

## PRINCIPLES ON REGULATORY CONTROL AND FINANCIAL REWARD FOR INFRASTRUCTURE

### Summary

The CEER believes the over-arching principle stated below should be the primary starting point in relation to infrastructure development:

*“The full liberalisation of the market is the dominant prerequisite for the efficient use of existing infrastructure and the development of new infrastructure. In these circumstances, a key focus should be on the ability of signals emerging from trade to highlight the need for new investment.”*

Bearing in mind this main principle, a number of key measures are necessary for the effective functioning of the liberalised market to be achieved. Those measures include appropriate interconnection infrastructure investments, coherent market designs in all Member States, competitive market structures in all Member States, effective unbundling of Transmission System Operators (TSOs), transparent and non-discriminatory access to the transmission grids and their interconnections, transparent and non-discriminatory conditions of delivery to final consumers, liquid and efficient wholesale markets and exchanges etc. To fulfil the requirement of appropriate interconnection infrastructure investments, this paper establishes the following detailed principles.

- PRINCIPLE #1. Public authorities should endeavour to encourage sufficient investment in gas and electricity network infrastructure in order to implement the internal energy market, facilitate efficient competition and safeguard security of supply. Public authorities need to maintain oversight of infrastructure decisions in order to promote both security of supply and network efficiency.
- PRINCIPLE #2. Transmission System Operators must manage their networks in a way that ensures the efficient use of infrastructure.
- PRINCIPLE #3. Public authorities should establish transparent, non-discriminatory and standardised options for the development of infrastructure and aim as far as possible to minimise regulatory risks.
- PRINCIPLE #4. Public authorities should enforce a minimum procedure for the publication of the Transmission System Operators' infrastructure plans.
- PRINCIPLE #5. Transmission System Operators must be effectively unbundled to ensure that there is no conflict of interest when making investment decisions and to ensure there are sufficient incentives to provide non-discriminatory third party access. Unbundling of network ownership is the preferred route to follow.
- PRINCIPLE #6a. -Public authorities should establish, in advance and in a transparent manner, which regulatory regime is to be applied for both national and cross-border investments. That regulatory regime should include a clear description of its applicability, the relevant criteria for the financial reward for new infrastructure investment and should describe the relevant criteria applicable to third party access to the new infrastructure.
- PRINCIPLE #6b. -Merchant infrastructures have to be decided on a case-by-case basis and should continue to be subject to an *ex-ante* regulatory control for each individual case. Where the merchant status is granted on a time-limited basis, the ongoing regulatory status should be properly re-appraised at the end of this period.
- PRINCIPLE #7. Public authorities should guarantee that procedures applicable to granting required licences for new investments in gas and electricity network infrastructure are non-discriminatory and efficient.
- PRINCIPLE #8. Swifter, more expeditious administrative authorisation procedures are required for infrastructure development, particularly those for interconnection infrastructure.

## **PRINCIPLES ON REGULATORY CONTROL AND FINANCIAL REWARD FOR INFRASTRUCTURE**

### **Context**

In view of the fact that the current insufficient development of interconnection infrastructure constitutes a major handicap for the achievement of the European energy market, this paper expresses the Council of European Energy Regulators (CEER)'s opinion on the conditions required for the European framework to be suitable for the efficient development of interconnection infrastructure. The CEER stresses that the effectiveness of the implementation of these principles is subject to the efficiency of the regulatory and administrative framework applicable to the development of the grids in each Member State although that issue is not the purpose of this paper.

This paper is a CEER Report in relation to the European Commission's invitation to the Council of European Energy Regulators (CEER) as stated in the Communication from the Commission to the Council and the European Parliament on European energy infrastructure<sup>1</sup>. Under action 8 of that Communication, the CEER, in close collaboration with the Commission, the Member States and industry, is asked to put forward guidelines on how to regulate and financially reward the construction of infrastructure, taking into account the provisions of article 7 of Directive 2001/77/EC<sup>2</sup> in relation to electricity produced from renewable energy sources.

