

EFET Mark-up

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Guidelines for Good TPA Practice for Storage System Operators (GGPSSO)

Version 2004-10-06

Scope and objective of the GGPSSO

The GGPSSO are forward looking and should be flexible enough to account for developments in market arrangements. They intend to give a minimum common set of requirements for the organization of the storage facilities and operators.

They are addressed to all Storage System Operators (SSOs) in the European Union.
[Comment: SSO is defined in the Annex. The Guidelines recognise that, subject to regulatory approval and consultation with users, some marginal storage facilities might not be required to provide mandatory TPA. Only limited provisions of these Guidelines apply to the Operators of such storage facilities. Comment: 2003/55/EC allows several possibilities that storage is not subject to mandatory TPA. New storage facilities, particularly 'non-essential' storage competing with existing dominant storage operators need encouragement to ensure that markets in storage can develop. This is in line with the GTE request for marginal facilities to be exempted from some transparency requirements.]

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The purpose of these GGPSSO is to ensure that SSOs provide the services needed by storage users on a fair and non-discriminatory basis, taking into account technical constraints. Systems and processes shall facilitate the sustainable development of competition in gas supply.

It shall be incumbent upon the SSOs, on a case by case basis, to demonstrate to the relevant national authorities that arrangements at storage facilities meet the following guidelines in terms of the desired outcomes. The regulatory authorities should check that results in both regimes (nTPA and rTPA) are equal in terms of non-discrimination, transparency and competition. [Comment: If these voluntary guidelines were to become a regulation, then remedies would be needed for non-compliance.]

An overriding principle is that storage systems and processes implemented by the SSOs maintain secure, reliable and efficient operation of the storage system (Article 8(1.a) of the Gas Directive).

1. **Roles and responsibilities of Storage System Operators**

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1.1. SSOs, be they separate entities, part of a combined operator in the sense of Article 15 of the Gas Directive, or part of a vertically integrated company in the sense of Article 2(20) of the Gas Directive, shall act in accordance with the principle of non-discrimination, transparency and competition. SSOs must therefore be sufficiently separate from any affiliated supply companies. In practice this means that dominant SSOs should be a legally separate company with separate management, buildings, accounts and an effective compliance programme. [Comment: this separation requirement should cover more than confidentiality. It is an essential role of SSO staff that their behaviour does not favour an affiliate's supply business.]

1.2. SSOs are responsible for the provision and management of technical storage capacity, storage services and information as well as the technical integrity and safety of storage facilities.

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1.3. SSOs shall among others:

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a. operate and maintain under economic conditions secure, reliable and efficient storage facilities;

b. offer third party access services on a non-discriminatory and transparent basis to all storage users requesting access to storage, including own affiliated companies, either using standard storage contracts or a storage code, developed by the SSOs, including proper consultation with users and overseen by the national regulatory authorities. This shall include consultation with potential storage users on the products they are offering, the method of sales and any changes to contracted services; [Comment: consultation with storage users on the products to be offered is essential and ensures the SSO is offering only services required by the users and does not withdraw any undue.]

c. establish rules on the use of capacity aimed at encouraging and facilitating competitive and efficient use of that storage facility by system users, in particular to discourage storage capacity hoarding. [Comment: we agree with GTE that the SSO can encourage and facilitate competition but cannot be responsible for ensuring competition – the latter is a role of the Regulator.];

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d. avoid exposing storage users to undue risks (i.e. risks beyond the users' control);

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e. treat confidential information, especially with regards to any affiliated company, in order to avoid any discrimination between storage users, as stated in § 5 on confidentiality requirements;

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f. provide the information required by storage users and system operators as stated in § 6 on transparency requirements;

co-operate with TSOs through interoperability agreements in order to ensure efficient and secure operation of storage and transportation networks;

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g. aim at accommodating market demand on a non-discriminatory basis, without imposing barriers to customer supply and to trade, whilst granting efficient and competitive access. This should include appropriately balancing the portion of storage capacity contracted under multi-annual long-term contracts and short term contracts as requested by market players through regularly held consultations; [Comment: responding to market demands fairly is essential, partially moved from section 4.]

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h. when asking or providing guarantees to storage users with respect to their creditworthiness, ensure that these guarantees are non-discriminatory,

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transparent and proportionate and do not constitute any undue market entry barrier; *[Comment: the risks for users may be greater than for the SSO.]*

- i. maximise the availability of storage services throughout the year through efficient maintenance planning and operation;
- j. redeliver stored gas to the pipeline system at a specification that complies with the pipeline system's entry requirements. *[Comment: this essential requirement could alternatively be in section 10.]*

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2. Role of Storage Users *[Comment: this section is unnecessary and could be deleted]*

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2.1. Storage users shall among others:

- a. be responsible for making nominations to the SSOs ~~for the injection and withdrawal of gas from storage facilities in accordance with prevailing contractual specifications, technical rules and agreed procedures;~~ *[Comment: this must be a typographical error, SSOs operate the storage facilities, not the user.]*
- b. provide all data required that is necessary for the SSO to carry out its duties as specified in the storage code and/or in the storage contract;
- c. not use capacity rights in a manner that is intended to restrict, distort or prevent competition, for example through capacity hoarding;
- d. put relevant IT in place in order to be able to communicate with SSOs via agreed interfaces and standards.

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3. Necessary TPA services

3.1. Storage capacity not excluded from TPA pursuant to Article 2(9) of the Gas Directive, when technically and economically necessary for efficient access to the network, shall be offered to storage users on a non-discriminatory basis that encourages and facilitates trade and competition [as for 1.3c]. Therefore, the SSO shall offer to storage users the maximum available storage capacity, apart from that part of the storage capacity used for operational needs related to transmission and/or production, according to rules made transparent by the national regulatory authorities. Exclusion of storage capacity from TPA shall not be the decision of the SSO and/or the beneficiary of the storage capacity exempted from TPA and shall be approved by the national regulatory authorities, with the publication of substantiated reasons, including the rules under which TSOs can use exempted storage capacity. *[Comment: essential requirement to avoid market distortion and unquantifiable risks.]*

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3.2. The amount of storage capacity needed for PSO and security of supply, when imposed on storage users should be offered on a TPA basis; requirements of non discrimination still apply. Whichever party is responsible for PSOs, it shall demonstrate upon request to the national regulatory authority that their requested capacity reservation is no more than what is required to satisfy the relevant PSO.

3.3. Any bona fide market participant should be allowed to book available storage capacity e.g. restrictions must not be placed on access to storage, linked to evidence of supply

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to end customers. [Comment: essential to ensure non-discriminatory access and in line with the Gas Directive.]

3.4. The SSO shall offer to storage users the storage capacity in a form that facilitates competitive, non-discriminatory, and efficient access to best meet storage users' needs and that facilitates trade in storage services in secondary markets. Specifically the SSO shall offer in the primary market, pursuant to its responsibilities under § 1, in consultation with storage users and taking into account storage technical constraints, a menu of services, including the following:

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- a. bundled services (SBU) of space and injectability/deliverability with determined technical ratios;
- b. unbundled services in an appropriate range with SBUs;
- c. an appropriate range of firm long-term (> 1year) and short-term services (<1year) down to a minimum period of one day, if technically feasible [Comment: we agree with GTE that some storage facilities may have technical difficulties in providing a one day service];
- d. interruptible storage contracts and services [Comment: although interruptible storage services are likely to be very short term, an interruptible storage contract may well have a long duration.];

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e. offer all bundled storage capacity and injection and/or withdrawal capacity available/not being used as an interruptible service. The interruptible service shall be shared between Storage Users in a fair and non-discriminatory manner and the interruptible nomination should be agreed by the SSO; [Comment: an essential service is for the TSO to offer unused bundled storage capacity and unused injection and withdrawal capacity to the market.].

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3.5. The price for interruptible storage capacity shall be notified by the SSO to the Storage User before the day. [Comment: this is necessary commercial requirement]

3.6. In the standard service offered by the SSO, the gas allocated to storage users shall match storage users' nominations, including deemed nominations.

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3.7. SSOs shall offer services that are consistent with the efficient use of the interconnected gas transportation systems and facilitate easy access through co-operation with the TSOs as in section 10. [Comment: a cross reference to section 10 is useful to help ensure compatibility of SSO and TSO services.].

3.8. Taking into account technical constraints and if consistent with PSOs obligations, the SSO shall offer all services without restrictions on the starting date and the actually prevailing physical flow. With the same constraints, injection and withdrawal of gas should, in principle, be possible at any time (e.g. netting injection and withdrawal should be allowed as should injection in winter and withdrawal in summer). Limits on the required minimum size of storage capacity rights shall be justified on the basis of technical constraints and permit small shippers to gain access to storage services. Storage users should be allowed to pool with each other with a view to overcome potential technical capacity thresholds. [Comment: netting reduces operating costs and should be welcomed by the SSO. It is important to avoid historical patterns of injection and withdrawal becoming a constraint on storage use.]

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3.9. The SSO should develop information systems and electronic communication to provide adequate data to storage users and simplify transactions (such as nominations, capacity booking and transfer of capacity rights between storage users). Until real time on-line booking of available capacity is established, the SSO shall guarantee response times for storage requests. [Comment: essential service requirement for efficient use of facility. This wording is flexible enough to account for market developments.]

3.10. Deadline for the implementation of such requirements is 1 April 2005; if SSOs have problems in implementing measures envisaged under § 3, in particular with regard to IT systems, they shall provide an explanation to the national regulatory authorities setting out the problems in implementing this deadline and present a concrete action plan for their implementation, taking into account, if applicable, the size of the company.

4. Storage capacity allocation management and congestion management

4.1. Storage capacity allocation mechanism and congestion management procedures shall:

- a. facilitate the development of competition and liquid trading of storage capacity and be compatible with market mechanisms including spot markets and trading hubs while being flexible and capable of adapting to evolving market circumstances and discourage hoarding;
- b. take into account the integrity of the storage system concerned as well as security of supply where relevant legal rules are incumbent upon the SSO;
- c. not create undue barriers to market entry and not prevent market participants, including new market entrants and companies with a small market share, from competing effectively.
- d. ensure the maximum availability and efficient use under economic and non discriminatory conditions of technical storage capacity;
- e. generate the right signals for investment in new infrastructures;
- f. be subject to consultation with storage users;

g. aim to terminate non-contractual legacy arrangements if they disadvantage new entrants and seek to bring all long-term contracts on to a consistent basis. [Comment: historical arrangements between affiliates must be realigned with the new regime. Renegotiation of contracted amounts with third parties should be encouraged where necessary to align with the new regime.]

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4.2. Once a nomination has been made by a user and accepted by the SSO, the SSO must allocate exactly the nominated quantity to that user. [Comment: essential requirement of a storage service]

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4.3. In case of physical congestion of booked storage capacity (e.g. temporary system failure resulting in withdrawal or injection limitations of a storage facility), non discriminatory, market-based solutions, previously agreed, shall be applied by the SSO or by the national regulatory authorities. [Comment: this is dealt with in the new 1.3 and should be left to the market to decide long term and short term requirements]. Alternative allocation procedures such as pro-rata mechanisms may only be

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considered where they ensure equivalence in terms of non-discriminatory and competitive access.

4.4 The SSO shall actively endeavour to discourage hoarding and facilitate re-utilisation and trade of storage capacity by all reasonable means, including at least the offer on interruptible basis of all unused capacity (e.g. day-ahead release of non-nominated injectability and/or deliverability).

4.5 If, in spite of the measures aimed at preventing any commercial incentives to hoard capacity, namely secondary market and interruptible storage services, capacity contracted under existing storage contracts remains unused and significant and prolonged contractual congestion occurs, the national regulatory authorities shall require the SSO to introduce additional mechanisms to free up this capacity.

5. Confidentiality requirements

5.1. The SSO shall meet the confidentiality provisions of Article 10 of the Gas Directive, by guaranteeing that:

- a. commercially sensitive information from storage users' account remains confidential. Any information available to the SSO concerning its storage and processing business shall not be passed to other possible parts of the company in advance of being provided to all market participants; staff working for the affiliate business if any (e.g. supply) should have no access to information which could be commercially advantageous, such as details on actual or potential storage users, and is not made available to all market parties. The arrangements to implement this requirement should include a code of conduct for staff/compliance programme, supervised by a Compliance Officer;
- b. in case of an integrated company operating supply and/or production and storage business or when there are no separate database systems, specific confidentiality duties must be clearly defined; the relevant national regulatory authorities shall at least require sufficient evidence from companies concerned so as to prove an effective establishment of Chinese walls between the SSO and the supply and/or production branch of the vertically integrated companies. The arrangements to implement this requirement should include a code of conduct for staff/compliance programme, supervised by a Compliance Officer, which should embody the principles behind the Chinese walls concept. Cost effective solutions should be implemented to ensure that the SSO and the supply business are not located in the same place. Preferably, the SSO and the supply business should be located in separate buildings, provided such a measure is proportionate given the size of the activity concerned.

6. Transparency requirements

6.1. SSOs should implement user-friendly systems to publish the information needed by storage users in a timely manner in the national language and in English on the Internet. Information shall be disclosed promptly in a meaningful, quantitatively clear and easily accessible way and on a non-discriminatory basis.

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6.2. ~~[Comment: Confidentiality is already dealt with in 5.1, the requirement to provide information promptly has been included in 6.1 and it is unclear why the remaining wording is necessary.]~~

6.3. The SSO shall submit for approval to the national regulatory authorities any request not to publish specific data (e.g. for reasons of costs or to avoid any potential market abuse). The relevant national authorities shall grant or refuse the authorization on a case by case basis and publish the substantiated reasons.

~~6.4. There must be transparency in all TSO and SSO rights and processes (e.g. TSO pre-emptive rights for carrying out their duties). [Comment: transparency is essential to avoid potential market distortions and lack of confidence.]~~

~~6.5. The following commercial terms should be published on the internet. [comment: providing information on the internet takes into account GTE concerns]:~~

- a. in rTPA, the tariffs for each service offered shall be published ex ante with the derivation criteria attached. ~~[Comment: Regulator would be responsible for overseeing this].~~ In nTPA, the main commercial conditions including the prices for core standard services must be published and updated whenever the SSO changes them; prices and underlying criteria should be made available to the national regulatory authorities at least in case of disputes;
- b. services offered, the storage code (if applicable) and/or the main standard conditions for each service outlining the rights and responsibilities for all users including flexibility tolerances (e.g. counter flows during injection or withdrawal) and the rules of transfer storage capacity in case of final customer switching;
- c. method of determining available storage capacity and the operational parameters including transparency on the rules of ownership and use of working gas;
- d. storage capacity allocation, congestion management and anti-hoarding and re-utilization provisions, including auctions terms where applicable and rules applicable for storage capacity trade on the secondary market vis-à-vis the SSO;
- e. the rules and the charges applicable to storage penalties due by storage users and compensation payments by the SSO to storage users.

~~6.6. The following operational information shall be published on the internet (in energy units, according to interoperability criteria) to provide system users with sufficient and timely information in order to gain effective and efficient access to storage facilities:~~

- a. ~~technical storage capacity, working gas, and available storage capacity (firm and interruptible where applicable) [Comment: this information is important. For example, users need to know if their needs can be met by the available storage capacity.];~~
- b. ~~aggregated inflow and outflows for the preceding day and historical utilisation rates [Comment: In response to GTE's concerns, provided nominations are equal to allocations then detailed on the day information is not essential. Historical information on the flows that have occurred are important to share with storage users so that the market uses the storage facility efficiently.];~~
- c. ~~whether the storage service is currently in net withdrawal or injection [Comment: ideally market participants would like to know the actual inflow/outflow on the day but the minimum requirement for storage users is to be updated on the status of~~

Deleted: Information relating specifically to a storage user's account must be kept confidential. Non confidential information must be provided promptly and on the same time scale as to all users on a non discriminatory basis. Where a SSO considers that it is not entitled for confidentiality reasons to make public all the data required, it shall provide clear evidence to the national regulatory authorities and seek its authorization to limit publication. The relevant national authorities shall grant or refuse the authorization on a case by case basis and publish the substantiated reasons. This assessment should be renewed on a regular basis.

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the storage facility so that users can make realistic and timely nominations for injection and/or withdrawal.];

d. user-friendly instruments for calculating charges for a specific service (e.g. tariff calculator) and for verifying online the level of available storage capacity, including net and available firm and interruptible capacities;

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e. any defined storage reserved by TSOs/SSOs for security of supply or operational reasons or excluded for production, PSOs or any other reason; [Comment: transparency of 'non-market' use of any storage capacity is necessary]

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f. maps indicating the location of their storage facilities and the connecting points of the storage facilities to the relevant network;

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g. the rules (if any) of transfer of storage capacity and injection and withdrawal capacity in case of customer switch.

6.7. Information described in § 6.3 and § 6.4 shall be made available and updated whenever changed as relevant on a real time, daily, monthly, quarterly or annual basis.

6.8. Information on any reduction in storage capacity (whether firm or interruptible) must be provided as near to real time as possible on a non-discriminatory basis. [Comment: basic information requirement.]

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The SSO shall publish at least once a year, by a predetermined deadline, all planned maintenance periods that might affect storage users' rights from storage contracts and the corresponding operational information with adequate advance notice. Where unplanned disruptions in access to the storage facility occur, the SSO shall ensure actual system users are notified of that disruption as soon as possible. During maintenance periods, the SSO shall regularly publish updated information on details, expected duration and effect of the maintenance. The SSO shall maintain and make available to the national regulatory authorities and/or to those affected by any disruption upon request, a daily log of the actual maintenance and disruptions that have occurred. [Comment: essential to keep customers informed.]

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6.9. At least the provisions of § 6.6 a, b, and d shall apply also to any storage capacity not required to provide TPA according to Article 19 of the Gas Directive or any other storage facility connected to a transmission system and for which there is no mandatory TPA. [Comment: even if TPA is not mandatory, the SSO might decide to offer TPA.]

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6.10. Notwithstanding the requirements of this GGPSSO, SSOs shall ensure that any other information that an SSO has, which might significantly affect market prices, shall be released to the market and any potential market abuse is avoided. [Comment: basic requirement to avoid market abuse.]

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6.11. Storage users shall not be separately charged for information requests and transactions associated with their contracts according to standard rules and procedures (e.g. nominations). Expenses for requests not linked to general SSO's roles and responsibilities and transparency requirements can be separately charged.

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6.12. SSOs shall comply with these provision by 1 April 2005; if SSOs have problems in implementing measures envisaged under §6, in particular with regard to IT systems,

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they shall provide an explanation to the relevant national authority setting out the problems in implementing by this deadline and present a concrete action plan for the implementation taking into account, if applicable, the size of the company.

7. **Tariff structure and derivation**

7.1. Where regulated, tariffs structure of the SSO should:

- a. reflect efficiently incurred costs of access to storage facilities including fair return on investment, both in the case of direct **and indirect** access to **storage facilities**, *[Comment: virtual storage is not an appropriate term to use. These Guidelines need to be linked to services based on one or more storage facilities.]*
- b. reflect the geological nature of storages;
- c. avoid cross subsidies between storage users;
- d. promote efficient commercialisation and use of storage;
- e. promote adequate and efficient investments according to users' needs, feasibility and technical constraints;
- f. be clear, transparent and reviewed on a regular basis taking into account developments in the market;
- g. where appropriate, international benchmarking of tariffs may be taken into account and applied in non discriminatory manner.

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7.2. Where negotiated, SSOs shall not adopt any charging principles and/or tariff structures that would restrict market liquidity of storage capacity, create undue barriers to market for new entrants, cross-subsidies between system users or hamper system enhancements and integrity. Pursuant to Article 19 of the Gas Directive, in case of disputes, the relevant regulatory authority shall determine appropriate arrangements. The SSO shall maintain records to enable the regulator to determine costs of provision and prices already levied on other users of that facility for the similar services. In nTPA regimes, charges shall:

- a. be non-discriminatory; prices should be the same for any storage user for the same service contracted for at the same time and under the same conditions; they should only vary subject to adaptations/changes on the grounds of varying circumstances;
- b. promote efficiency and facilitate competition in the use of storage services;
- c. provide for appropriate incentives on new investments according to **storage** users' needs, feasibility and technical constraints;
- d. negotiations should happen in a time frame compatible with **the storage users'** commercial needs *[i.e. not imply long negotiations and avoid discrimination and misuse of market power]*.

8. **Storage penalties** *[Comment: this section could be deleted as penalties will be commercial remedies in the contractual agreements between SSOs and the users and normally overseen by regulators. If these guidelines became a*

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regulation then the penalties that regulators could impose for non-compliance would need to be defined.]

- 8.1. Storage penalties may be established to ensure that the SSOs and the storage users respect their contractual obligations.
- 8.2. Storage penalties may apply to :
 - a. SSOs for compensation to be paid to the storage users in the event that the SSO fails to fulfil contractual obligations, as set out in the storage code/contract (e.g. if the SSO delivers more or less gas than the storage user nominated); and/or to
 - b. storage users for providing effective incentive to ensure that they nominate and use storage capacity consistently with the capacity rights they have procured either on the primary or secondary market.
- 8.3. Storage penalties shall:
 - a. be designed in a non discriminatory and transparent manner, based on objective criteria;
 - b. be aimed at providing effective incentive on SSOs, to ensure the safe functioning of storages and where necessary, to ensure that PSOs are met; [Comment: the SSO is responsible for storage operations, not the user!] Deleted: storage users
 - c. not hamper the entry of new participants into the market;
 - d. ensure that, in case of penalties collected by the SSO, the SSO remains broadly cost neutral; penalties over and above the actual efficiently incurred costs, shall be redistributed to the storage users on a non discriminatory basis, any costs that cannot be targeted should be allocated back to users in a non discriminatory manner.
- 8.4. When needed, national regulatory authorities should ensure compatibility of storage penalties with transmission balancing regimes.

9. **Market based mechanisms such as secondary market**

- 9.1. The SSO shall allow and facilitate bundled and unbundled services to be freely tradable between registered shippers in a secondary market without any undue restrictions and develop standardised contracts and procedures on the primary market to facilitate secondary trade and recognise the transfer of rights where notified by storage users. SSO must allow the new owner to aggregate such storage capacity with its existing storage capacity operationally.

9.2. The way a secondary market operates should be simplified by the standardisation of all unbundled services, for example by establishing common definitions. [Comment: a European harmonised standard storage contract is too visionary for the current market but SSOs should aim to establish standard contract terms which facilitate secondary trading.] Formatted: Bullets and Numbering

9.3. Once there is a market requirement, SSOs shall provide cost-reflective services (such as an electronic platform or bulletin board) to facilitate secondary storage capacity trading and associated transfer of storage capacity rights between storage Deleted: Where requested and paid for by storage users
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users. *[Comment: facilitating trading is a clear aim but might not be appropriate immediately for some SSOs. Users pay for all types of services via the tariffs.]*

10. Cooperation with TSOs

- 10.1. SSOs and TSOs should co-operate in order to ensure interoperability between both systems, e.g.:
 - a. provide services consistent with those offered by the adjacent TSO and required so as to ensure the efficient use of the interconnected transmission system;
 - b. render operational procedures, such as nomination, compatible with those of the adjacent TSOs;
 - c. ensure re-nomination procedures match market participants requirements;
 - d. ensure consistency in matching relevant storage arrangements with the balancing requirements of the adjacent transmission system.

Annex: Definitions *[Comment: we suggest that in the final version all defined terms start with upper case in the text.]*

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1. Available storage capacity means the part of the technical storage capacity that is not contracted or allocated to production and transport and is still available to the storage users at that moment.
2. Cushion gas means the minimum technical volume of gas intended as permanent inventory in a storage reservoir to maintain adequate pressure and deliverability rates throughout the withdrawal season.
3. Deemed nomination is a nomination for the use of storage capacity which has been made on behalf of the storage user by an agreed third party, for example in relation to national balancing requirements. [Comment: needed to explain 3.7]
4. Deliverability is the amount of gas that can be delivered (withdrawn) from a storage facility per time unit. The deliverability of a given storage facility is variable, and depends on factors such as the amount of gas in the reservoir at any particular time, the pressure within the reservoir, compression capability available to the reservoir, the configuration and capabilities of surface facilities associated with the reservoir, and other factors. In general, a facility's deliverability rate varies directly with the total amount of gas in the reservoir: it is at its highest when the reservoir is most full and declines as working gas is withdrawn.
5. Final customer means customers purchasing natural gas for their own use (Gas Directive, article 2(23))
6. Firm capacity is storage capacity contractually guaranteed as uninterruptible by the SSO;
7. Firm services are services offered by the SSO in relation to firm capacity;
8. Flexibility is the availability of gas and/or capacity (transmission, storage, LNG capacity) needed to: adapt supply to foreseeable volume variations in demand and to adjust the erratic fluctuations of demand; exploit market opportunities with the market opening to competition, i.e. using different combinations of flexibility tools in order to achieve cost advantages or enjoy new market businesses; comply with public service obligations and strategic objectives.
9. Injectability is the complement of the deliverability or withdrawal rate. It is the amount of gas that can be injected into a storage facility per time unit. The injection capacity of a storage facility is also variable, and is dependent on factors comparable to those that determine deliverability. By contrast, the injection rate varies inversely with the total amount of gas in storage: it is at its lowest when the reservoir is most full and increases as working gas is withdrawn.
10. Interruptible services are services offered by the SSO, in relation to interruptible capacity;
11. Interruptible storage capacity is storage capacity that can be interrupted by the transmission system operator according to the conditions stipulated in the storage contract/storage code. The contract/code may specify the permitted duration, frequency and timing of the interruptions. It may also specify the previous notice required and possibly a fee related to the duration of the interruptions. Interruptible Storage Capacity is

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likely to comprise both a long term service (interruptible storage contract) and a short term service to ensure that unbooked capacity is offered to the market on the day.
[Comment: necessary clarification.]

12. National regulatory authorities are the bodies as defined by Article 25(1) of the Gas Directive.

13. Nomination means the prior reporting by the storage user to the SSO of the actual flow that he wishes to inject into or withdraw from the system.

14. Physical congestion: where the level of demand for services exceeds the technical capacity at one point in time.

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15. Primary storage market means the market of the storage capacity directly traded by the SSO.

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16. PSO means Public Services Obligations.

17. Re-nomination means the reporting of a corrected nomination.

18. SBU means Standard Bundled Unit. Storage capacity may be sold in SBUs, which gives customers the right to withdraw, inject and hold gas in store, with determined technical ratios. SBUs should reflect the technical characteristics of the storage facility or a group of storage facilities (aquifer, peak-shaving...).

19. Secondary market means the market of the storage capacity traded otherwise than on the primary market.

20. Storage capacity is the space (expressed in normal cubic meters or energy) and flow (expressed in normal cubic meters or energy per time unit) to which the storage user is entitled in accordance with the provisions of the storage contract. Storage capacity refers to space, injectability and deliverability. All of them can be firm or interruptible.

21. Storage facility means a facility used for the stocking of natural gas and owned and/or operated by a natural gas undertaking, including the part of LNG facilities used for storage but excluding the portion used for production operations, and excluding facilities reserved exclusively for transmission system operators in carrying out their functions (Gas Directive).

22. Storage penalty is the additional charge that storage system operators/storage users may have to pay after not respecting their contractual obligations.

23. Storage system operator means a natural or legal person who is responsible for operating a storage facility and directly, or indirectly, offers storage capacity for sale.

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24. Storage user means a customer of a SSO which would sign the relevant storage code or enter into storage contracts with SSOs for storing gas. Storage users may include, but are not limited, to final customers, supply undertakings, wholesale customers, traders and TSOs, to the extent that storage is necessary for the TSOs and DSOs to carry out their functions.

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- 25.** System user means any natural or legal persons supplying to, or being supplied by, the system (Gas Directive, [article 2\(23\)](#)).
- 26.** Technical storage capacity is the maximum storage capacity that the SSO can offer to storage users, on firm basis, taking into account the system integrity and the operational requirements of the storage infrastructures. It is determined by the physical characteristics of the reservoir and installed equipment.
- 27.** TPA services means Third Party Access Services. TPA to storage is either regulated (rTPA) or negotiated (nTPA).
- 28.** TSO means transmission system operator.
- 29.** Unbundled storage product means that space, injectability, deliverability can be traded separately.
- 30.** Unused Storage Capacity means that part of the Available Storage Capacity, plus that part of the Contracted Storage Capacity that has not been nominated for use.
- 31.** Withdrawal rate: see Deliverability.
- 32.** Working gas means the volume of gas in the reservoir above the level of cushion gas that can be withdrawn and re-injected.

Deleted: Virtual storage means a storage service sold in the form of traditional storage product, but not directly linked to a physical storage. A supplier may also use both physical storage and other flexibility tools as well as spot and other supplies and capacity margins resulting from a pool of customers in order to offer virtual storage.