided for two elements: a base price (P0) and a specific price element to be added or deducted from the base price.

In both cases, the arbitrators did not address the issue of whether, according to the *lex arbitri*, they were entitled to adapt the GSA. However, they considered sufficient the will of the parties enshrined in the adaptation clause that, as seen, expressly provided them with such power. Nevertheless, in this case, under procedural law, the arbitration authority to adapt the contract could not find any objection and, consequently, no conflict with the parties' will could arise since the Swedish legal system recognizes such authority upon courts and arbitrators [102].

The issue of the adaptation of contracts was also addressed by the UNCITRAL arbitral tribunal seated in New York, which issued the award in the *Atlantic* case. The GSA provided that if at any time either party considers that economic circumstances in Spain (the country where the gas should be delivered) have changed as compared to what it reasonably expected when entering into the Contract, the parties may request for a price revision. It is important to note that the events triggering the possibility for the parties to request the price review were represented by changes in the economic conditions that occurred only in the Spanish market. Moreover, such changes, as usually provided by adjustment clauses, had to be: (1) substantial; (2) beyond the parties' control; (3) unforeseeable at the moment of the conclusion of the contract. The market conditions changed, and Atlantic started an arbitration.

The arbitral tribunal addressed the issue of its authority to modify the price revision. The contract between the parties is an example of a long-term gas sale agreement that includes an adaptation clause expressly providing for the arbitrators' power to adjust it. The tribunal affirmed that it had the authority, not just to determine whether the events triggering the review of the price occurred, but also to actually revise it, according to the criteria fixed in the contract. In particular, it was held that a "*price re-opener proceeding imposes on the Tribunal obligations that are broader than a traditional arbitration proceeding because the Tribunal is instructed to make commercial decisions based on very general standards and criteria. The Tribunal is required not just to determine whether there is a basis to reopen the price, but to actually decide what the new price should be - in effect revising a key provision of the Contract [...] The Tribunal interprets Article 8.5(f) as authorizing it to revise the price provisions of Article 8, but does not believe that it is empowered to revise any of the other provisions of the Contract*" [103].

The tribunal considered sufficient the contract's provisions to establish its authority to adjust the GSA and did not expressly address the issue of whether the *lex arbitri* also provided it with such power and, consequently, whether a possible conflict with the parties' agreement could arise. The Federal Arbitration Act and the New York Arbitration Law (as well as the UNCITRAL Rules) are silent on the issue of the arbitrators' power to adapt the contract. However, as mentioned above, even in the lack of a specific provision on such issue in the *lex arbitri*, the latter can actually be considered silent and neutral if also the procedural norms regarding the powers of courts do not contain any provision in this regard.

In addition, the approach adopted by the legal system to which the arbitration law belongs in relation to the concept of hardship and to the possibility to adjust the contract has to be considered. In this regard, we have seen that the common law system adopts a conservative approach by not providing courts and arbitrators with the power to adjust and modify contracts (apart from few exceptions made by the US case law) and by not recognizing, in general, the concept of hardship (except, again, for the US legal system that recognizes the notion of impracticability even if it is applied strictly and that its effect is usually the termination of the contract). As a consequence, in the *Atlantic* case, a conflict could be deemed to exist between the legal system including the procedural applicable law and the will of the parties. However, the arbitral tribunal did not consider this issue and relied on the adaptation clauses included in the GSA, which were sufficient to provide it with the authority to review the gas price.

The price review clause generally defines the boundaries of the arbitrator's power and the methodology of determination of the price. If the Price Review Clause defines precisely the tasks of the arbitral tribunal in the determination of the gas price, then the tribunal does not have jurisdiction to determine otherwise. Some opinions consider that the difference between the GSA which contains and the GSA which does not contain an adaptation clause is not that in a case the agreement can be adjusted and in the other not [104]. By means of the adaptation provision, the parties can better define the adjustment process by determining the conditions and criteria that they want to be met. For instance, they can set out which terms of the agreement they want to be adapted, the triggering events, the limits of the arbitrators' power, the parameters to be followed in conducting the adjustment of the agreement, etc.

The presence of the adaptation clause is not a condition to recognize the arbitrator's power to adjust the contract. In the same vein, the considerations concerning the arbitrability issue, the scope of the arbitration agreement, and the notion of legal dispute made with regard to GSAs without an adaptation clause can also be applied to agreements including such provision [105].

5.5 Setting the new price

After finding that there is a change in market conditions and those conditions are not reflected in GSA as of the review date, the arbitrators have to quantify the level of the price adjustment. The tribunal must run the market test by taking the economic value of the change in the value of gas and assess whether it meets the market test set in the GSA [106].

There are at least three approaches that could be applied to determine an appropriate margin:

(a) The margin restoration approach would have the effect of restoring the margin granted to the buyer by the seller when entering into the contract; [107]

(b) The reasonable margin approach would calculate the margin by taking into consideration a number of factors such as the net profit element to be calculated on the basis of an average net return for these types of transactions using the buyer's prices and market segmentation, the costs for marketing the gas, the logistics and delivery costs, and by assessing the risk undertaken by the buyer under the contract [108]; and

(c) The equitable margin approach means that the difference between the floor price and the contract sales price can be assumed to be the margin for the seller.

V. THE ARBITRATION AGREEMENT, ARBITRABILITY AND *ULTRA PETITA* IN THE GAS PRICE REVIEW ARBITRATION

The power of the arbitral tribunal to determine the gas price of the GSA depends also on the scope of the arbitration agreement, and whether or not the disputes related to the price determination are arbitrable. This chapter analyses some particular issues of the price determination in Gas Price Review Arbitration in relation to the scope of the arbitration agreement and the arbitrability of the dispute. Also, the chapter analyses the issue of *ultra petita* in Gas Price Review Arbitration, in case the tribunal changes the indexation formula of the gas price, without being expressly requested by the parties. These issues may arise in case the GSA contains an adaptation clause as well as in case the GSA does not provide it.

1. The arbitration agreement

The arbitrator's power to adjust the GSA upon the occurrence of unforeseen events depends on the scope of the arbitration agreement and the scope of the price review clause. With regard to first, usually, the arbitration agreements are broad. The models of the arbitration clause suggested by ICC for instance provides that "*All disputes arising out of or in connection with the present contract shall be finally settled under the Rules of Arbitration of the International Chamber of Commerce by one or more arbitrators appointed in accordance with the said Rules*".

Leaving aside for a moment the question of whether arbitrators have the procedural power to adapt the contract, it has to be determined if the reference to the notion of dispute contained in the general arbitration clause also encompasses the adaptation of the contract and the price determination by the arbitral tribunal. In other words, it has to be determined whether the traditional notion of a legal dispute can also include the adjustment of the contract. The negative answer to such question is based on the idea that a legal dispute is traditionally considered as a conflict with regard to existing rights and obligations with the consequence that its resolution is "*the adjudication of pre-existing rights in a yes-or-no decision*" [109]. According to this view, the adaptation of a contract is not considered a dispute since it does not deal with existing rights and obligations but with future ones. By means of adaptation, arbitrators would create the content of the future relationship between the parties, and "*such creative exercise is traditionally deemed incompatible with the nature and essence of arbitration*" [110] being, instead, considered more as an expert's task. It follows that the relevant decision would not be an arbitral award and, consequently, it could not be enforced under the 1959 New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards.

However, this position can be criticized for two reasons [111]:

a) The concept of dispute clearly refers to and includes any conflict or difference between the parties on a particular matter that could not be solved by mutual agreement [112]. With regard to the adaptation of the contract, it can be said that such an element is present since there is a difference or conflict between parties concerning how to adjust a specific term of the contract. Upon the failure of the parties' renegotiations, the difference can be submitted to arbitration as to any other dispute in order to be settled.

b) The statement that by means of adaptation, the arbitrators would not deal with existing rights and obligations but with future ones is not correct. If an arbitral tribunal revises the Price of the GSA it does not create new rights or obligations, since the obligation to pay the price and to deliver the gas (and corresponding obligation of the counter-party) were already provided in the original agreement and remained unaltered. The arbitrators just modify the existing rights and obligations.

For instance, in 1988, an ICC tribunal presided over by Lord Wilberforce held that the traditional ICC arbitration clause may be interpreted as covering the adaptation of contracts if the clause is inserted in a long-term contract that contains a number of provisions that may require adjustment over the period of that contract [113].

A third-party intervener's authority is directly defined by the review's scope. A wide power, for example, to rewrite the price formula entirely rather than changing multipliers or price floors, can be more factually complex. This suggests the potential for commercially sensible results and error is increased.

The parties to the GSA can also, in the arbitration clause, require the arbitrators to consult a specifically agreed institution for specific matters. In fact, if the parties wish to maintain some predictability with regard to the outcome of the revision process, they may draft their arbitration clause in such a way as to limit the arbitrators' powers to adjust the price formula. Another option to define the boundaries of the arbitral tribunal's jurisdiction with regard to the revision process would be to exclude the application of hybrid formulae. Another approach from the point of view of costs would be to include one of the so-called "*baseball arbitration*" or "*pendulum approach*" clauses. In baseball arbitrations, each party submits a proposed monetary award to the tribunal. After the final hearing, the tribunal chooses one award from those submitted, without modification. The pendulum approach obliges each party to provide their "best guess" of the true value or adjustment required. The arbitrators then select the suggestion of one party [114]. In both cases, an arbitral tribunal is bound by the parties' pleadings and positions and cannot apply a different formula for the calculation of the gas price.

2. Arbitrability

Another aspect to be considered in assessing the power of the arbitral tribunal to determine the gas price is the arbitrability issue. It has to be determined whether the adaptation of the contract is a matter that can be submitted to arbitration [115]. Most of the jurisdictions provide that the law governing arbitrability is the law of the seat of arbitration.

There are few approaches to the concept of arbitrability:

a) The first approach is adopted by French, Italian, and Dutch Codes of Civil Procedure. This approach illustrates that all the disputes regarding the rights of which the persons have the free disposal may be submitted to arbitration, except the matters of status and capacity of persons.

b) The second Approach, which refers to the economic interest of the dispute is adopted by the Swiss Private International Law Act. Art.177(1) of the Private International Law Act provides that "*any dispute of financial interest may be subject of an arbitration*".

c) A combination of the above-mentioned approaches characterized the Belgian and German legal systems. The same approach is adopted by Art. 582(1) of the Austrian Code of Civil Procedure. In particular, Article 1676 of the Belgian Code of Civil Procedure provides that "*all financial disputes can be submitted to arbitration. The non-financial disputes can be submitted to arbitration if they can be settled". In the same vein, Article 1030(1) of the German Code of Civil Procedure provides that "Any claim under property law may become the subject matter of an arbitration agreement. An arbitration agreement regarding non-pecuniary claims has legal effect insofar as the parties to the dispute are entitled to conclude a settlement regarding the subject matter of the dispute*".

The concepts of free disposition and of economic interest are interpreted broadly in order to encompass all commercial disputes and, in particular, those involving international commercial contracts [116]. The same favorable approach towards arbitration is adopted by the US and English legal systems although the relevant arbitration laws are silent on this issue [117].

In light of the above, it can be concluded that, with regard to the arbitrability perspective and the scope of the arbitration agreement, if the arbitration clause is broad it can be deemed to also include the adjustment of the relevant contract that is characterized by the conflict between the parties and by freely disposable economic interests.

3. Ultra petita

If an arbitral tribunal is called upon to decide whether the price formula requires adjustment, it may well have to revise the price formula itself. Given the complexity of the price formula in GSAs, the parties to a GSA may find that the tribunal will exceed the parties' suggestions and pleadings, and finally render a ruling on a formula that does not fit the expectations of either party. A particular issue is whether the change of the indexation formula, in the absence of an express request from the party, may result in an *ultra petita* award. This has happened in *Atlantic* case, where the arbitral tribunal came up with a hybrid formula, which contained elements from both parties' formula, but where the result of which was not desirable for either party. Moreover, neither party requested such a formula. Although this might be a case of *ultra petita*, neither party raised this issue at the setting aside proceedings.

More recently, on 27 June 2013, an ICC arbitral tribunal upheld RWE's claim and adjusted the price formula contained in its contract with Gazprom Export [119]. The tribunal adjusted the purchase price formula by introducing a gas market indexation, which, according to the tribunal, reflected the relevant conditions on the gas market. The arbitral tribunal linked the price to an index for spot gas prices, although the parties had contractually agreed to link it to the oil price. This award may also involve the issue of *ultra petita*.

As suggested above, the Price Review Clauses tend to leave an open door for interpretations and disputes. This reflects the fact that they are designed to deal with unforeseen market developments, and contracting parties can be reluctant to make price review clauses too prescriptive for fear that they will not address a particular situation in which the parties might subsequently find themselves. However, it often means that a party initiating a price review can have very little certainty in relation to the outcome. Even where a party considers that it has a strong case, for example, in showing that a 'significant change' has occurred which justifies the revision of the price formula, there can be considerable uncertainty surrounding how the formula might be revised. For example, one tribunal constituted under the arbitration rules of the ICC rejected claims based on a broad appreciation of changed economic circumstances, where the impact of a forthcoming gas tax was the only item specifically mentioned in the original price-review request [120].

In any gas price review proceeding, either party or both parties may request the switch from an oil-linked to a hub-price indexation formula, unless it is expressly prohibited by the contract. If the contract generally provides for the right of either party to request a review of the contract sales price, it can be assumed that the tribunal may change or eliminate the P0 and change the indexation formula. Therefore, the tribunal may review the contract sales price as it wishes to do. Having said that, in case the contract contains a broad Price review clause, the changes of the indexation formula by the arbitral tribunal will not result in an *ultra petita* award, even if the parties to the arbitration did not request the adaptation of the price according to the formula established by the tribunal.

Finally, all the issues of the scope of the arbitration agreement and arbitrability analyzed in this chapter may affect the power of the arbitral tribunal to determine the gas price. Although the issue of *ultra petita* does not refer to the powers of arbitrators in determining the gas price, but rather the decision which resolves the issues not requested by the parties, *ultra petita* problem was often raised in Gas Price Review disputes, given the particularities of the price review clauses in relation to the parties' claims within the price review proceedings. Particularly, the issue of *ultra petita* raises with respect to the process of determination of the price formula and the methodology of the indexation of the gas price.

VI. CONSEQUENCES OF GAS PRICE DISPUTES SETTLED IN ARBITRATION

A tribunal's decision on the interpretation of the price review clause in the first price review will resonate throughout the life of the contract. An arbitration that proceeds to final award results in a determination by the arbitral tribunal to revise the contract price or contract pricing mechanism applicable between the parties for a number of years. This determination can have significant commercial consequences, which may not be fully anticipated by the tribunal [121].

Gas price review proceedings generally have their bases on the right of either party to a long-term GSA to request, periodically, a price review. *Res judicata* and *venire contra factum proprium* are principles that arbitrators often have to address in these proceedings, given the possibility that during the life of the GSAs there are multiple awards interpreting the same contractual clause [122].

Price reviews experience repeat issues to an extent that is relatively unusual in international commercial arbitration. The repeat issues are both legal and economic in nature. Yet these issues tend not to be settled over time, for a number of reasons, including that: decisions in one price review are rarely available in other price reviews; for all their similarities; GSA's vary in their drafting context and negotiating history; different arbitrators who are not bound by previous arbitral awards, feel entitled to take different views on the same issues.

The position may, however, be different where the same issues arise under the same GSA in successive price reviews. In this context, doctrines of res judicata (when there has been a final judgment for a claim between the same parties, the claim cannot be brought forward again) or issue estoppel (*venire contra factum proprium*) can bind future tribunals to interpret the GSA in the same way as an earlier tribunal [123].

The shadow of *res judicata* and issue *estoppel* should be borne in mind in the conduct of price review proceedings. Parties should be aware that determinations in one price review may become binding for the duration of the relevant GSA. Parties are well-advised, therefore, to consider the possible future consequences of the positions that they adopt in present proceedings, with respect to both: (i) the potentially binding and preclusive effect of an award in subsequent price reviews between the same parties; and (ii) the possibility of prejudicing their position in a future price review. Some parties seek to forestall the latter point by providing in a settlement to one price review that positions taken by the parties in that price review may not be cited in subsequent price reviews [124].

1. Issue Estoppel: new arguments in subsequent arbitration proceedings

Estoppel is recognized as a general principle of international commercial arbitration and precludes a party from adopting inconsistent positions to the detriment of the other party. In essence, it means that a party is prevented from acting towards the other party in a manner that would be contrary to its previous behavior because, in doing so, the other party's understanding of the relationship on which it relied, would be modified [125]. The issue of estoppel arises in the subsequent Gas Price Review arbitration in two cases.

First, a party may want to adapt its position on the basis of corrected or updated data, which had not been available when the price review was triggered, and the price review request negotiated [126]. This scenario should pose no problem and new data should be admissible insofar as the data falls within the period relevant for assessing the respective price review, known as the "*reference period*".

Second, a party may wish to change its methodological approach for assessing the appropriate revision of the contract price. For example, by using different data or by relying on a different price review model. Assuming that the price review mechanism allows for using such data and models, this scenario might raise other concerns that the obligation to negotiate an appropriate outcome was not met. Credibility concerns may also arise, even though the other party is technically not at a disadvantage if the same requested and the negotiated outcome is merely backed by an alternative assessment.

Estoppel can also be used by an arbitral tribunal as a tool to exclude those arguments from the second arbitration that were previously settled by the first award [127]. For example, in a Gas Price Review, one party may put forward its definition of "economically market the gas" in the first arbitration to mean that the buyer must be able to make a given level of profit which represents the profit initially granted to the buyer when the contract was entered into. That party may not then change its position in a future arbitration to claim that the buyer must not receive the same level of profit as that which was determined when the contract was entered into, but rather a hypothetical profit that a hypothetical average buyer could achieve in the marketplace. A tribunal may decide that this term requires the buyer to be able to, under any circumstances, resell the gas at a profit. This is primarily the case because price review requests are often driven by the fact that the buyer is no longer able to make a profit on reselling the gas as a result of a change in market conditions [128].

The difficulty with estoppel even stripped from its technicalities, is that it requires reliance by one party on the statements made by the other. Estoppel protects this reliance. It will not always be possible to establish reliance with enough precision to trigger an estoppel-type mechanism. For an estoppel argument to succeed, inconsistent statements must be accompanied by a demonstration that the other party has relied on this particular statement. Applying the facts to the price review clause and, therefore, deciding whether a price review should occur will raise more complex questions about the extent of any issue estoppel. That is because only determinations that are necessary for the decision and fundamental to it will result in an issue estoppel. Collateral findings will not. Therefore, the tribunal has to determine whether the statements invoked in the second proceedings represent a "*determination that is necessary for the decision and fundamental to it*". This exercise involves a contract interpretation process and depends on the circumstances of the particular case [129].

2. Res Judicata

Historically, *res judicata* was most often viewed as a procedural or evidentiary rule. As such, it was part of the *lex fori*, and courts used the *lex fori* preclusion rules regardless of the law applicable to the merits. However, arbitrators do not have a national forum in the same way that courts do. As a result, the procedural law that applies to domestic courts does not automatically apply to all aspects of arbitration [130].

A key issue that arises with respect to the determination of the applicable principles of *res judicata* in an international context is the determination of the law applicable to it. The process of determining the applicable law can raise issues of conflicts of law if one decides to pursue that route [131]. The modern view is that this direct method is the preferable approach of tribunals and doctrine alike. The determination of a given applicable law is likely to have a profound impact on the scope of *res judicata*.

There is however a long-standing debate relating to the scope of res judicata with respect to international arbitral awards, including awards issued in Gas Price Review disputes. Each jurisdiction has its own view on this issue. For example, according to Art. 1484 of the French Code of Civil Procedure, an award is vested with res judicata effect "*as soon as it is made, an arbitral award shall be res judicata with regard to the claims adjudicated in that award*". The position of French law is that any final decision made by an arbitral award on a disputed issue of a legal nature between the same parties is res judicata. By contrast, in Switzerland, the Federal Supreme Court has held that: "*Res judicata only relates to the dispositif of the decision or the award. It does not cover the reasoning*". However, one sometimes needs to look at the reasoning of the decision to know the exact meaning and extent of the dispositive [132].

Looking briefly at English law as a yardstick for the common law approach, the issues that are settled by an arbitral tribunal are considered res judicata [133]. Therefore, in the context of long-term GSAs, especially with respect to disputes that relate to the interpretation of the provisions of the contract, an arbitral award would have res judicata effects for both the operative part and the reasoning [134]. A related question is whether there is any sanction for an arbitral tribunal that would disregard the *res judicata* effects of a prior decision. It is doubtful that, in France, this would lead to the annulment of the award as it would entail a review of the merits of the award and French Courts consistently affirm that a review of the merits of the award is prohibited [135].

The Swiss Federal Tribunal took a different view. First, it decided that an arbitral award that disregarded the *res judicata* effect of a prior Swiss court decision would be quashed for breach of international public policy [136]. In more recent decisions, the Federal Tribunal decided that the same solution would apply if an arbitral tribunal were to disregard the *res judicata* effect of a foreign decision. The Federal Tribunal added however that the *res judicata* effect of the foreign decision could not exceed the *res judicata* effect that this foreign decision would have in Switzerland if that decision was recognized in Switzerland. That is to say that the res judicata effect would be limited to the operative part of the decision, regardless of the rules of *res judicata* of the law of the relevant foreign state.

As we can see from above, the national laws affirm the preclusive effect of international arbitral awards but provide no guidance on the choice of law [137]. Also, the institutional rules under which arbitrations are conducted do not instruct tribunals on which law to apply when faced with a prior arbitral award from their own or a different tribunal [138]. In the context of the Gas Price Review Arbitration, the subsequent proceedings arising out of the same contract involve a different dispute. However, in determining whether the dispute is indeed different, the tribunal has to determine the circumstances which triggered the price revision. If one of the parties invokes in the subsequent proceedings the same circumstances on which the first tribunal relied when the price revision was triggered, then the subsequent proceedings refer to the same dispute. Therefore, the award in the first dispute has *res judicata* effect on the subsequent proceedings.

3. Contracts with the same parties and Price Review Clause, but different prices

It is not uncommon in the gas supply market, for the same parties to enter into a series of long-term contracts. For example, as an LNG producer opens new trains at its liquefaction plant, often its existing buyers will seek further supplies. In these cases, the new GSA uses the existing contract as the starting point for negotiations. While prices and price formula and volumes will alter to reflect the market conditions at the time the parties negotiate and conclude the further contract, other terms may remain the same.

Let's assume three long-term GSAs exist between the same parties, each with the same price review clause. A price review arbitration takes place under the first contract in time. An award decides the meaning of the price review clause. Further, it applies the facts at the review date (Y) to that meaning, for example, to decide that a significant market change has occurred between dates X and Y justifying a change to the contract price. Therefore, the tribunal has made a series of legal and factual determinations about the price review clause and the state of the relevant market at certain times. Meanwhile, a price review under the second contract begins. The issue is whether estoppel or res judicata from the first arbitration affect the second arbitration. The general solution to this issue is that the first arbitration will not affect the second. English law, for instance, says that if the same parties enter another contract on the same terms sometime later, they may have intended the words in the second contract to mean something different to those in the first contract [139]. Therefore, each contract will be interpreted at the time it was agreed and within the relevant factual matrix at that time. Having said that, the arbitral tribunal will not be limited in its decision in the second arbitration.

This chapter describes what are the consequences of the award determining the price of the GSA. These consequences may affect the power of the subsequent arbitral tribunal deciding the disputes arising out of the same GSA. Thus, if a second price review arises under the same contract, then:

a) the first tribunal's decision interpreting the price review clause should result in an issue estoppel. This means the second tribunal should apply that interpretation to the relevant facts (e.g., new market conditions) at (or during) the relevant time for the second review;

b) a question arises whether any findings of fact by the first tribunal that remain relevant in the second review will result in an issue estoppel. This will depend on whether those findings of fact were necessary and fundamental to the award; and

c) if the second price review arises under a different contract even if between the same parties and on the same terms, then issue estoppel should not arise from the first tribunal's award.

VII. THE FUTURE OF THE GAS PRICE ARBITRATION

Arbitration is currently the most effective mean of resolving the Gas Price Review disputes. Moreover, the movements on the energy market show that the number of disputes involving gas products will increase. Currently, a number of countries are rethinking their nuclear energy policies. If this results in a movement away from nuclear energy it is likely that the capacity shortfall will have to be made up by constructing additional natural gas combined cycle gas turbines This might have the impact of soaking up additional natural gas capacity and switching bargaining power in favor of producers.

Also, as a result of continuing uncertainty and volatility in gas markets, parties to long-term GSAs can continue to expect downward pressure to be exerted on gas prices and for price reviews to be part of the commercial landscape. With a view towards the long term, it may also be that parties to long-term GSAs look to renegotiate contract prices in order to link them to a greater or lesser extent to hub-based prices, rather than to the traditional basket of fuels, so as to prevent their contract prices repeatedly becoming out of the market. More generally, buyers are likely to respond to the uncertain market conditions by seeking more flexible arrangements, and the trend towards more short term or spot transactions is therefore likely to continue.

In the meantime, while price reviews have traditionally been seen as high risk by buyers and sellers alike, with careful management of negotiations and the arbitration process, the inherent risks may be limited to a certain extent. Seen in that light, price reviews can provide an opportunity for the parties to preserve the value of their long-term contractual relationships against the backdrop of a period of unprecedented volatility in gas markets [140]. In addition, as these gas price disputes and arbitrations under existing long-term contracts continue to occur, it is possible that parties may also reconsider the terms of their gas price review clauses and reconsider how gas price disputes will be finally resolved.

Among the alternatives to traditional arbitration, other gas price dispute resolution mechanisms involve the use of expert determinations. Other forms of arbitration have also been proposed. For example, some propose the use of high-low arbitration, in which the parties privately agree to a range within which the final price must fall. In the event that the tribunal's decision fixes a price falling outside that range, the price will, by virtue of the parties' prior agreement, be set at the upper or lower boundary of the agreed range. Another possibility is baseball arbitration. In the context of a gas price dispute, this mechanism generally provides that, if the trigger has been met, each party proposes a revision and the arbitrators must then choose one of the two proposals without modification. This process intended to discourage each party from making an unreasonable proposal, because doing so would likely lead to the tribunal choosing the other side's proposal [141].

Increasingly the new generation of long-term gas contracts resemble the short-term and spot contracts as regards contract sales price and flexibility. Indeed, these new long-term contracts have a new structure to reflect a change in the risk allocation, whereby the contract sales price is fully indexed to hub prices and along with such changes, the flexibility granted in the old system tends to disappear with volume clauses referring to 100% of the agreed quantity of gas to be taken and the make-up rights no longer available to the buyers. Price review clauses are becoming meaningless, and with that the relevance of the principles of "market of the buyer" and "economically market the gas" [142].

VIII. CONCLUSIONS

The analysis shows that the power of the arbitrators to determine the gas price is determined by several legal sources, namely: the arbitration agreement; *lex arbitri*; *lex causae*; and *lex contractus*. It has to be underlined that the arbitrators exercise this power in carrying out their judicial task, and not as experts. Thus, the adaptation of the GSA is exercised by means of judicial awards enforceable under the 1959 New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards. The analysis showed that in case the GSA contains an adaptation clause then the arbitrators tend to apply the clause independent of the *lex arbitri*. In these cases, the will of the parties is considered sufficient to establish their authority to adjust the agreement and arbitrators do not address (at least expressly) the issue of whether also the procedural applicable law provides them with such power and, in the negative case, of how to resolve the consequent conflict. One of the most common adaptation mechanisms used in the long-term GSAs is the Price Review Clause. These clauses have been a feature of the GSAs, being a tool for the parties to establish their own mechanisms for adaptation of the gas price. As described above, the wrong interpretation or application of the Price Review Clause may lead to the annulment of the award because of the lack of jurisdiction of an arbitral tribunal. Moreover, in assessing the jurisdiction of the tribunal, the Price Review Clauses have to be interpreted in combination with the arbitration clause, which means that the scope of the price review process shall be within the scope of the arbitration clause and the price review clause. Also, this work analyses the possible consequences and issues which may affect the subsequent proceedings arising out of the same GAS, which determines whether or not the tribunals in the subsequent proceedings may exercise their power to determine the gas price.

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[**2**] Marco Lofefice, Gas Price Review Arbitrations, in The Guide to Energy Arbitrations, Global Arbitration Review, 2020, p 194.
[**3**] The Gas Hub is a marketplace for gas trades (e.g. the TTF hub in the Netherlands). There are two types of hubs. First is a physical hub is a distribution point located on a natural gas pipeline system. The second is called a virtual hub, which is a virtual trading point at which gas is bought and sold in spot and forward trades for standardized gas products.
[**4**] For instance, the development of alternative fuels, including biodiesel, bio alcohol, chemically stored electricity, methane, etc.
[**5**] L. Franza, Long-Term Gas Import Contracts in Europe: the Evolution in Pricing Mechanisms' CIEP Paper (2014). p 18.
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[**12**] For instance, an ICC tribunal in ICC Award No.5754/1988 (unpublished), as cited in W. L. Craig, W.W. Park &, J.Paulsson, International Chamber of Commerce Arbitration vol. 3, 112 (Oceana Publications 1990).

[**13**] For instance, the 2015 Dutch Arbitration Act, the 1999 Swedish Arbitration Act, the 2008 Bulgarian Law on International Commercial Arbitration.
[**14**] C. H. Brower, "Mind the Gap", BYU Law Review (2016) p. 18.
[**15**] P. Sanders, Quo Vadis Arbitration? (Kluwer Law International 1999) p. 70.
[**16**] The principle of synchronized competence of courts and arbitrators is generally recognized. P. Sanders, Quo Vadis Arbitration? (Kluwer Law International 1999) p.122.
[**17**] See, for instance, the French, the Italian, and the German Civil Codes with regard to the power of courts increase or reduce the number of penalties established by the parties in case of breach of contract.
[**18**] Which means "occurrence of unforeseen events that alter the contract's balance".
[**19**] See Art.1134 of the Belgian Civil Code.
[**20**] Even in the Swiss legal system, there are some exceptions expressly provided by the legislator. For instance, Art. 272 of the Swiss Civil Code, providing that "either party may ask the court to modify the lease in line with changed circumstances when deciding on the lease extension". See also Art. 373 of the Swiss Code of Obligations, concerning the construction contracts, that grants judges the discretional power, not only to terminate the contract but also to increase the price in case "performance of the work was prevented or seriously hindered by extraordinary circumstances that were unforeseeable or excluded according to the conditions assumed by both parties impede the completion or render it exceedingly difficult".
[**21**] See Art. 119 of the Swiss Code of Obligations.
[**22**] Swiss Supreme Court, Decision 4P.114/2001 dated 19 December 2001.
[**23**] I.e. excessively burdensome to perform due to hardship events (such as for instance, a high increase of prices or severe inflation) unless there is a specific clause in the contract disciplining such situation.
[**24**] ICC Case no.1512/1971, in ICC Arbitral Awards 1974-1985. Under the doctrine of frustration, a party is relieved of any liability under a contractual agreement in the event of a breach of contract, when that party is unable to perform its obligations due to some event that occurs and is outside of the parties' control.
[**25**] See also UCC s 2-305 (Open Price Term) providing that if the parties so intend they can conclude a sale contract even though the price is not settled, in which case the price will be one 'reasonable at the time for delivery' if (i) nothing is said as to price; or (ii) the price is left to be agreed by the parties and they fail to agree; or (iii) the price is to be fixed in terms of some agreed market or other standards as a set or recorded by a third person or agency and it is not so set or recorded.

[**26**] W.R. Grace v. Local Union 759, 461 U.S., 757 (U.S. 31 May 1983), para 759.
[**27**] Northern Illinois Gas v. Energy Co-operative, 461 N.E.2d, 1049 (Ill. App. Ct. 27 March 1984) p 461.
[**28**] Northern Illinois Gas v. Energy Co-operative, 461 N.E.2d, 1049 (Ill. App. Ct. 27 March 1984) p 1054.
[**29**] P. Ferrario, The Adaptation of Long-Term Gas Sale Agreements by Arbitrators, International Arbitration Law Library, Volume 41 (2017) p.109.
[**30**] According to Art. 2908 of the Italian Civil Code provides that the judges and arbitrators are entitled to create, modify or extinguish legal relationships (i.e., to issue the so-called "constitutive decisions", in which the adaptation of contracts is clearly included) only when it is expressly provided by the law (see, for instance, Art. 1384 of the Italian Civil Code granting the judge the power to equitably reduce the amount of the penalty provided by the parties in case of breach of contract; Arts1657 and 1660 of the Civil Code regarding the determination of the price and the variations to the original.
[**31**] The first application by the case law of Art. 313 is represented by the decision of the Bundesgerichtshof dated 8 February 2006, VIII BIZR, 304.
[**32**] See M. Bogdan, Private International Law as Component of the Law of the Forum, 241 (Hague Academy of International Law 2012) p. 261
[**33**] Disputes concerning matters in respect of which the parties may reach a settlement may, by agreement, be referred to one or several arbitrators for resolution. Such an agreement may relate to future disputes pertaining to a legal relationship specified in the agreement. The dispute may concern the existence of a particular fact. In addition to interpreting agreements, the filling of gaps in contracts can also be referred to arbitrators.
[**34**] Swiss Supreme Court, Decision 4A_375/2010 para. 3.1; A. Gabellon La théorie de l'imprévision ou l'adaptation du contrat par le juge dans un contexte de crise économique, in L. Heckendorn Urscheler & K. Topaz Druckman (eds.), "Les difficultés économiques en droit", (Schulthess, 2015) pp. 213-232.
[**35**] P. Pichonnaz, La modification des circonstances etl'adaptation du contrat, in P. Pichonnaz & F. Werro, "La pratique contractuelle 2", (Schulthess, 2011) pp. 21-54, p. 27. See I. Brownlie, Brownlie's Principles of Public International Law, 6 edition, Oxford University Press (2003) pp 591–92. Analogously, Article 79 of the Convention on International Sales of Goods dispenses with liability when failure of performance was due to "an impediment beyond the non-performing party's control" which could not reasonably be expected to have taken into account at the time of contract conclusion.

[**36**] C. Brunner Force Majeure and Hardship under General Contract Principles (Kluwer Law International, 2009) pp. 514.; H. Konarski, Force Majeure and Hardship Clauses in International Contractual Practice, in International Business Law Journal (IBLJ (2003), No. 4 pp. 493.

[**37**] C. Brunner Force Majeure and Hardship under General Contract Principles (Kluwer Law International, 2009) pp. 77-122, p. 79.

[**38**] C. Brunner Force Majeure and Hardship under General Contract Principles (Kluwer Law International, 2009) pp. 514;

[**39**] C. Brunner Force Majeure and Hardship under General Contract Principles (Kluwer Law International, 2009) pp. 514 et seq.; H. Konarski, Force Majeure and Hardship Clauses in International Contractual Practice, in International Business Law Journal (IBLJ (2003), No. 4 pp. 494.

[**40**] See Section 879 of the Austrian General Civil Code (Allgemeines Bürgerliches Gesetzbuch) originally adopted in 1811, with the amendments.

[**41**] The same approach is taken by the Russian Federal Law on International Commercial Arbitration.

[**42**] J. P. Willheim, Chapter I: The Arbitration Agreement and Arbitrability, The Powers of Arbitral Tribunals in Price Revision Disputes Illustrated with the Example of Long Term Gas Supply Agreements, in Christian Klausegger, Peter Klein , et al. (eds), Austrian Yearbook on International Arbitration 2014, pp. 17–29.

[**43**] The Art.1(2) of the Swedish Arbitration Act; Art.1 of the Dutch Arbitration Act; Art.1(2) of the Bulgarian Law on International Commercial Arbitration.

[**44**] P. Sanders, Quo Vadis Arbitration? (Kluwer Law International 1999) p. 70; Berger, Power of Arbitrators to Fill Gaps and Revise Contracts to Make Sense, Arbitration International (2001) p. 86.

[**45**] See art. Compare to art 1134(3) of French Code civil, which speaks of abuse of contracts (conventions) rather than rights (droits), derived from the notion that contracts must be executed in good faith.

[**46**] German Civil Code (ZPO) in s. 162(2) provides that “If the satisfaction of a condition is brought about in bad faith by the party to whose advantage it would be, the condition is deemed not to have been satisfied.”

[**47**] These principles may be invoked on the basis of industry custom and commercial usage. See for example French Code civil art 1135 which speaks about consideration not only of expressed terms but also of 'l'usage. [48] The UNIDROIT Principles contain a section on 'Hardship' defined to exist when events fundamentally alter the equilibrium of the contract because the cost of performance has increased, or the value received has diminished. The concept of hardship includes events that could not reasonably have been taken into account at the time of conclusion of the contract and whose risk was not assumed by the party. In the event of hardship, the party may request renegotiation. On failure to reach an agreement a court may either (i) terminate the contract at a date and on terms to be fixed, or (ii) adapt the contract with a view to restoring its equilibrium. See UNIDROIT Principles, arts 6.2.2 and 6.2.3.

[**49**] See Art.107 of the Algerian Civil Code promulgated by the Ordinance No.75-58 as of 26 September 1975.

[**50**] For example, similar provisions are found in Art.147(2) of the Egyptian Civil Code promulgated by Law no.131 as of 15 October 1949; Art.130 of Legislative Decree 19/2001 promulgating the Civil Code in Bahrain; Art.146 of the Code of Civil Procedure of Iraq; Art.147(2) of the Civil Code of Libya; Art.171 of the Civil Code of Qatar.

[**51**] See Art.1467 of the Brazilian Civil Code.

[**52**] ICC Force Majeure Clause 2003, ICC Hardship Clause 2003 (ICC Publication n. 650)

[**53**] See Briner, in Planning Efficient Arbitration Proceedings, The Law Applicable in International Arbitration (ed. van den Berg), (1996) pp. 362, 371. As a rule, the arbitrator, like the court, must decide according to the rules of the applicable law. If German law is the *lex causae*, the arbitrator may adapt the contract if the circumstances result in the collapse of the foundation of the transaction (Wegfall der Gescbaftsgrundlage).

[**54**] In favor of a distinction between supervening and original gaps see P. Sanders, Quo Vadis Arbitration? (Kluwer Law International 1999) p. 88.

[**55**] See Art. 1148 of the French Civil Code.

[**56**] In this regard, see Art1152 and 1231of the French Civil Code dealing with the power of judges to increase or decrease the amount of penalties.

[**57**] See in this regard the ICC case n. 9994/2001, 2005 ICC Int'l Ct.Arb.Bull. – Special Supplement, 79 (2001). The dispute arose out of a sale agreement governed by French law and not including an adaptation clause. The tribunal stated that "upon the occurrence of unforeseen events altering the contract balance, the parties, according to French law, have the duty to renegotiate and adapt the contract on the basis of the principle of good faith."

[**58**] See Art.6.2.1 and 6.2.2 of the International Institute for the Unification of Private Law (UNIDROIT) Principles of International Commercial Contracts as of May 2016.
[**59**] Sebastiano Nessi, Price Revision in Long-Term Energy Contracts: When is it Possible to Adjust Prices or Modify the Terms of a Long-Term Energy Contract under Swiss Law?, in Carlos Gonzalez-Bueno (ed), 40 under 40 International Arbitration (2018) pp. 385 – 397.
[**60**] C. Brunner Force Majeure and Hardship under General Contract Principles (Kluwer Law International, 2009) pp. 514; H. Konarski, Force Majeure and Hardship Clauses in International Contractual Practice, in International Business Law Journal (IBLJ (2003), No. 4 pp. 440.
[**61**] M. Polkinghorne, Predicting the Unpredictable: Gas price re-openers, The Paris Energy Series No. 2 (2011) p. 4.
[**62**] William W.Park Gaps and changed circumstances in energy contracts: the devil in the detail (Journal of World Energy Law and Business, 2015, no.8) p.89-100.
[**63**] J. P. Willheim, Chapter I: The Arbitration Agreement and Arbitrability, The Powers of Arbitral Tribunals in Price Revision Disputes Illustrated with the Example of Long Term Gas Supply Agreements, in Christian Klausegger, Peter Klein , et al. (eds), Austrian Yearbook on International Arbitration 2014, pp. 17 – 29.
[**64**] M Polkinghorne, Gas Price Arbitrations: A Practical Handbook (1st edition, ed M Levy, Global Law and Business, 2014), p. 63.
[**65**] Sports markets imply the creation of hubs, which are physical or virtual points where gas is traded. In order for a hub to properly work, two main conditions are necessary: sufficient liquidity and transparency. The first condition is measured by the so-called "churn ratio" which can be defined as 'the ratio between the total volume of trades and the physical volume of gas consumed in the area served by the hub'. Usually, a market can be deemed liquid and mature when the churn ratio is above the value of ten. As to the second condition, transparency means that prices are public and not manipulated by the main market players. See P. Ferrario, The Adaptation of Long Term Gas Sale Agreements by Arbitrators, International Arbitration Law Library, Volume 41 (2017) pp. 1 - 30.
[**66**] Stephen P. Anway and George M. von Mehren, The Evolution of the Natural Gas Price Review Arbitrations (The Guide to Energy Arbitrations, second edition) 2017, p. 177.
[**67**] For instance, the Henry Hub index, or Platts Index.
[**68(a)**] Gazprom v. Naftogaz, (SCC Arbitration no.V2014/078/080), Final Award, February 2018.

[**68(b)**] Edison v. Gazprom, unpublished (2011).
[**69**] The Sonatrach – Distrigas SPA (1976) is available at www.fossil.energy.gov. Distrigas Corporation Docket No. 88-37-LNG, Exhibit E-1: Agreement for the Sale and Purchase of Liquefied Natural Gas of 13 April 1996.
[**70**] Mark Levy Gas Price Review Arbitrations: Certain Distinctive Characteristics, in Global Arbitration Review, The Guide to Energy Arbitrations, third edition, 2019, p. 211
[**71**] D. Mildon, The adjustment phase, in Gas Price Arbitrations (ed. Mark Levy, 2014) p.129; Morten Frisch, Current European Gas Pricing Problems: Solutions Basedon Price Review and Price Re-Opener Provisions, International Energy Law and Policy Research Paper Series Working Research Paper Series No: 2010/03 15, (2010) p. 121.
[**72**] The typical features of price review clauses are also discussed in: S. Farmer LNG Sale and Purchase Agreements in Paul Griffin (ed). Liquefied Natural Gas (Globe Law and Business 2012) p.85; M. Levy, Drafting an Effective Price Review Clause in Mark Levy (ed), Gas Price Arbitrations (Globe Law and Business, 2014) p. 87.
[**73**] Marco Lofefice, Gas Price Review Arbitrations, in The Guide to Energy Arbitrations, Global Arbitration Review, 2020, p. 199.
[**74**] Marco Lofefice, Gas Price Review Arbitrations, in The Guide to Energy Arbitrations, Global Arbitration Review, 2020, p. 199.
[**75**] Marco Lofefice, Gas Price Review Arbitrations, in The Guide to Energy Arbitrations, Global Arbitration Review, 2020, p. 201.
[**76**] Marco Lofefice, Gas Price Review Arbitrations, in The Guide to Energy Arbitrations, Global Arbitration Review, 2020, p. 202.
[**77**] Gas Natural Aprovisionamientos SDG, S.A. v. Atlantic LNG Co.of Trinidad andTobago,No.08 Civ 1109, 2008 WL 4344525 (SDNY) 16 September 2008.
[**78**] M Leijten and M deVries Lentsch, Gas Price Arbitrations – A Practical Handbook, 2014; edited by M Levy, Published by Global Law and Business-Global Business Publishing Ltd p.33 - 37; ICC case n. 9812/1999, 2009 20 ICC Int'l Ct.Arb.Bull., 69 (1999), para. 71.
[**79**] Marco Lofefice, Gas Price Review Arbitrations, in The Guide to Energy Arbitrations, Global Arbitration Review, 2020, p. 197.
[**80**] See Esso Exploration & Production UK v. Electricity Supply Board, as cited in Gas Price Arbitration, at 157 et seq. (EWHC (QB) 31 March 2004), where it was necessary to establish that the energy charge was 85 % or less than the market price.
[**81(a)**] ICC Case no.15051, ICC International Court of Arbitration Bulletin (2014).
[**81(b)**] Marco Lorefice, Crossroads in Gas Price Review Arbitrations, The Guide to Energy Arbitrations (GAR, 2015) p. 134.

[**82**] Mark Levy, Gas Price Review Arbitrations: Certain Distinctive Characetristics, in Global Arbitration Review, The Guide to Energy Arbitrations, third edition, 2019, p 209.
[**83(a)**] M. Young, Procedural Issues Arising in Price Review Arbitrations in Gas Price Arbitrations, in Mark Levy, Globe Law and Business (2014) p. 21 - 32.
[**83(b)**] EDF v. Shell 1978 J.C.P., 18810 (Paris Court of Appeal 28 September 1976); Cosarma v. Agip, I 1974, 280 (domestic arbitration award 28 February 1972), at 115.
[**84**] G. von Mehren, The Arbitrator's Role in Gas Price Arbitration, in Mark Levy Gas Price Arbitrations, (Globe Law and Business) (2014) p. 91.
[**85**] Esso Exploration & Production UK v. Electricity Supply Board, ascited in Gas Price Arbitration, at 157 et seq. (EWHC (QB) 31 March 2004), para. 8.
[**86**] Esso Exploration & Production UK v. Electricity Supply Board, ascited in Gas Price Arbitration, at 157 et seq. (EWHC (QB) 31 March 2004), para.12.
[**87**] Mark Levy, Gas Price Review Arbitrations: Certain Distinctive Characetristics, in Global Arbitration Review, The Guide to Energy Arbitrations, third edition, 2019, p.213
[**88**] Marco Lorefice, Crossroads in Gas Price Review Arbitrations in J William Rowley QC, Doak Bishop and Gordon Kaiser, The Guide to Energy Arbitrations (GAR, 2015). p.207.
[**89**] Douglas Thomson, Edison wins €1 billion in gas price review, Global Arbitration Review, 30 November 2015.
[**90**] Christoph Steitz and Vera Eckert, Gazprom dealt pricing blow as loses court case to RWE, Reuters, 27 June 2013 and Bernhard Guenther, RWE CFO reported in Natural Gas Europe on 10 July 2013.
[**91**] M Leijten and M deVries Lentsch, Gas Price Arbitrations – A Practical Handbook, 2014; edited by M Levy, Published by Global Law and Business-Global Business Publishing Ltd p. 42.
[**92**] Ana Stanič & Graham Weale (2007) Changes in the European Gas Market and Price Review Arbitrations, Journal of Energy & Natural Resources Law, p. 325.
[**93**] Paul Griffin, Natural Gas Price Reopeners and English Law' in Paul Griffin (ed), Liquefied Natural Gas (Globe Law and Business 2012) p. 131.
[**94**] For instance, in relation to take or pay, volume flexibility, diversion rights, make-up, and excess gas, etc.
[**95**] However, this is not always the case.
[**96**] The issue of the mechanism of determination of the gas price raised in a thin partial award of the BOTAS case.
[**97**] Marco Lorefice, The Review of Gas Prices with a Hub Indexation: An Unknown Territory, The Guide to Energy Arbitrations, third edition, 2019, p. 233.

[**98**] Marco Lorefice, The Review of Gas Prices with a Hub Indexation: An Unknown Territory, in Global Arbitration Review, The Guide to Energy Arbitrations, third edition, 2019, p. 233.

[**99**] Marco Lorefice The Review of Gas Prices with a Hub Indexation: An Unknown Territory, in Global Arbitration Review, The Guide to Energy Arbitrations, third edition, 2019, p. 234.

[**100**] ICC case n. 10351/2001, 2009, 20 ICC Int'l Ct.Arb.Bull., paras.162-169. (partial award 2001), Free on Board ("FOB") is a contractual term that refers to the requirement that the seller delivers the gas at the seller's cost via a specific route to a destination designed by the buyer.

[**101**] Platts is a global provider of energy, petrochemicals, metals, and agriculture information, and a premier source of benchmark price assessments for those commodity markets'.

[**102**] The same approach was taken in the following cases: ICC case n. 8486/1996, 1999 XXIV YBCA, (1996), para 129; ICC case n. 6162/1990, 1993 XVII YBCA, 153 (1990) para147.; ICC case n. 2291/1975, Collection of ICC Arbitral Awards 1974–1985, 274 (1975), paras153 - 154.

[**103**] Gas Natural Aprovisionamientos SDG, S.A. v. Atlantic LNG Co.of Trinidad and Tobago,No.08 Civ 1109, 2008 WL 4344525 (SDNY) 16 September 2008, at 10.

[**104**] P. Ferrario, The Adaptation of Long-Term Gas Sale Agreements by Arbitrators, International Arbitration Law Library, Volume 41 (2017) p.190.

[**105**] P. Ferrario, The Adaptation of Long-Term Gas Sale Agreements by Arbitrators, International Arbitration Law Library, Volume 41 (2017) p.192.

[**106**] Marco Lofefice, Gas Price Review Arbitrations, in The Guide to Energy Arbitrations, Global Arbitration Review, 2020, p 205.

[**107**] Marco Lofefice, Gas Price Review Arbitrations, in The Guide to Energy Arbitrations, Global Arbitration Review, 2020, p 206.

[**108**] Marco Lofefice, Gas Price Review Arbitrations, in The Guide to Energy Arbitrations, Global Arbitration Review, 2020, p 206.

[**109**] Berger, Power of Arbitrators to Fill Gaps and Revise Contracts to Make Sense, Arbitration International (2001) p. 210. In the same sense, see C. Brunner Force Majeure and Hardship under General Contract Principles (Kluwer Law International, 2009) p. 496, who affirms that the adaptation by arbitrators would depend on parties' request that has to be exhaustive and sufficiently proved. As a consequence, the outcome of the adaptation process by the tribunal is not open that it would not be suited to classical arbitral adjudication in the sense of a "yes or no" decision.

[**110**] L. Beisteiner, Chapter I: The Arbitration Agreement and Arbitrability, The (Perceived) Power of the Arbitrator to Revise a Contract – The Austrian Perspective, in C. Klausegger et al. (eds.), Austrian Yearbook on International Arbitration 2014 (Manzsche Verlags- und Universitätsbuchhandlung, 2014) p. 84.
[**111**] P. Ferrario, The Adaptation of Long-Term Gas Sale Agreements by Arbitrators, International Arbitration Law Library, Volume 41 (2017) p. 130.
[**112**] See, for instance, s. 82(1) of the 1996 English Arbitration Act that provides that "dispute" includes any difference.
[**113**] ICC Award No.5754/1988 (unpublished), as cited in W. L. Craig, W.W. Park &, J.Paulsson, International Chamber of Commerce Arbitration vol. 3, 112 (Oceana Publications 1990).
[**114**] M. Polkinghorne, Predicting the Unpredictable: Gas price re-openers, The Paris Energy Series No. 2 (2011) p. 3.
[**115**] Objective arbitrability.
[**116**] G. Born, International Commercial Arbitration, second edition, Wolters Kluwer (2014) p. 959.
[**117**] P. Ferrario, The Adaptation of Long-Term Gas Sale Agreements by Arbitrators, International Arbitration Law Library, Volume 41 (2017) p. 144-146.
[**118**] Holland and Ashley, Natural Gas Price Reviews: Past, Present, and Future, Journal of Energy & Natural Resources Law, Vol. 30 No. 1 (2012) p. 30.
[**119**] RWE v. Gazprom (unpublished).
[**120**] ICC case n. 9812/1999, 2009 20 ICC Int'l Ct.Arb.Bull., 69 (1999), paras. 81 – 82.
[**121**] L. Tout and M. Vinall, Issue Estoppel in Gas Price Reviews, in GAR Guide to Energy Arbitrations J William Rowley QC ed., Global Arbitration Review (2017) p. 258.
[**122**] Marco Lofefice, Gas Price Review Arbitrations, in The Guide to Energy Arbitrations, Global Arbitration Review, 2020, p. 193.
[**123**] L. Tout and M. Vinall, Issue Estoppel in Gas Price Reviews, in GAR Guide to Energy Arbitrations J William Rowley QC ed., Global Arbitration Review (2017) p. 259.
[**124**] Enmax Energy Corporation v. Trans Alta Generation Partnership 2015 ABCA 383, the Alberta Court of Appeal, the Alberta Court of Appeal confirms that the legal principles of res judicata and issue estoppel can, as a matter of law, apply to commercial arbitrations.
[**125**] ICC Case No.14108, XXXVIY. B. Comm. Arb.135-201(2011).

[**126**] E.g. due to a time lag in publishing or collecting data.
[**127**] L. Tout and M. Vinall, Issue Estoppel in Gas Price Reviews, in GAR Guide to Energy Arbitrations J William Rowley QC ed., Global Arbitration Review (2017) p. 263.
[**128**] P. Philippe and S. Al-Ali, How Arbitrators Should Treat Prior Awards Rendered on the Same Contract, Indian Journal of Arbitration Law, (Indian Journal of Arbitration Law; Centre for Advanced Research and Training in Arbitration Law, National Law University, Jodhpur 2016, Volume V Issue 2) (2016) pp. 43-54.
[**129**] Hoysted v. Federal Taxation Commissioners [1926] AC 155 with regard to issue estoppel.
[**130**] G. Born, International Commercial Arbitration, second edition, Wolters Kluwer (2014) p. 3768.
[**131**] C. Seraglini, Le droit applicable à l'autorité de la chose jugée dans l'arbitrage, 1Rev. Arb. 59 (2016) p. 59.
[**132**] B.Corboz, Le recours au Tribunal fédéral en matière d'arbitrage international, in Semaine Judiciaire (Part II, Vol. 1, 2002) p.29 citting the Swiss Supreme Supreme Court Apr.3, 2002, 128 Arrêts du Tribunal federal suisse (Recuil officiel) [ATF] III 191 (Switz.).
[**133**] G. Born, International Commercial Arbitration, second edition, Wolters Kluwer (2014), p.3732-3827; see also Fidelitas Shipping Co Ltd v. V/O Exportchleb. [1966] 1 QB 630, CA (Diplock LJ) (Eng.), para.630.
[**134**] P. Philippe and S. Al-Ali, How Arbitrators Should Treat Prior Awards Rendered on the Same Contract, Indian Journal of Arbitration Law, (Indian Journal of Arbitration Law; Centre for Advanced Research and Training in Arbitration Law, National Law University, Jodhpur 2016, Volume V Issue 2) (2016) pp. 43-54.
[**135**] Cour de Cassation, case 05-12395 as of 14 November 2006; case 14-19119 dated 30 June 2015.
[**136**] Swiss Supreme Court case 4A_490/2009, para. 136.
[**137**] Art1476 and 1500 of French Code of Civil Procedure; German Code of Civil Procedure Art. 1055; Art.190 Swiss Federal Act on Private International Law of 18 December 1987 in effect as from 1 January 2017.
[**138**] Art. 28(6) of ICC Rules; Art. 26(9) LCIA Rules; Art.35(1) UNCITRAL Model Law.
[**139**] Shiels v. Blankeley [1986] 2NZLR 262.
[**140**] P. Trenor, Gas price disputes under long-term gas sales and purchase agreements in The Energy Regulation and Markets Review (second edition) edited by David L.Schwarts, The Law Reviews (2017) p. 39.
[**141**] P. Trenor, Gas price disputes under long-term gas sales and purchase agreements in The Energy Regulation and Markets Review (second edition) edited by David L.Schwarts, The Law Reviews (2017) p. 32.
[**142**] M. Levy, Drafting an Effective Price Review Clause in Mark Levy (ed), Gas Price Arbitrations (Globe Law and Business, 2014) p. 214.