At present, it has been considered more efficient to prepare this document by establishing principles and not guidelines. Once approved by the CEER Board and discussed with the European Commission and other interested parties, in a second phase, the paper could focus on guidelines and the electricity and gas industries could then be dealt with separately through the task forces of the electricity and gas working groups.

The European directives on common rules for the internal market in natural gas and electricity<sup>3</sup> organise those industries by unbundling activities. They separate all those activities clearly allowing effective competition to take place such as the generation and trading of electric power or the production and supply of natural gas from those activities where it is physically impossible or not economically efficient for them to function in effective competition such as the case of network-based activities. This paper solely refers to the latter with the result that infrastructure herein means energy transmission installations, including liquefied natural gas (LNG) plants<sup>4</sup>. It could also

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<sup>1</sup> COM(2001) 775 final.

<sup>2</sup> Directive 2001/77/EC of the European Parliament and of the Council of 27 September 2001 on the promotion of electricity produced from renewable energy sources in the internal electricity market.

<sup>3</sup> Directive 96/92/EC of the European Parliament and the Council concerning common rules for the internal market in electricity. Directive 98/30/EC of the European Parliament and the Council of 22 June 1998 concerning common rules for the internal market in natural gas.

<sup>4</sup> See art. 2.12 of Directive 98/30/CE.

apply, as suggested in the new proposal of Directive, to underground natural gas storage facilities.

The current situation in the European internal market is one of insufficient infrastructure development in some cases. The need for new infrastructure development has revealed that hindrances still exist in the functioning of the European energy market that need to be dealt with.

### **Principles on regulation and financial reward for new infrastructure**

The CEER believes the over-arching principle stated below should be the primary starting point in relation to infrastructure development:

*“The full liberalisation of the market is the dominant prerequisite for the efficient use of existing infrastructure and the development of new infrastructure. In these circumstances, a key focus should be on the ability of signals emerging from trade to highlight the need for new investment.”*

However, if this goal is to be achieved, a number of key steps are necessary to ensure such an outcome and, at the same time, additional roles are required of public authorities and industry players to ensure efficient infrastructure development. This paper, therefore, sets out a number of detailed principles as discussed below.

#### **Principle on the importance of new infrastructure for competition and security of supply:**

The existence of adequate infrastructure and access to it under transparent and non-discriminatory conditions is a key factor in the creation of competitive gas and electricity markets. Higher demand and increased intra-Community trade stemming from the creation of the single European market will prompt greater need for infrastructure. In this respect, not only is it important to provide incentives for the construction of new infrastructure to facilitate trade flows but also to promote the transparent, non-discriminatory and efficient use of the existing infrastructure. In any case, full liberalisation of the market is an important prerequisite for the efficient use of existing infrastructure and the development of new infrastructure. In these circumstances, a key focus should be on the ability of signals emerging from trade to highlight the need for new investment.

Insufficient development of transmission networks may lead to security of supply problems. In general, it can be asserted that additional interconnections increase security of supply, mostly as a result of market integration and their complementary demand patterns, although special attention should be paid to the implementation of article 23 of the Electricity Directive 96/92 and article 24 of the Gas Directive 98/30<sup>5</sup>. The current state of congestion of transmission networks and the lack of interconnector capacity are hindering cross-border trade on some borders within the Community and

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<sup>5</sup> Article 23 of the Electricity Directive 96/92 and article 24 of the Gas Directive 98/30 allow for the possibility of exports being reduced temporarily or of temporary special measures being taken. (See “General Questions, iv”)

limiting supply diversification and security as a consequence. In addition, sometimes problems of insufficient transfer capacity are not caused by a lack of interconnection but rather by domestic network congestion.

Major problems for the development of a single European market result from low levels of interconnection. In addition, security of supply difficulties may also arise. Adequate interconnection capacity enabling the agents to carry out cross-border trade without unnecessary extra costs helps to eliminate market segmentation and contributes to the creation of a truly integrated and competitive internal market.

Moreover, the conclusions of the Barcelona Summit included an agreement for Member States to undertake to reach the target of a minimum level of electricity interconnection equivalent to 10% of their installed generation capacity by 2005.

However, it should be remembered that the 10% target is only a minimum level that should be adapted to suit the specific case of every country. Indeed, approaches two and three are also aimed at facilitating efficient infrastructure development through more market-based approaches.

In the context of the different regulatory approaches presented below, the “regulated reinforcement with regulated tariffs” approach could adopt loose-co-ordination procedures between regulators. For example, the CEER, with the co-operation of ETSO and GTE, could develop the methodology and criteria for the development of interconnections that would lead to the above-mentioned threshold. They could include technical criteria, the level of congestion between systems, supply diversification and security criteria.

*Principle on the importance of new infrastructure for competition and security of supply:*

PRINCIPLE #1. Public authorities should endeavour to encourage sufficient investment in gas and electricity network infrastructure in order to implement the internal energy market, facilitate efficient competition and safeguard security of supply. Public authorities need to maintain oversight of infrastructure decisions in order to promote both security of supply and network efficiency.

**Principle on the importance of the efficient use of infrastructure:**

The efficient use of infrastructure is a necessary prerequisite for optimal development of infrastructure although it is not considered sufficient to achieve this aim on its own. The guidelines for efficient use of infrastructure have been defined or are being defined in the work currently underway in the European Regulatory Fora. The guidelines on the subjects more directly related to efficiency in the use of infrastructure are presented in Annex 2.

*Principle on the importance of the efficient use of infrastructure:*

PRINCIPLE #2. Transmission System Operators must manage their networks in a way that ensures the efficient use of infrastructure.

#### **Principle on the role and responsibility of public authorities:**

Because of the implications of infrastructure for the above-mentioned issues, the national public authorities, which include the relevant regulatory authorities, need to be involved in the regulatory criteria for new infrastructure investments. They should establish procedures for the approval and remuneration of new network infrastructure proposals. These procedures do not have to be uniform although they must comply with a minimum set of requirements such as transparency and the unbundling of TSO activities from any other liberalised activity.

*Principle on the role and responsibility of public authorities:*

PRINCIPLE #3. Public authorities should establish transparent, non-discriminatory and standardised options for the development of infrastructure and aim as far as possible to minimise regulatory risks.

#### **Principle on the transparency of investment plans:**

Transmission users need to know the network capacity. Consequently, public authorities, which include the relevant regulatory authorities, will have the responsibility to ensure the publication of the Transmission System Operators' infrastructure plans so that users can see, and if necessary challenge, how the system capacities will be developed.

*Principle on the transparency of investment plans:*

PRINCIPLE #4. Public authorities should enforce a minimum procedure for the publication of the Transmission System Operators' infrastructure plans.

#### **Principle on the independence in network management:**

In a non-liberalised market where there is only one vertically integrated company, that company has natural incentives for network reinforcements. However, in a liberalised market where there are different agents and an unclear separation between activities, the non-unbundled transmission company may lose its incentive to develop infrastructure which could eventually be used by some of its competitors. One example

of this practice would be the building of an interconnector that enables generators in external markets to compete against the incumbent's own generation. Hence, if vertical integration between the transmission operator and one of the suppliers or dominant generators exists, this situation could jeopardise network development. In addition, and more crucially, a lack of unbundling reduces incentives to provide non-discriminatory third party access to infrastructure.

A number of problems with regard to the appropriate development of infrastructure have to be overcome:

- Possible conflict of interests between transmission companies that may lead to a lack of interest in infrastructure development.
- Uncertain regulatory regime.
- Unstable remuneration framework that discourages the entry of new investors,
- Insufficient financial reward.
- Possible administrative difficulties imposed by countries.

In order to avoid possible conflicts of interests, Transmission System Operators must be effectively unbundled to ensure that there is no conflict of interest when making investment decisions.

*Principle on the independence in network management:*

**PRINCIPLE #5.** Transmission System Operators must be effectively unbundled to ensure that there is no conflict of interest when making investment decisions and to ensure there are sufficient incentives to provide non-discriminatory third party access. Unbundling of network ownership is the preferred route to follow.

**Principle on the applicable regulatory regime:**

Different approaches are possible depending on the regulatory framework and financial reward structure for network expansion.

*APPROACH ONE: Regulated reinforcement with regulated tariffs*

This first approach could be described as “the regulated reinforcement with regulated tariffs approach”. Under this proposal, although the relevant industry body (e.g. TSO) would possibly initiate the proposal for the development of a new piece of infrastructure, the regulator would also have a role to play. The regulator would explicitly judge the merits and desirability of each investment based on a set of prescribed criteria, for example security and economic efficiency. The explicit identification of each investment could also be associated with other procedures, such as construction contracts allocated by competitive bidding (although this is not necessarily a prerequisite).

In this context, a methodology capable of evaluating the advisability of developing interconnection infrastructure could be established. That methodology laid down by the



regulators would abide by the basic principle that an interconnection or transit infrastructure development project is justified on a broad cost-benefit evaluation basis (considering all the agents and consumers). All of this work must be done following common principles based on non-discriminatory and transparent procedures.

A Community-level monitoring procedure could be envisaged for priority project proposals when they contain a European interest. The European Commission, working together with the Regulators Advisory Committee to be set up, could be involved on this issue, following a similar approach to the one proposed in the “European Energy Infrastructure” Communication for priority projects within the TEN programme. The ongoing work within the European Union concerning the updating of TEN energy projects, the identification of priority projects, its political monitoring at the level of the Council, and the determination of the budgetary resources to support the mentioned projects, demonstrates the increased importance of network development within the European Union and the commitment to raise the level of EU financial assistance for the development of such projects.

It might be advisable to develop a tendering procedure to carry out the allocation of the installations included in that planning work. The tendering procedure should ensure transparency and objectivity in the awarding of the project<sup>6</sup>. But if that tendering procedure is to be effective and to prompt an adequate response to the needs and shortcomings of the system, it must be flexible and expeditious. If not, it will lead to unnecessary delays in the construction of that infrastructure, thus jeopardising the security and quality of the supply.

The cost of each piece of infrastructure would be recouped through regulated access tariffs charged for the use of the whole system.

In this case, the new transmission infrastructure should be remunerated on an individual basis. There are two possibilities for how that remuneration could be provided:

- The remuneration for a particular piece of infrastructure could be worked out according to recognised or certified standard costs (investment, operation and maintenance costs) with an adequate rate of return that makes the investment attractive.
  - The remuneration system would be divided into two parts: capital charges and operating costs.
  - The capital charges would be determined by the depreciation cost plus the cost of capital, as valued by the regulatory authority<sup>7</sup>.
  - The cost of capital used should be delivered from one of the several widely used financial methodologies. Methodologies and criteria should be standardised.
- The accredited or acknowledged costs of the project chosen through public tender whenever possible or advisable could be taken as the remuneration of the new infrastructure<sup>8</sup>.

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<sup>6</sup> One of the advantages of the tendering procedure is to provide an objective value for the cost of the facility.

<sup>7</sup> A methodology for establishing the remuneration system can be found in “Methodologies for Establishing National and Cross-Border Systems of Pricing of Access to the Gas System in Europe”, 17 February 2000, prepared for the European Commission by The Brattle Group.



Cost-based remuneration can introduce some distortions into investment decisions. If capital charges are over-estimated, TSOs will find new investment attractive. If capital charges are under-estimated, TSOs may be reluctant to invest. If they fall somewhere between the two, TSOs may be indifferent to the investment.

Public tender pricing mechanisms could be an appropriate way to reward infrastructure. The regulator may ask each potential builder to propose a tariff for the life of the project. The regulator would award the project to the company that bids the lowest tariff. However, certain technical criteria have to be applied in this case in order to guarantee quality standards.

Competitive bidding processes to determine regulated rates help finance new investment and prevent the economic consequences of any errors in the cost of capital estimation (which could be made by the regulator) from being passed through to the network users.

In any case, tariffs are designed so as to recover the remuneration established beforehand.

The collection of tariffs for network services must be sufficient to enable remuneration of new infrastructure and new network extensions<sup>9</sup>, i.e. revenue collected should match the expected remuneration.

This option introduces direct incentives (i.e. stable remuneration) for specific infrastructures and may allow more companies to undertake projects by creating new competition.

#### *APPROACH TWO: Non-regulated reinforcement with regulated tariffs*

This approach could be called “the non-regulated reinforcement with regulated tariffs approach”. Under this approach, regulators would not have an explicit role either in the approval or rejection of specific infrastructure projects. Instead, the regulators would leave both the initiation and construction of proposals up to TSOs. Market signals are important as they must properly flag the need for new investment. The regulatory regime would still also have to establish appropriate rules *ex ante*, e.g., output standards and quality controls for investment in the network. Under this arrangement, the role of the regulator would be to design the regulatory framework in such a way that these rules can be complied with and efficient investment encouraged.

Long-term infrastructure market signals seem difficult to achieve. The development of commodity and/or capacity trading will provide medium-term price transparency, facilitating risk management and thereby helping to create investment signals.

One method for clarifying investment signals when cross-border congestion appears is the use of auctions. Auctions should be designed to provide participants with an

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<sup>8</sup> The use of competitive bidding processes is desirable to develop new investments and avoid errors in the cost of capital estimates and improve the allocation of the project risks.

<sup>9</sup> Whatever the industry organisation, experience has shown that each country has developed domestic infrastructure sufficiently to ensure energy supply in a secure and reliable way on this basis.

opportunity to signal their demand (to reveal their willingness to pay for extension) for capacity and interconnection. However, some thought needs to be given to the application of this approach to less liberalised markets. In some cases, the market participants bidding for capacity would have structural relationships with the seller of the capacity, i.e. the Transmission Operator and the Shipper having a common shareholder. In such instances, there is a possibility that a transfer of income or costs (cross-subsidies) will produce bidding behaviour that does not reflect the underlying demand for the product. The same distortional result emerges if there is only one dominant supplier.

Nevertheless, market procedures, such as auctions, re-sale on secondary markets (secondary trading), and “open season”<sup>10</sup>, could be used as a catalyst to identify feasible infrastructure projects. In order to achieve the optimal benefits derived from the use of market signals, an appropriate and effective functioning of energy markets should be a required condition<sup>11</sup>. However, the current existence of obstacles to efficient market functioning (such as “the failure to introduce effective anti-hoarding mechanisms”) hampers the task assigned to market signals<sup>12</sup>.

In other words, the use of market signals as a means to promote new infrastructure development could be an effective policy assuming an efficient market functioning, market liquidity, and the application of transparent and non-discriminatory conditions.

In this market signals context, it seems appropriate to develop a clear and standardised framework for the construction and allocation of new interconnection capacity, i.e. in the case of an “open season”. This also may entail an inter-State procedure and relevant information-sharing across EU regulators. For instance, it could be a requirement for new infrastructure developers to announce their projects through relevant media, although this regulatory requirement may need to take into account commercial sensitivities<sup>13</sup>.

Infrastructure projects have to be designed to satisfy social interests. In other words, projects have to offer their optimal capacity and not hinder capacity to others.

The recovery of the investment is obtained through regulated tariffs once the interconnection is included within the normal regulatory regime by regulators.

In this second approach, there could be the possibility of new capacity reservation being made in advance of its construction. The agents reserving new capacity could belong to the same business group as the transmission owner. Typically, this could be the case of LNG regasification plants, HVDC electrical lines, or inter-State (inter-TSO) lines, etc. where “first-come first served” criteria have been put in place.

However, a number of criticisms can be levelled at cases where infrastructure is owned, operated and used by the same group, i.e. the reality of TPA. In these cases, the implementation of guidelines for an efficient use of infrastructure is more important

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<sup>10</sup> “Open season” refers to the process through which the line invites potential shippers to express interest in contracting for the potential new capacity.

<sup>11</sup> See the Brattle Group report “Convergence of non-discriminatory tariff and congestion management systems in the European gas sector”.

<sup>12</sup> See EFET Position Paper final version May 2002.

<sup>13</sup> FERC and NEB in the North American gas market.

than ever: anti-hoarding mechanisms, congestion management, trading on secondary capacity markets, etc.

Under this option, existing transmission companies are rewarded for an appropriate level of infrastructure overall and not on an asset-by-asset basis. Transmission companies are responsible for identifying appropriate investments and assuming the risk of failure. The overall reward is commonly subject to RPI-X procedures, which are normally applied for a fixed price control period. Mechanisms are introduced to provide incentives, output standards or mandatory requirements, such as a grid code, for new infrastructures to guarantee sufficient incentives to meet anticipated demands for network investment.

In the case of RPI-X, output or quality standards can be incorporated to prevent any tendency to under-invest. Within the RPI-X approach, it should also be noted that the regulator will often have a role in assessing a TSO's "baseline investment" forecasts of likely demand and supply. These forecasts are the basis for determining the allowable revenue for the price control period.

Additional incentives could be provided for TSOs to respond to incremental demand in excess of this "baseline investment". These so-called "deep SO" incentives for example, encourage TSOs to anticipate and respond to signals from market participants reflecting their changing needs for transmission access rights. TSOs are provided additional returns for responding to incremental demands, recoverable through the sale of long-term access rights. Where out-turn demand is lower than expected, the downside risk for the TSO is partly insured against because the TSO is allowed to recoup some of these costs through general access charges, albeit at a lower rate of return than for baseline investment.

*APPROACH THREE: Non-regulated reinforcement with non-regulated tariffs. The "merchant line" approach*

This approach could be called the "non-regulated reinforcement with non-regulated tariffs approach" or "the merchant line approach". In this model, the market is free to identify necessary links and the returns on any subsequent interconnector development would not be regulated. In this approach, the initiative to build new infrastructure may also come from a coalition of users.

Merchant infrastructure could be defined as infrastructure that is developed and operated on a commercial basis outside the default regulatory regime applicable for national networks. In this approach, a range of models currently exists for the operation of merchant infrastructure. On the one hand, the company which develops the line can also be its user. On the other hand, it may be that the merchant owner/operator does not use any of the capacity for its own use and instead relies on revenues from the sale of capacity on its line to third parties.

All infrastructure should abide by the current regulatory criteria of non-discrimination and transparent access. Consequently, merchant infrastructures should only be permitted on a case-by-case basis.

As a general rule, the CEER believes that it is essential for the development of merchant lines to be subject to specific regulation. Otherwise, the CEER would have a number of concerns about their development. In particular, the CEER supports the idea that any infrastructure should abide by the current regulatory criteria of non-discrimination and transparent access. Consequently, merchant lines should only be permitted on a case-by-case basis and should be subject to the following requirements:

- They must not grant market power.
- They should foster the effective functioning of markets.
- They should promote effective competition within the market.
- They must not jeopardise the rest of the system and access to it, and appropriate costs of network integration should be paid for.
- They must not jeopardise internal energy market interest.
- Any terms and conditions (including the time period) of any exemptions from the default regulatory regime must be clear and published in advance by the relevant national authority.
- They should not enjoy a privileged position on the market due to their hybrid status.
- