Legal Position of Gas Storage subject to the Open Access Regime in the European Gas Directive and the 3rd Gas Liberalization Proposal

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Abstract:

The European Gas Directive introduced the concept of 'gas storage subject to open access and third party access regime' (TPA Storage) in 2003. Yet, due to the vague criteria of 'technically and/or economically necessary for providing efficient access to the system for the supply of customers', the actual implementation thus far remains unclear. Even though the 3rd gas liberalization proposal (Gas Proposal) has raised this legal issue, it does not provide any clarification. It even associates the other mechanisms, i.e., legal and functional unbundling, with such a concept. Thus, to facilitate the actual implementation of this open access scheme in the future, this article will seek to clarify the concept of TPA Storage by rethinking the nature of storage and its role in the Gas Directive and Gas Proposal.

This article concludes that the unclear legal position of TPA Storage and the storage that is not subject to the open access scheme in the Gas Directive and Gas Proposal should be re-defined and clarified by further European legislations in the future.

Keywords: gas storage; Gas Directive 2003/55/EC; third party access to storage facilities; technically and/or economically necessary for providing efficient access to the system for the supply of customers

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I. Introduction

Since the importance of gas storage in facilitating competition in the European gas market was recognized,[1] the role of gas storage has been dramatically changed over the past ten years. In the first Gas Directive,[2] the regulatory regime introduced to the storage sector was unclear and lenient.[3] To facilitate market competition,[4] the 2nd Gas Directive (Gas Directive) clarified the originally ambiguous provisions for access to storage and introduced the concept of 'storage that is subject to third party access and open access regime' (TPA Storage)[5] in 2003. In a recently announced energy liberalization package,[6] the 3rd gas liberalization proposal (Gas Proposal) further introduces legal and functional unbundling to the TPA Storage sector. From this trend, there is no doubt that storage is gaining importance in the European gas market.

With five years of implementation of the Gas Directive having already passed, now would seem to be the right moment to reap the benefits of TPA Storage. However, this is not the case. As hinted in the Gas Proposal, the vague concept of 'technically and/or economically necessary for providing efficient access to the system for the supply of customers' in the Gas Directive leaves the actual implementation of access to storage unclear.[7] Even though the Gas Proposal has raised this legal issue of the unclear nature of the concept of TPA Storage, it does not provide any clarification; instead it associates other regulatory regimes, especially legal and functional unbundling, with such a concept. It is expected that it would finally lead to uncertainty in the actual implementation of TPA Storage in the future.

The objectives of this article are to clarify the concept of TPA Storage and to facilitate the actual implementation of this concept. Toward these ends, this article will investigate this

[1] See 'Proposal for a Directive of the European Parliament and of the Council amending Directive 2003/55/EC concerning common rules for the internal market in natural gas' {SEC(2007) 1179} {SEC(2007) 1180}, 19.9.2007, COM(2007) 529, p. 16-17. (Gas Proposal).
[2] Directive 98/30/EC of the European Parliament and of the Council of 22 June 1998 concerning common rules for the internal market in natural gas, OJ L 204, 21.7.1998, p. 1-12.
[3] The access regime applying to storage facilities in the first Gas Directive is unclear and only lenient legal regimes (such as account unbundling) are applicable to the storage sector. See e.g., P. Cameron, *Competition in Energy Markets: Law and Regulation in the European Union*, 2ed., (2007), p. 186.
[4] Recital 20, Directive 2003/55/EC of the European Parliament and of the Council of 26 June 2003 concerning common rules for the internal market in natural gas and repealing Directive 98/30/EC, OJ L 176, 15.7.2003, p. 57–78. (Gas Directive).
[5] The concept of the TPA Storage: "*storage facilities… when technically and/or economically necessary for providing efficient access to the system for the supply of customers*." See Article 19(1) of the Gas Directive.
[6] European Commission, 'The EU Electricity & Gas Markets: Third Legislative Package,' September 2007, available at: ec.europa.eu/energy/gas/package_2007/index_en.htm (accessed on 25 September, 2008).
[7] "*The Commission proposes to erase the ambiguity that exists on the proportion of storage capacity that is offered to the market, requiring that all Member States need to define criteria when and how third party access to storage applies and this has to be made public*." See Gas Proposal, above n.1, p. 17.

concept and identify potential legal issues. More specifically, this article reviews how TPA Storage has been implemented since 2003, and it evaluates how it may/should be implemented when the Gas Proposal is adopted. The main implementation regime in this article will focus on the regulatory regimes of designation of system operators, general duties of system operators, open access and unbundling. In this regard, this paper seeks to provide a clear picture of the legal position not just of the TPA but also of Non-TPA Storage in the Gas Directive and Gas Proposal.

II. The Concept of TPA Storage

By drawing on related European legislations and practices, we define the concept of TPA Storage in three ways: An indirect substantive, a direct substantive, and a procedural approach.

1. TPA Storage in the Gas Directive: An indirect substantive approach

Before defining TPA Storage, the scope of storage should first be determined. The Gas Directive provides definitions for five types of storage facilities. However, only natural gas and liquefied natural gas (LNG) storages are subject to the regulatory regime for gas storage under the Gas Directive. The five types of storage facilities are:

- Storage used for production operations (Production Storage)[8]
- Storage used for excluding facilities reserved exclusively for transmission system operators in carrying out their functions (Transportation Storage)[9]
- A facility used for the stocking of natural gas (Natural Gas Storage)[10]
- The part of LNG facilities or LNG terminals used for storage (LNG Storage)[11]
- Temporary storage necessary for the re-gasification process and subsequent delivery to the transmission system (Temporary LNG Storage)[12]

Besides, the Gas Directive further provides the following abstract definition for the concept of TPA Storage:[13]

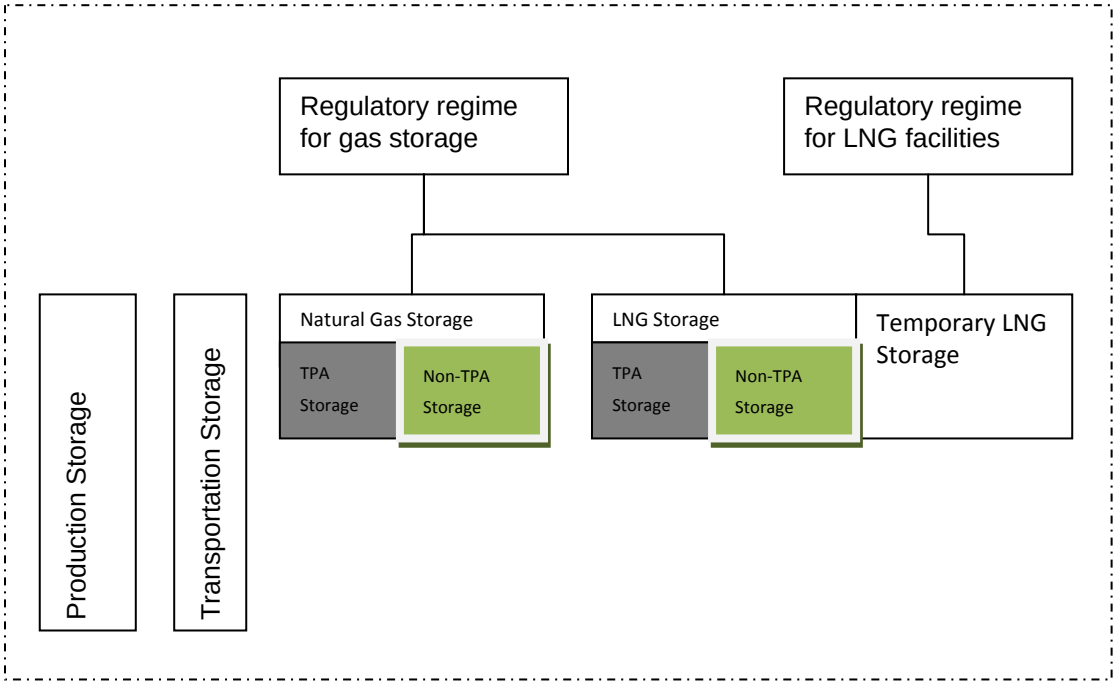
> *"[Natural gas and LNG] storage facilities … [that] are technically and/or economically necessary for providing efficient access to the system for the supply of customers*

[8] Article 2(9) of the Gas Directive.
[9] Ibid.
[10] Ibid.
[11] Article 2(9) and 2(11) of the Gas Directive. .
[12] Article 2(11) of the Gas Directive.
[13] Article 19(1) of the Gas Directive.

pursuant to Article 19…"

From this definition, the relationship among different types of storage facilities and the applied regulatory regimes in the Gas Directive are illustrated in Figure 1.

Figure 1. The Types of Gas Storage Facilities defined in the Gas Directive



(Source: compiled by this author from the Gas Directive).

As Figure 1 shows, the actual volume of TPA Storage is determined by multiple elements. The following two formulas could be established for TPA Storage of natural gas and LNG.

- Formula for Natural Gas Storage: TPA Storage = Total capacity of Natural Gas Storage – Production and Transportation Storage – Non-TPA Storage

- Formula for LNG Storage: TPA Storage = Total LNG Storage capacity – Temporary LNG Storage[14] – Production and Transportation Storage – Non-TPA Storage

As these two formulas show, the volume of TPA Storage is *indirectly* determined by the substantive volume and meaning of Production, Transportation and Non-TPA Storage. In addition to the relatively clearer definition of Production and Transportation Storage,[15] the lack of elaboration of the concept of Non-TPA Storage makes it difficult to determine the scope of TPA Storage with this approach.

[14] Given that the focus of this article is TPA Storage, and that one article has already dealt with the concept of Temporary LNG Storage, this article will focus solely on the concept of Non-TPA Storage here. The article on the concept of temporary LNG Storage, see e.g., A. Gao, 'The Discovery of the Concept of LNG Storage in the European Gas Directive,' available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1167795 (accessed on 25 September, 2008).

[15] There are clear definitions for Production and Transportation Storage provided in the DG Note on Storage. See the European Commission, 'Note of DG Energy & Transport on directives 2003/54/EC and 2003/55/EC on the internal market in electricity and natural gas: Third party access to storage facilities,' 16.1.2004. (DG Note on Storage).

2. TPA Storage in the DG Note on Storage: A direct substantive approach

To provide a plain, straightforward definition of TPA Storage, the DG Note on Storage seeks to define the substantive conditions of 'technically and/or economically necessary (the TPA Necessity Condition)... for the supply of customers (Supply Target Condition)' in a more direct manner. The article will elaborate these two conditions respectively.

The TPA Necessity Condition

In the DG Note on Storage[16], the European Commission (Commission) interpreted the TPA Necessity Condition in the following ways:

- By referring to '*the variation of demand over a given period of time*'.
- By giving the reasons for such variation, including structure of the demand, temperature working time, general economic factors, etc.
- By linking the TPA Necessity Condition to contracts: "*If access to storage is related to a planned or existing supply contract, it would always comply with the requirement of technical and economical necessity*".

In spite of these explanations, the scope of TPA Storage remains vague. Therefore, this article will further elaborate on the concept and scope of TPA Storage.

Demand-side aspect to determine TPA Storage in the DG Note on Storage

The variants affecting the TPA Necessity Condition in the DG Note seem to be highly affected by *demand-side changes*. It appears that, once the TPA Necessity Condition occurs to the storage users or gas customers on the demand side, the storage system operators (SSOs)[17] concerned are obliged to provide TPA Storage service to these customers. For instance, if one steel company foresees soaring steel prices (economic necessity), a situation may arise wherein "*high scale of operations in industrial production processes obviously affects the level of demand for industrial purposes*".[18] The DG Note seems to oblige the SSOs concerned to immediately respond to such demand changes and to designate and allocate more TPA Storage for the operation of this steel company. The same situations would trigger the demand side's needs of TPA Storage, such as sudden changes of temperature, economic factors, working time, etc.

[16] Ibid., at 6-7.
[17] The definition of gas storage system operator, see Article 2(10) of the Gas Directive.
[18] See DG Note on Storage, above n.15, p. 6.

Several questions can be raised from this demand-side interpretative approach. First, due to the various factors likely to influence the demand-side changes in different time periods, it is suspected that the SSOs concerned are able to adjust their TPA Storage capacity in response to diverse customer needs and to economic and/or technical conditions that may occur hourly, daily, weekly, monthly, seasonally and yearly. Second, even if they can, which time span should be the parameter for the SSOs? In this regard, both of these two issues may lead to incompetent implementation of the SSOs concerned. Finally, as these factors are caused by either customers (economic factors) or Acts of God (temperature), the question remains: Why should the SSOs be responsible for unforeseen situations, which are not caused by them?

A balanced approach: the TPA Necessity Condition should respect both supply-side and demand-side conditions and other rules in the Gas Directive.

The concept of TPA Storage in the DG Note on Storage seems to be too *broad* to put into practice; moreover, the actual volume of TPA Storage appears to be *fluctuating*, instead of fixed. These two issues may lead to uncertainty in actual implementation. This article will remedy the concerns of broadness by providing some explanations and raise the potential fluctuating issue.

The DG Note's approach is quite broad. Such a broad definition may lead to the interpretation that a *major* proportion of Natural Gas and LNG Storage are *principally* subject to an open access regime.[19] Three concerns might be raised. First, unlike the essential facilities character of 'Gas Essential Infrastructures',[20] which ought to be principally subject to the open access scheme where there is no TPA Necessity Condition in place, it is suspected that the Gas Directive intends to make the exceptional open access nature of the TPA Storage (under the TPA Necessity Condition) become principal and regular.[21] Second, unlike Gas Essential Infrastructures, the economic nature of storage facilities, which are not considered to be natural monopolies and fit for open competition,[22] may imply that the open access regime is applicable only under special and exceptional circumstances. Third, this broad interpretation may cause tensions with other legal texts in the Gas Directive. For instance, if providing TPA

[19] The related material supports this opinion. See also P. Cameron, above n.3, p. 186.
[20] The 'Gas Essential Infrastructures' in this article refer to transportation, distribution and LNG facilities.
[21] The legal text of the TPA Necessity Condition seems to consist of a large number of special circumstances, which are likely to be met only under exceptional occasions.
[22] "*Gas storage is not necessarily a natural monopoly. The gas storage business might be one in which competition can be introduced …Storage does not have the same natural monopoly characteristics as transmission [transportation] and distribution network.*" See C. Jones, *EU Energy Law : Volume I : The Internal Energy Market*, 2ed., (2006), p. 50, 213. Similar opinions are also found in: DG Note on Storage, above n.15, p. 7.

Storage would impede the system reliability of the storage system, which is stipulated in Article 8, should the SSO sacrifice Article 8 to meet its duty in Article 19?

In order to resolve the tension between the open access regime and other regulatory regimes and to narrow the scope of the TPA Necessity Condition, there is a need to consider the *supply-side condition* when implementing the TPA Necessity Condition.

First, the TPA Necessity Condition should respect other more important duties in the Gas Directive. The access regime is not the first priority of the Gas Directive. There is a need to consider other priorities, such as energy security and safety.[23] Therefore, if the providing of open access by the SSOs concerned would lead to conflict with these prior principles, such access may not be allowed.

Second, to put it more specifically, the TPA Necessity Condition needs to consider the *supply-side condition* of the SSOs, i.e., the *technical and economic capacity* of the SSOs to provide open access. Even though consumers may face unexpected weather conditions, and they have a right to request TPA Storage, the SSOs may face financial[24] or safety[25] difficulties in providing access. We maintain that the provision of such access, under these circumstances, constitutes a technically and economically impossible situation for SSOs concerned. All SSOs may be allowed to refuse such access, even if customers have access rights given by Article 19.

Therefore, other duties in the Gas Directive may be used to limit the broad scope of the DG Note's approach. In this regard, a more balanced approach considers supply- and demand-side conditions when determining the TPA Necessity Condition is favored by this article.

Finally, with regard to the fluctuating issue of TPA Storage, the substantive definition in the Gas Directive and the DG Note's interpretation may suggest that the volume of TPA Storage is likely to be a fluctuating volume. Ultimately, it may lead to an unclear regulated objectives for implementation, particularly when applying this concept to implement the regulatory measures of designation of SSOs or unbundling. Even though this fluctuating concept has not been adopted in current practice,[26] it is highly likely to be developed as progress is made

[23] See e.g., Article 3(2) of the Gas Directive.
[24] Such as the cancellation of current storage contracts in order to provide TPA Storage for the storage users meeting the TPA Necessity Condition.
[25] For instance, providing such additional access may affect the pressure of gas storage, which may endanger the system safety.
[26] The implementation of the TPA Storage in current practice will be discussed in the coming section.

toward a *substantive* definition of TPA Storage, as recommended by the Gas Proposal.[27] Yet, this article seeks only to raise awareness regarding this issue; the real solution remains to be figured out by the Commission or energy regulators in the future.

Supply Target Condition

The other vital element used to define the scope of TPA Storage is the Supply Target Condition. The DG Note on Storage provides the following explanation to this condition:

> *"…access to storage under Article 19 does not extend to situations in which it can be proved that the purpose or intention of having such access is not related to the supply of customers…"*

This explanation merely repeats the legal text, but it does not clarify the concept, even though a detailed explanation of the importance of storage as a flexible tool for customer supply is provided in the further discussion.[28] Furthermore, one study adopts a similar interpretative approach, indicating that 'speculative purpose' is not 'for the supply of customers'.[29] Yet, neither of these approaches provides interpretation for the *substantive* concept of Supply Target Condition.

Broadly speaking, all types of gas storage in Figure 1, including TPA, Non-TPA, Production and Transportation Storage, are *directly or indirectly* associated with supplying gas to the customers. Applying this condition in the broadest manner may further blur the original lines among different types of storage facilities in the Gas Directive. For example, Production Storage is also likely to meet this condition. Furthermore, it may result in a 'chicken-and-egg' situation when discerning the different types of storage in the Gas Directive. For example, for those storage facilities originally considered and appointed as Production Storage, they are supposed to be excluded from the open access regime in the Gas Directive. However, if there is an unexpected system failure (the TPA Necessity Condition) occurring to the original SSOs and providing such access is the only way to ensure the continual supply to the customers (Supply Target Condition), should such storage be re-considered to be subject to the open access regime?

Thus, this Condition fails to provide clarification to TPA Storage, and it blurs and broadens the scope of TPA Storage instead. Unlike the TPA Necessity Condition, this condition

[27] See Gas Proposal, above n.1, p. 17.
[28] See DG Note on Storage, above n.15, p. 7.
[29] See C. Jones, above n.22, p. 52.

appears to be too general to determine the scope of TPA Storage, and there is a lack of interpretation of such a condition in related studies. Therefore, this article will not use it to discuss the concept of TPA Storage; instead, it elaborates only on the concept of the TPA Necessity Condition in later discussion.

In sum, in spite of the efforts to elaborate on the two conditions of TPA Storage from the substantive aspect, the scope of TPA Storage remains unclear and uncertain. Perhaps that is the main reason why the current practice seeks to define TPA Storage by avoiding substantive aspect of TPA Storage and favors a *procedural* approach instead.

3. TPA Storage in current practice: A procedural approach

Presently, the Commission defines the scope of TPA Storage in the DG Note on Storage and subjects the detailed rules to subsidiary principals of each Member State.[30] According to the Storage Monitoring Report in 2006,[31] two methods based on the procedural approach are adopted to define the scope of TPA Storage:

- Indirect approval of Non-TPA Storage by national regulators: The SSOs determine the volume of Non-TPA Storage and submit it to the national regulators for approval.[32] In this way, TPA Storage is indirectly determined by the volume of Non-TPA Storage.
- Direct determination of TPA Storage by the SSOs themselves: It is essentially up to the SSO to determine how much capacity is offered to third parties.[33]

In spite of the current practice, no exact volumes of Non-TPA[34] and TPA Storage[35] are specified for each country or each company in reality.[36] The failure of national regulators and

[30] See C. Jones, above n.22, p. 53; Gas Proposal, above n.1, p. 17; DG Note on Storage, above n.15, p. 2.
[31] European Regulators Group for Electricity and Gas (ERGEG), 'Final 2006 Report on Monitoring the Implementation of the Guidelines for Good TPA Practice for Storage System Operators (GGPSSO),' 6 December 2006, available at www.ergeg.org/portal/page/portal/ERGEG_HOME/ERGEG_DOCS/ERGEG_DOCUMENTS_NEW/GAS_FOCUS_GROUP/E06-GFG-20-03_GGPSSO_MonitoringImplementation_2006-12-06.pdf (accessed on 25 September, 2008). (Storage Monitoring Report).
[32] "*There are also Member States where NRAs do have approval or monitoring powers with regard to TPA exclusions: Belgium, the Czech Republic, Germany, Italy, Spain, Denmark and the UK.*" Ibid., at 29.
[33] "*Austria (2 SSOs: OMV, RAG); France (TIGF); The Netherlands (2 SSOs: NAM, BP)…In these countries, it is essentially up to the SSO to determine how much capacity is offered to third parties.*" Ibid.
[34] Only a proportion of Non-TPA Storage is available. For instance, "*In the Netherlands, the NRA has indicated that 70% of the capacity is excluded from TPA…Only 4 SSOs indicated that some capacity is excluded from TPA under art. 2(9) of the Directive.*" Ibid.
[35] In the report, only the exact volume of *available capacity* is provided and surveyed in the comparison table. However, the concept of available capacity is not equal to that of TPA Storage. Ibid., at 17-19.
[36] As noted in above n.34, the Dutch national regulator may indicate that 70% of the capacity is excluded from TPA. Yet there is no detailed information regarding the exact volume of these Non-TPA Storage facilities for its

SSOs to define the scope of TPA Storage is evident. Consequently, current practice attracts the attention of the Gas Proposal, which blames the lack of transparency on current practices for TPA Storage.

The drawbacks under this approach are obvious. First, it relies too heavily on the SSOs to determine the actual volume of TPA and Non-TPA Storage. Second, without a clear reference to the substantive concept of TPA Storage and a properly developed substantive concept of TPA Storage or Non-TPA Storage, how can national regulators monitor and approve the volume of such storages submitted by the SSOs? Third, the actual volume of TPA Storage seems to have been replaced by the concept of 'available capacity' [37] in the Storage Monitoring Report[38] and in the latest practices of Gas Storage Europe (GSE)[39]. Evidently, the concept of 'available capacity' in Article 21 is not the same as the capacity of TPA Storage under the TPA Necessity Condition in Article 19. [40] When determining the concept of TPA Storage, the main factor is TPA Necessity Condition, instead of availability. The availability is relevant after the scope of TPA Storage is defined, when determining how much proportion of TPA Storage is subject to the scheme of refusal of access.

Thus, this study suggests an urgent need to develop a substantive approach that will complement the insufficiency of the currently dominant procedural approach. However, several legal issues remain to be resolved prior to the development of this mixed approach.

4. Legal challenges: Unclear legal position of TPA Storage in the Gas Directive

Several potential legal questions may arise when the national regulators determine the scope of TPA Storage in the future. It should be noted that resolving these legal challenges is impossible because each interpretive path has its own advantage and basis. This article seeks only to raise awareness of these issues. The real solutions rely on the Commission to re-think

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two SSOs (NAM and BP Nederlands).

[37] "*Available storage capacity means the part of the technical storage capacity that is not contracted or held by storage users at that moment; and still available to the storage users; and is not excluded from TPA under Article 2(9) of the Gas Directive* …." See Storage Monitoring Report, above n.31, p. 17.

[38] The report seems to imply that the lack of 'available capacity' is the main reason for inadequate implementation of the open access regime for TPA Storage. See e.g., Storage Monitoring Report, above n.31, p. 7, 17-19.

[39] GSE publish the available storage capacity for the 28 Storage System Operators with around 110 storage sites in 16 countries in Europe. See GSE, 'GSE Available Capacities Publication,' available at: www.gie.eu.com/gse/availablecapacities/ (accessed on 24 September 2008).

[40] There is a potential conflict between the concept of TPA Storage in Article 19 and the available capacity in Article 21, which may affect the legal position of TPA Storage in the Gas Directive. This article will provide more explanation latter.

the role of TPA Storage in the Gas Directive and Gas Proposal and propose solutions in the future.

The burden of proof

With regard to the determination of TPA and Non-TPA Storage, the first question is raised: who should bear the burden of proof? On the one hand, the legal text of Article 19 in the Gas Directive seems to oblige *the gas consumers or storage users* to prove the TPA Necessity Condition, given that the nature of TPA Storage is exceptional and is limited by such conditions.

However, a different conclusion may be drawn from current practice and other legal basis. According to the Storage Monitoring Report[41] and Gas Proposal,[42] the SSOs are obliged to justify Non-TPA Storage, since it is principal rule to subject storage to open access regime.[43] Moreover, Article 21 of the Gas Directive, which concerns refusal of access, sets the same burden of proof for transportation system operators (TSOs) and distribution system operators (DSOs) to justify their refusal to provide open access. Therefore, it also seems applicable to SSOs of TPA Storage.

Obliviously, there is a conflict with different legal texts here: Article 21 seems to oblige the SSOs to justify Non-TPA Storage, while Article 19 seems to oblige storage users to justify their application for TPA Storage. Confronted with the conflict between these two interpretative approaches, this study considers two factors, which may play important roles in determining who should bear the burden of proof: *the nature and substantive concept of TPA Storage and the competence to provide such burden of proof.*

From the nature of TPA Storage, the factors leading to the TPA Necessity Condition are highly influenced by consumers or storage users and by Acts of God. Thus, gas consumers seem to be in a better position to bear the burden of proof. It is also doubtful that the SSOs are competent in proving the conditions, on which they have no influence. Even though gas customers have no influence over Acts of God, they are at least the first to know the latest situation, and they are in a stronger position to inform the SSOs. Thus, these two points seem to favor Article 19 as the legal basis with regard to the burden of proof. However, how this approach integrates into existing practice will be a difficult issue to resolve.

[41] See Storage Monitoring Report, above n.31, p. 29.
[42] See Gas Proposal, above n.1, p. 17.
[43] See P. Cameron, above n.3, p. 186.

Ex-ante control and/or ex post control of the national regulators

The second issue is when the national regulators should determine the TPA Necessity Condition in Article 19 of the Gas Directive. In generally, there are two potential interpretations.

One interpretation, which is based on the substantive nature of TPA Storage, is in favor of *ex-post* control by national regulators. As the factors affecting the TPA Necessity Conditions (temperature, weather and overall economic conditions) are changeable and uncertain, the national regulators seem to be unable to conduct *ex-ante* control, which is the regular regulatory practice of Gas Essential Infrastructures. Moreover, given the demand-side effects of such uncertain factors, it is reasonable for gas consumers (storage users) to apply for TPA Storage on a case-by-case basis, when the TPA Necessity Condition warrants it. Under this approach, if access is denied by the SSOs, the national regulators can exert their *ex-post* power to check whether the TPA Necessity Condition in Article 19 is met. Consequently, the national regulators play the role of *ex-post* monitor on a case-by-case basis.

On the other hand, the second interpretation may favor a mixture of *ex-ante* and *ex-post* control. Based on the experience of implementing open access regimes in the Gas Essential Infrastructures, national regulators always play an active role and conduct both *ex-ante* and *ex-post* control. Following this practice, the flow of *ex-ante* and *ex-post* control for TPA Storage may be presumed as follows:

- Before storage users request TPA Storage, national regulators should determine the volume of TPA Storage in an *ex-ante* manner by either ordering each SSO to submit data on TPA Storage and/or Non-TPA Storage or to determine TPA and/or Non-TPA Storage on their own. Then, the SSOs should make such data available to the general public.
- Such data enable gas consumers to acquire knowledge of TPA Storage. Consumers are allowed to apply for capacity if they find that the TPA Necessity Condition is fully met.
- The SSOs are allowed to refuse such access if the TPA Necessity Conditions are not meet and the Conditions in the Article 21 are met.
- After refusal of access, the gas consumers can launch the procedure of refusal of access in Article 21. Afterward, national regulators have power to investigate the reasons of refusal and conduct their *ex-post* control.

The advantage of this approach is its similarity to the implementation of open access regimes in the sectors of Gas Essential Infrastructures. Moreover, a pre-fixed volume and specific regulatory objective of TPA Storage is helpful in the implementation of an open access regime. However, this approach may ignore the inherited *ex-post* and case-by-case natures of the TPA Necessity Condition. How this current practice integrates the concerns of Article 19 will be a difficult issue to resolve.

The potential fluctuating and less-fixed volume of TPA Storage and ex-ante control

The other challenge for conducting *ex-ante* control is that the substantive meaning of TPA Storage may be a fluctuating volume instead of a fixed one. As noted above, unlike a relatively *more fixed* and *less fluctuating* volume for open access in the sectors of Gas Essential Infrastructures,[44] the capacity of TPA Storage may not always maintain the same level. As sudden changes (such as temperature) affecting the TPA Necessity Condition may occur daily, weekly, monthly, seasonally or yearly, TPA Storage is likely to be a fluctuating volume. Thus, national regulators may have difficulty in *ex-ante* determining TPA Storage volume, if such volume fluctuates constantly.

Also, it is doubtful whether national regulators have the competence to pre-determine TPA Storage. Even if national regulators can pre-determine a certain volume of TPA Storage, there are further challenges ahead:

- How frequently should these volumes be adjusted in accordance with the latest situation to follow the fluctuating nature of the TPA Necessity Condition?
- Will there be several TPA Storage volumes for the SSOs during one year (i.e., TPA Storage capacity for winter and one for summer; or one TPA Storage capacity for weekdays and one for weekends)?

Therefore, the adoption of a fixed and less fluctuating volume of TPA Storage, which is similar to the current practice of Gas Essential Infrastructures, would facilitate the actual implementation. Yet, it remains doubtful that this approach can reflect the substantive nature of TPA Storage.

[44] See e.g., Fluxys, 'Contracted and available firm entry-capacities (01/04/2008 - 01/03/2010)' available at http://www.fluxys.com/fr-BE/Services/Transit/OperationalData/~/media/Files/Services/Transit/IndicativeAvailableCapacities/Fluxys_EntryCapacities_2008August_080731%20pdf.ashx (accessed on 24 September 2008).

Two opposite and extreme legal positions of TPA Storage in the Gas Directive

Following the above elaboration, this study concludes that these legal challenges result from *the unclear legal position of TPA Storage in the Gas Directive*. Two extreme and different perceptions about the legal position of TPA Storage in different Articles of the Gas Directive may lead to divergent views of burden of proof, timing of control, the competence of national regulators, etc. It also leads to confusion and ambiguity during implementation. This article has explained these two different opinions while discussing the concept of TPA Storage in this Section. The two opposite legal positions on TPA Storage in the Gas Directive are summarized in Table 1.

Table 1. Opposite Legal Positions of TPA Storage in the Gas Directive. (Source: compiled by this author).

Legal basis / The comparison items	Article 21 of the Gas Directive	Article 19 of the Gas Directive
Approaches	Procedural approach	Substantive approach
The nature of TPA Storage	Principal Major proportion of Natural Gas and LNG Storage is subject to open access.	Exceptional Minor proportion of Natural Gas and LNG Storage is subject to open access.
Volume of TPA Storage	A fixed and less fluctuating volume	A more fluctuating volume
Burden of proof	SSOs	Storage users
Timing of control by regulators	Ex-ante and ex-post: -ex ante predefined volume of TPA Storage -ex-post scrutiny of refusal of access	Ex-post only on a case-by-case basis
Applicants	SSOs submit Non-TPA or TPA Storage for approval on an ex ante basis.	Storage users apply for TPA Storage on a case-by-case basis.
Concerns of the national regulators	Can ex-ante control reflect the substantial meaning of TPA Storage?	How ex-post controls reflect to the changing nature of TPA Storage?
Advantages	-Clear for storage users -A clear prefixed volume is easier to implement open access regime	-Fit the substantive meaning of Article 19
Disadvantage	-It may not fit the substantial meaning of TPA Storage in Article 19	Burdensome application procedure may impede the open access regime

Consequently, it seems that different legal bases in the Gas Directive cause divergent ways of applying and implementing the concept of TPA Storage. Even though the Gas Directive treats TPA Storage and other Gas Essential Infrastructures differently, it is not reflected in current practice. On the one hand, current practice seems to follow implementation practices in the

Gas Essential Infrastructures, and ignores the potential reason for refusal of access in Article 19, i.e., the TPA Necessity Condition. On the other hand, the current practice seeks to replace the role of the TPA Necessity Condition with 'available capacity'. The problem with this approach is evident: it does not take into account the special legal position of TPA Storage in the Gas Directive. Facing the inconsistency between Article 19 (the TPA Necessity Condition) and Article 21 (Available Capacity), the Commission must answer the following questions:

(1) Whether there is a need to determine the actual volume of TPA Storage in Article 19 before determining the scope of available storage capacity in the Article 21? If the answer is yes, then the current practice should be changed to reflect the legal position of TPA Storage.

(2) Should 'unavailable TPA Storage' be subject to the open access scheme? If the answer is yes, is that the legal purpose of the Gas Directive to make Article 19 prior to Article 21?

(3) Should available storage, which is not considered to be TPA Storage, be subject to the open access scheme? If the answer is yes, the current practice, which is highly likely to mistakably subject available non-TPA Storage to open access scheme, should be changed.

Again, this study seeks mainly to raise this issue, not to resolve all questions. However, this article considers that the remedy provided by the recent Gas Proposal, which continues to subject the concept of TPA Storage to subsidiary principals of Member States, may be inadequate in resolving this basic issue. It is suggested that a solution at the European level, such as a further *DG Note on TPA Storage* or a *new provision on the legal position of TPA Storage in the Gas Directive*, is necessary to clarify the concept and the legal position of TPA Storage. In particular, the relationship between Article 19 and 21 should be clarified to facilitate implementation.

III. The Regime of Designation of SSOs

According to Article 7 of the Gas Directive, all gas companies conducting gas system functions, involving storage, are required to designate system operators. As the scope of TPA Storage is unclear in the Gas Directive, this study will investigate how Member States meet this requirement under the current Gas Directive and how they should/may respond to the Gas Proposal in the future.

1. *Designation of SSOs in the Gas Directive*

According to the Storage Monitoring Report, four types of SSOs are adopted by the Member

States.[45]

- No legal separation between the SSOs and other gas businesses of the overall company (including production and/or supply activities).
- Gas storage subsidiaries: SSOs are separate from other gas activities of the overall company, at least in terms of their legal forms.
- Combined operators: SSOs operate as a combined operator in the sense of Article 15 of the Gas Directive. The combined operators are separate, at least in their legal form, from other gas businesses of the overall company.
- Ownership-unbundled gas storage companies: The SSO is unbundled from the vertically integrated company.

Briefly, the common feature in current practice is that gas companies conducting storage business seems to seek to avoid the difficult issue of determining TPA Storage by not distinguishing between TPA and Non-TPA Storage. As a result, the storage business is operated as a whole business, which may be operated alone (as a gas storage subsidiary or as an ownership unbundled storage company), or together with other infrastructures or production/supply functions, such as combined operators or a branch of a gas group company. There are no further separate sectors for TPA and Non-TPA Storage.

Several questions could be raised in current practice. First, are TPA and Non-TPA distinctive forms of 'systems' under Article 7 of the Gas Directive? If yes, it is necessary to designate them as different system operators in the Gas Directive and in current practice, which seeks to avoid the concept issue of TPA Storage by appointing just one SSO, instead of TPA SSO and Non-TPA SSO respectively; this may violate the original intention of the Gas Directive.

Second, another legal issue may be related to the concept of combined operators in Article 15 of the Gas Directive. If TPA and Non-TPA Storage are distinctive forms of infrastructure (system) under the Gas Directive, should a gas company that conducts both TPA and Non-TPA Storage business under the aforementioned four types be treated as a combined operator under Article 15 of the Gas Directive? If yes, then this type of company may not be allowed to operate together with other non-infrastructure functions (supply and production), and this type of company should consider whether to introduce more rigid rules (such as a functional unbundling regime) to ensure the independent function of the combined operators

[45] See Storage Monitoring Report, above n.31, p. 20-21.

concerned.[46] Furthermore, as far as the purpose of ensuring non-discriminatory behaviour of the combined operators is concerned, if it is important to add extra regulations to a company conducting two or more infrastructure functions in Article 15, then it would be necessary to apply the same or more stringent rules to companies conducting a traditional essential infrastructure function (TPA Storage) and a *less-infrastructure-like-but-more-competitive-oriented function* (Non-TPA Storage).

Yet in reality there seems to be no independent form of TPA Storage and Non-TPA Storage in the Gas Directive when it comes to the regulatory regime that is applicable to system operators. Both Article 7 and Article 15 treat the storage sector as a whole without discerning between TPA and Non-TPA Storage, when providing regulations for system operators and combined operators. In this regard, even though there might be certain concerns of discriminatory behaviours for a gas company conducting both TPA and Non-TPA Storage business, there is no need to appoint separate TPA and Non-TPA SSOs, and the company conducting both TPA and non-TPA Storage business is not a combined operator.

2. Designation of SSOs after the Gas Proposal

The above practice may be changed after the introduction of Article 9a(1) in the Gas Proposal, which attempts to introduce an independent TPA Storage subsidiary by applying legal and functional unbundling to the TPA Storage sector.[47] Consequently, it is prohibited to combine a TPA Storage business with other supply and production businesses. Only the following forms of SSOs *may be*[48] allowed:

- TPA Storage subsidiary: The gas companies may create a TPA Storage subsidiary, while leaving Non-TPA Storage businesses conjoined with supply, production, and other infrastructure businesses (such as distribution or LNG facilities); they may also subject Non-TPA Storage businesses to a Non-TPA Storage subsidiary.
- Storage subsidiary:[49] Since Article 9a(1) requires only legal and functional unbundling of the TPA Storage sector, this type of company may be seen as an *advanced form* of the TPA Storage subsidiary.

[46] Article 15 (a)-(d) of the Gas Directive.
[47] "*…This Article shall only apply to storage facilities that are technically and/or economically necessary for providing efficient access to the system for the supply of customers pursuant to Article 19.*" See Article 9a of Gas Proposal, above n.1, p. 34.
[48] These three forms are based on the potential implementation of current practice after the Gas Proposal. Yet, some legal forms seem to be prohibited if considering the nature of Non-TPA Storage. More explanation will be given in an upcoming Section.
[49] This article will not consider this as a viable option in the Gas Proposal. More reasons will be given in the coming Section.

- Combined operators[50] conducting two or more of the following functions: distribution, LNG facilities, and storage (TPA Storage and/or Non-TPA Storage).[51]
- Ownership-unbundled gas storage companies conducting TPA and/or Non-TPA storage businesses.
- Independent Transportation system operators (ITSOs) or ownership unbundled Transportation Companies conducting storage (TPA Storage and/or Non-TPA Storage) businesses: As transportation sectors are required to adopt either ITSO or ownership - unbundled transportation companies in the Gas Proposal, the storage sector may be subject to part of the function of ITSO.

However, a dramatic change should be noted in the Gas Proposal: the introduction of legal unbundling to the TPA Storage sector may imply that TPA Storage has become an 'independent' sector in the Gas Proposal, even though there is no change to the original legal texts in Articles 7 and 15 of the Gas Directive. This may imply that *gas companies should appoint separate TPA and Non-TPA SSOs under the Gas Proposal*. Furthermore, all storage subsidiaries operating both TPA and Non-TPA Storage may be considered to be a combined system operator of TPA and Non-TPA Storage in Article 15, which means that the extra regulations to ensure the independence of combined operators may be introduced.

Besides, as noted above, the nature of Non-TPA Storage may be competitive and non-natural monopolistic. This raises several questions: (1) Is Non-TPA Storage (a non-traditional essential infrastructure) allowed to be combined with other traditional essential infrastructure (TPA Storage and other Gas Essential Infrastructures) to create a storage subsidiary or a ownership-unbundled storage company? (similar to the prohibition of combining transportation function with production and supply function in the Gas Proposal and Gas Directive?); (2) Does the legal purpose of the combined operators in Article 15 of the Gas Directive intend to combine the traditional essential infrastructure functions with other non-traditional essential infrastructure functions (Non-TPA Storage)?; (3) Is an ITSO or an ownership-unbundled gas transportation company allowed to conduct Non-TPA Storage business? To answer this question, there is a need to elaborate on the legal position of Non-TPA Storage in the Gas Directive and Gas Proposal.

[50] Some forms of combined operators in Article 15 may not be allowed after the Gas Proposal. More reasons will be given in the coming Section.

[51] It is not permissible to create a combined operator that has storage and transportation functions under the Gas Proposal, as the TSOs are required to adopt either Independent Transportation System Operator (ITSO) or ownership unbundling in the Gas Proposal. However, an ITSO or ownership unbundled transportation company seems allowed to conduct storage business.

3. Rethinking the legal position of Non-TPA Storage in the Gas Directive and Gas Proposal

In the Gas Directive, Non-TPA Storage is regarded as a *regulated infrastructure;* therefore, it should be highly regulated and subject to the rigid regulatory regime for system operators under the Gas Directive. The Gas Directive seems to support the position that, though Non-TPA Storage is essential, there is no need for it to be subject to an open access regime. However, we offer two reasons to rethink the application of such rigid rules to Non-TPA Storage in the Gas Directive and Gas Proposal.

The justification to subject a sector to a rigid regulatory regime for system operators in the Gas Directive: the needs to implement the open access scheme

In general, the introduction of rigid regulations to a gas sector is always closely related to the application of the *open access regime* in the Gas Directive. The justification for introducing a rigid regulatory regime to traditional essential infrastructure sectors (transportation, distribution, TPA Storage, and LNG facilities) is the reason that: If there is a need for open access (either under the form of regulated third party access or negotiated third party access), then there is a need to introduce intensive regulations to sectors concerned with supporting non-discriminatory behaviors and transparency. On the contrary, if there is no need for open access, there is no need to introduce rigid regulations into sectors such as Production Storage.

However, the Gas Directive adopts an unusual treatment for Non-TPA Storage, which is not required for open access but remain subject to the rigid rules of traditional essential infrastructures. Therefore, the introduction of rigid regulations to Non-TPA Storage may conflict with the original coherent regulatory thinking applied to Gas Essential Infrastructures. Furthermore, certain regulations for SOs may not fully consider the existence of non-TPA Storage. For instance, how can Article 8(1)(d) of the Gas Directive be applied to a sector which is not required to be open access?[52] If the Gas Directive were to consider the existence of non-TPA Storage, it would have introduced an exemption for non-TPA Storage from Article 8(1)(d) of the Gas Directive.

The competitive nature of Non-TPA Storage

This approach may contradict the nature of Non-TPA Storage. As the nature of storage is competitive and should be unregulated, application of rigid regulations to storage can only be

[52] "*1. Each transmission, storage and/or LNG system operator …shall: … (d) provide system users with the information they need for efficient access to the system.*" Article 8(1)(d) of the Gas Directive.

justified under very exceptional circumstances. This is why the essential nature of the TPA Necessity Condition of TPA Storage is justifiable for further rigid regulations. Following this thinking, Non-TPA Storage, which is not subject to the open access regime, may be unregulated and subject to the competitive regime, just like Production Storage.

There are three additional reasons to support Non-TPA Storage as a competitive and non-monopolistic sector and to exempt this sector from the rigid regulatory regime for system operators.

(1) First, the focus of the competition is, so far, on networks rather than on storage.[53] Neither TPA Storage nor the role of Non-TPA Storage seems to be the main concerns of competition law.

(2) Second, the nature of the storage led to the lenient legal regime in the first Gas Directive. Even though there are more rigid rules introduced to TPA Storage in the 2nd Gas Directive, these rules may not be directed toward Non-TPA Storage.

(3) Third, the nature of storage is not essential, and it can be replaced by transportation and distribution. Even if TPA Storage may be more essential and irreplaceable, there is no way to consider all Non-TPA Storage as essential.

In this regard, Article 7 needs to consider whether it should be limited to TPA Storage. This article's premise is that the unregulated and competitive storage in Figure 1 should involve not only Production Storage but also Non-TPA Storage. If this interpretation is not adopted, little room may be left for unregulated competitive storage in the Gas Directive. Many types of unregulated competitive storage may be falsely classified as Non-TPA Storage and subject to rigid regulations for system operators. For instance, the storage used for *speculative* purpose, which should be unregulated, may be improperly considered as Non-TPA Storage and subject to rigid regulations for system operators.

Therefore, the Gas Directive seems to create a special form of infrastructure. On the one hand, unlike traditional Gas Essential Infrastructures, Non-TPA Storage is not subject to an open access regime. On the other hand, the Gas Directive creates a *unique* form of essential infrastructure bearing an ambiguous function that lies somewhere between competitive and regulatory function. The special position of Non-TPA Storage could attract special attention

[53] Storage is considered as a type of downstream market product. Yet, the book does not provide any discussion about the legal importance of storage. Rather the main focus and discussion is on transportation and interconnecters. See P. Cameron, above n.3, p. 290, 324-365. Therefore, the status of TPA Storage seems not to be the main concern of competition law, not to mentioned Non-TPA Storage. .

when it comes to the Gas Proposal's implementation. Based on the legal foundation of Article 8(1)(d), this article maintains that the Gas Directive may not intend to introduce rigid regulations of system operators to the Non-TPA Storage sector.

The implementation of Non-TPA Storage after the Gas Proposal

Following the above reasoning, Non-TPA Storage is considered a competitive sector and is not subject to the regulation for system operators in the Gas Directive. This interpretation may affect the potential company's type of implementation in practice of the Gas Proposal.

(1) With regard to the option of storage subsidiary or ownership-unbundled storage companies, is it permissible to combine TPA and Non-TPA Storage in one company? Following Article 9a(1), it seems that TPA Storage subsidiaries are seen as a minimum requirement in the Gas Proposal, and it is implied that it is an *advanced* step to legally unbundle Non-TPA Storage business.[54] However, considering the nature of TPA Storage, it may not be an advanced from of legal unbundling, but, rather, a *prohibitive* form under the legal unbundling. As it is prohibited to combine production functions with TPA Storage, the same rule should apply to Non-TPA Storage. In this regard, the Gas Proposal seems to disallow the creation of storage subsidiaries or ownership-unbundled storage companies owning Non-TPA Storage assets.

(2) With regard to the combined operator, it may not be permissible to combine with Non-TPA Storage. Even though Article 15 of the Gas Directive seems to allow the combination of Non-TPA storage with other system functions, the competitive nature of Non-TPA Storage may lead to more concerns regarding anti-competitive behaviors for those combined operators owning Non-TPA Storage assets. This could jeopardize the function of the combined operators, and it might also impede the purpose of the unbundling--to separate the competitive function from the traditional essential infrastructure to avoid conflicts of interest and to ensure non-discriminatory behavior of the system operator in implementing the open access regime.

(3) The same rules above should be applicable to ITSO and ownership unbundled transportation companies. They are not allowed to conduct Non-TPA Storage business.

In sum, for the following three reasons--(1) Legal unbundling prohibits the combination of competitive and regulated functions into one subsidiary, company, or combined operator; (2)

[54] Similar legal wording may be found in the Gas Directive concerning legal and functional unbundling to transportation sector. "…*These rules shall not create an obligation to separate the ownership of assets of the transmission system from the vertically integrated undertaking*." Article 9 of the Gas Directive.

The nature of Non-TPA Storage is competitive and non-natural-monopolistic; (3) Non-TPA Storage is becoming an independent sector, as TPA Storage assumes a clearer position after the Gas Proposal--it is suggested that the Gas Directive and the Gas Proposal should re-consider excluding Non-TPA Storage from the regulatory regime in Articles 7 and 15. If this interpretation is adopted, it would affect the current practice in the following respects:

- There is no need to designate Non-TPA Storage as SSO since Article 7 of the Gas Directive is not applicable to Non-TPA Storage. Most related regulatory regimes applicable to storage in the Gas Directive, such as general tasks for system operators, are not applicable to Non-TPA Storage. In this regard, only TPA Storage is required to designate SSO and is subject to a rigid regulatory regime.
- The following forms of implementation are prohibited in the Gas Proposal:
    - Storage subsidiary conducting both TPA and Non-TPA Storage business is prohibited. Only TPA Storage subsidiaries are allowed in the Gas Proposal.
    - Combined operators conducting Non-TPA Storage are prohibited in the Gas Proposal. Only the combined operators conducting two or more of the following functions are allowed: distribution, TPA Storage, LNG facilities.
    - Ownership unbundled storage companies conducting both TPA and Non-TPA storage business are prohibited. Only an ownership-unbundled TPA Storage company is allowed.
    - ITSO and ownership-unbundled transportation companies are not allowed to conduct Non-TPA Storage business. They may combine TPA Storage business.

VI. The Application of the General Duties of the SSOs

After the designation of SSOs, there is a general regulatory regime applicable to all SSOs, i.e., the general duties of SSOs in Article 8 of the Gas Directive. These involve: ensuring non-discriminatory behavior,[55] transparency,[56] and the facilitation of an open access regime.[57] To implement these legal directions, more detailed regulations are developed in the Gas Directive, i.e., Guidelines for Good TPA Practice for Storage System Operators (GGPSSO).[58]

[55] Article 8(1)(b) of the Gas Directive.
[56] Article 8(1)(c) of the Gas Directive.
[57] Article 8(1)(d) of the Gas Directive.
[58] See ERGEG, 'Guidelines for Good TPA Practice for Storage System Operators (GGPSSO),' 23 March 2005, available at www.e-control.at/portal/page/portal/EER_HOME/EER_CONSULT/ARCHIVE/GAS/E04-PC-

In the Gas Directive, the general tasks of the SSO are applicable to all gas companies conducting either TPA or Non-TPA Storage business, while the GGPSSO is applied on a voluntary basis. Neither set of rules distinguishes between TPA and Non-TPA Storage in current practice.

The Gas Proposal may change some aspects of current situation. First, as noted above, the Non-TPA Storage may not be subject to the general duties of the SSOs. But if this opinion is rejected by the Commission, some of the duties[59] will be definitely inapplicable to Non-TPA Storage, from a legal point of view. Second, the GGPSSO will become legally binding in the Gas Proposal.[60] As noted above, the GGPSSO may apply only to the TPA Storage sector. Rigid and comprehensive regulations should not be introduced to the Non-TPA Storage sector. If the interpretation of this article is not adopted by the Commission, the GGPSSO should consider the special nature and features of Non-TPA Storage and adopt and design more *lenient* rules for Non-TPA Storage. Since there is no need for Non-TPA Storage to be open access, there should be more lenient rules on the transparency requirement, the rules of non-discriminatory behaviors, etc.

As a result, the current practice of applying the same general duties to both TPA and Non-TPA Storage is likely to be changed in response to the nature of Non-TPA Storage after the Gas Proposal.

V. The Application of Open Access Regime

Currently, according to Article 19 of the Gas Directive, only TPA Storage is subject to an open access regime. As noted above, the current concept of TPA Storage is not well developed, which has lead to unclear and inadequate implementation. This situation is emphasized in the Gas Proposal, which states, *"All Member States need to define criteria when and how third party access to storage applies and this has to be made public."*

After the Gas Proposal, it has become more necessary to define the scope of TPA Storage in the Gas Proposal, which is now being applied to both open access regimes and legal and functional unbundling. Considering the important role of TPA Storage in open access regimes and unbundling, it is suggested that this conceptual issue should not just be dealt with at the level of the Member States. A coherent interpretation is necessary at the European level. A *DG*

01/CD/E04-PC-01-14_GGPSSO_2005-03-23_FINAL.pdf (accessed on 25 September, 2008).

[59] E.g., Article 8(1)(d) of the Gas Directive.

[60] "*Make the principles in the guidelines legally binding and allow for detailed implementation of the guidelines through comitology*" See Gas Proposal, above n.1, p. 17.

Note on TPA Storage is recommended.

VI. The Application of Unbundling Regime

Different requirements of unbundling are applicable to the storage sector. The Gas Directive subjects the storage sector to account unbundling, while the Gas Proposal will introduce further unbundling (legal and functional unbundling) to the TPA Storage sector. This article will elaborate on the actual implementation of these unbundlings in detail.

1. *Account unbundling*

The Gas Directive subjects the storage sector to account unbundling. In current practice, the requirement is applicable to the *whole* storage sector. Therefore, there is no separate account for TPA and Non-TPA Storage.[61] This practice seems to conform to the Gas Directive since Article 17(3) of the Gas Directive explicitly provides that a separate account for storage suffices.

But, after the Gas Proposal, this situation is highly likely to be changed. Some changes in the Gas Proposal suggest that there should be separate accounts for TPA and Non-TPA Storage, and current practices might not meet the requirements of the Gas Proposal. First, as noted above, with the introduction of legal and functional unbundling, the role of TPA Storage is becoming more independent and distinct as an infrastructure function in the Gas Proposal. As a more rigid form of unbundling (legal and functional unbundling) is applicable to TPA Storage, there is no reason not to subject it to a more lenient form of unbundling (account unbundling). If a TPA Storage subsidiary is required to be created in accordance with Article 9a(1) in the Gas Proposal, it is hard to imagine that this subsidiary is not required to conform to account unbundling and set up an independent regulatory account for TPA Storage. Second, we have learned from the experience of applying unbundling to the transportation and distribution sectors in the 1st and 2nd Gas Directive that *account unbundling works closely with legal and functional unbundling*. The same rules may apply to TPA Storage as well. Third, as TPA Storage is considered as essential infrastructure function in the Gas Proposal, the rule of "the more transparency, the better" should apply. To facilitate open access to TPA Storage facilities and to avoid cross-subsidization between the TPA Storage sector and other sectors, it is necessary to establish an independent account for TPA Storage. In this regard, a

[61] See e.g., Fluxys, Annual report 2005, p. 135, 137, 139, available at: www.fluxys.com/en/Financial%20info/AnnualFinancialReports/~/media/Files/Financial%20info/Annual%20Reports/EN/FLUXYS_AnnualReport_2005_GB%20pdf.ashx (accessed on 25 September, 2008).

regulated account should be created for the TPA Storage sector.

However, there are also several reasons to maintain the current practice. First, there is no legal change to Article 17(3) in the Gas Proposal. Secondly, as mentioned above, it is difficult to discern TPA Storage from Non-TPA Storage, which would cause problems to introduce separate accounts. Besides, if the Commission does not consider Non-TPA Storage as a competitive and unregulated infrastructure, one more justification could be provided: as Non-TPA Storage may remain subject to a rigid regulatory regime for system operators, the concerns of discriminatory access and cross subsidy, affected by a mixed account of TPA Storage and Non-TPA Storage, may be more limited. In this regard, these three reasons may be in favor of maintaining current practice. However, which approach should be adopted after the Gas Proposal remains to be resolved in the future.

2. Legal unbundling

The current Gas Directive does not subject the storage sector to a legal unbundling requirement.[62] Even though the Storage Monitoring Report identifies that some SSOs adopt the form of legal-unbundled storage subsidiaries or ownership-unbundled storage companies,[63] they are not the standard form of legal unbundling in the sense of Article 9a(1) of the Gas Proposal.

In addition to the options of ownership unbundled transportation company or ITSO conducting TPA Storage business, two further options exist for legally unbundling TPA Storage in the Gas Proposal.

(1) TPA Storage subsidiary: The option of the TPA Storage subsidiary is the *traditional* form of legal unbundling in Article 9a(1). However, as noted above, the creation of a storage subsidiary combining both TPA and Non-TPA Storage may not be an advanced form of legal unbundling in the Gas Proposal.

(2) Combined operators of distribution, LNG facilities, and TPA Storage: As TPA Storage might be only a minor proportion of the whole storage capacity, combined operators may be preferable for avoiding concerns of cost-effectiveness in the unbundling. It should be noted that the transportation sector is required to adopt either ITSO or ownership unbundling in the Gas Proposal. It is not allowed to create combined operators combining TPA Storage and transportation functions. Certain combined operators combining transportation and storage

[62] "*Where the transmission system operator is part of a vertically integrated undertaking, it shall be independent at least in terms of its legal form… from other activities not relating to transmission.*" Article 9(1) of the Gas Directive.
[63] See Storage Monitoring Report, above n.31, p. 20-21.

functions in current practice, such as TIGF in France,[64] should be changed to comply with the Gas Proposal.

However, to apply legal unbundling, the main legal issue would be the challenge of determination of TPA Storage. The unclear scope of TPA Storage in the current Gas Directive and Gas Proposal and the potential fluctuating volumes of TPA Storage may jeopardize the implementation of legal unbundling. Thus, how to facilitate the actual implementation may require further actions of the Commission and energy regulators.

3. Functional unbundling

The Gas Directive introduces functional unbundling to the transportation and distribution sector. In general, this includes two different sets of detailed rules concerning independent organization[65] and independent decision-making.[66] The detailed requirements of these two types of mechanisms can be found in the DG Note on Unbundling.[67]

The Gas Directive does not subject the storage sector to functional unbundling. In practice, several companies have adopted measures of functional unbundling for their storage sector, such as separation databases,[68] confidential requirements,[69] separation of building,[70] etc. Nonetheless, these efforts only focus on unbundling the relationship between storage and other production & supply sectors so far. Currently, there is no functional unbundling addressing the relationship between TPA Storage and other gas sectors.

As noted in the analysis in the legal unbundling of the Gas Proposal, functional unbundling should be introduced to the TPA Storage sector as well. Therefore, the substantial behaviors of TPA Storage subsidiaries and combined operators should be independent in terms of their organization and decision making. In this regard, there are several issues when it comes to the substantial implementation of functional unbundling in the Gas Proposal.

First, it is important to make sure *the same extent* of independent organization and decision making in both TPA Storage subsidiary and combined operator. As the TPA Storage subsidiary

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[64] See e.g., TIGF, Our activities, available at: www.tigf.fr/en/default.htm (accessed on 25 September, 2008).
[65] "*Where the transmission system operator is part of a vertically integrated undertaking, it shall be independent at least in terms of its … 'organisation'… from other activities not relating to transmission.*" Article 9(1) of the Gas Directive.
[66] "*Where the transmission system operator is part of a vertically integrated undertaking, it shall be independent at least in terms of its …'decision making' from other activities not relating to transmission.*" Article 9(1) of the Gas Directive.
[67] See European Commission, 'Note of DG Energy & Transport on directives 2003/54/EC and 2003/55/EC on the internal market in electricity and natural gas: The unbundling regime,' 16.1.2004. (DG Note on Unbundling)
[68] See Storage Monitoring Report, above n.31, p. 23. See also C. Jones, above n.22, para. 4.18-4.26.
[69] See Storage Monitoring Report, above n.31, p. 23.
[70] Ibid., at 25.

is less complex, it is easier to ensure the non-discriminatory behaviors and to monitor the implementation of GGPSSO. Therefore, additional rules are likely to be considered in the future GGPSSO to make sure the same extent of substantial fair behaviors, transparency and monitoring are applies when it comes to combined operators.

Second, the *cost-effectiveness* issue of functional unbundling in the TPA Storage sector should be taken into account.[71] Currently, one study has evaluated the cost-effectiveness of the separation of building (independent organization).[72] More aspects of cost-effectiveness of functional unbundling should be considered after the Gas Proposal. As only limited available capacity for open access in the Member States and the nature of TPA Storage may be exceptional, functional unbundling is likely to apply to a minor proportion of total storage. Unlike the exemption of small distributors from the application of rigid unbundling in the Gas Directive,[73] how to balance the benefit of further unbundling in the TPA Storage sector and the extra cost incurred would be a legal challenge for the implementation of the Gas Proposal. Perhaps the Gas Proposal should consider introducing a *similar exemption for the small SSOs of TPA Storage*.[74]

Third, the Gas Proposal may need to consider the *effectiveness* of functional unbundling in the TPA Storage. As identified by Energy Sectoral Inquiry, five years of experience of functional unbundling in the transportation sector has proven that it is inadequate in dealing with the discriminatory behaviors of incumbents when providing network access. Functional unbundling incompetently ensures independent decision-making of the TSOs, and many decision-making processes remain favoring their own supply subsidiaries.[75] This seems to be a result of, and an *inherent flaw* in, the fundamental design of functional unbundling. Specifically, the complicated and burdensome requirements of functional unbundling make TSO compliance and national regulation difficult: TSOs are incapable of complying with complicated rules of functional unbundling, while energy regulators are incapable of monitoring whether the TSOs implement the detailed rules. Presumably, such inherent flaws of functional management would be corrected when applied to the TPA Storage sector. There

[71] See DG Note on Unbundling, above n.67, p. 9; C. Jones, above n.22, p.101-103.
[72] See Storage Monitoring Report, above n.31, p. 25.
[73] Article 13(2) of the Gas Directive.
[74] See A. Gao, "The Third European Energy Liberalization Package: Does Functional and Legal Unbundling in the Gas Storage Sector go Too Far?" SSRN Working Paper. Available at: papers.ssrn.com/sol3/papers.cfm?abstract_id=1167793 (accessed on 25 September, 2008).
[75] "*The current level of unbundling of network and supply interests has negative repercussions on market functioning and on incentives to invest in networks. This constitutes a major obstacle to new entry and also threatens security of supply*." See e.g., European Commission, 'DG Competition Report on Energy Sector Inquiry', 10 January 2007, Brussels, 10 January 2007, SEC (2006) 1724, p. 7, 13, 14.

would be one additional legal challenge for TPA Storage, when compared with the implementation of functional unbundling in the transportation sector. The unclear scope and concept of TPA Storage and the potential fluctuating volumes of TPA Storage would lead to greater difficulties in SSO compliance and energy regulator monitoring, in the event of the implementation of functional unbundling.

VII. Conclusion

With the increasingly independent and clear position regarding TPA Storage in the Gas Proposal, it is necessary to review and change the way in which the Gas Directive is currently applied to storage sector practices. The currently dominant legal form of storage companies, which combines TPA with Non-TPA Storage, may not be allowed under the legal and functional unbundling requirement of the Gas Proposal. There may be a need to separate TPA Storage and Non-TPA Storage after the Gas Proposal taking into effect.

However, a legal challenge underway may jeopardize the actual implementation of *TPA Storage*. In spite of this article's efforts, the concept of TPA Storage remains unclear. This may be a result of the lack of nuanced differences between the open access regime in the storage sector and other traditional infrastructure sectors (i.e., transportation, distribution, and LNG facilities), wherein a major percentage of infrastructures are presumably subject to open access regimes and a clearer line separates open-access and non-open-access facilities. This unclear concept may lead to two extremely contradictory modes for implementing TPA Storage. Even though there seems to be an awareness of this issue in the Gas Proposal, inadequate actions are being taken at the European level, leaving these problems to the subsidiary principal of Member States. As a result, this article recommends finding a solution at the European level. Either a DG Note on TPA Storage or a new provision in the Gas Proposal to clarify the concept of TPA Storage, particularly the relationship between Articles 19 and 21, is suggested.

Furthermore, the Gas Proposal should be clarified to explain the unclear concept and position of *Non-TPA Storage* under current legislation. Compared with Gas Essential Infrastructures that play more essential roles in the gas supply chain, Non-TPA Storage looks like a rather unusual form of a system in the Gas Directive. It is a non-independent type of system in the Gas Directive; no open access regime is applicable, but, in current practice, it remains subject to rigid regulatory regimes for system operators. Given that non-TPA Storage is non-natural-monopolistic and unregulated in nature, and that it has become an independent sector in the

Gas Proposal, this article maintains that there should be a change in post-Gas Proposal practices. Unlike TPA Storage, non-TPA Storage should not be considered a system in the Gas Directive. Therefore, all rigid regulations applicable to system operators should not apply to Non-TPA Storage.[76] Particularly, the rigid form of unbundling introduced to the TPA Storage sector should not apply to Non-TPA Storage, and Non-TPA Storage should be allowed to remain in the hands of vertically integrated gas companies. However, account unbundling, which applies to each sector, may still be applicable to Non-TPA Storage. In this regard, the regulations that are applicable to Non-TPA Storage can reflect the nature of Non-TPA Storage.

Finally, we suggest that the Commission should more actively face the issue of *the concept and nature of both TPA and Non-TPA Storage* before introducing further regulations into these two types of gas facilities. First, the concept should be made clearer in order to specify the regulated objects and to facilitate the actual implementation of the Gas Directive. The concept of both TPA and Non-TPA Storage should first be clarified. Second, when the Commission determines the concepts, it should take into account the nature of both TPA and Non-TPA Storage. This article asserts that the current practice of treating TPA Storage as a principal open access target, and treating Non-TPA Storage as a highly-regulated essential infrastructure, may not actually reflect the true nature of both facilities. Thus, how to take into account both 'the nature of the facilities' and 'the needs to facilitate the implementation of regulations in gas storage sector' will remain a challenge for the Commission and for energy regulators in the future.

[76] For instance, there is no need to designate SSOs for Non-TPA Storage and to be subject to the general duties. Article 7 and 8 are not applicable to Non-TPA Storage facilities.

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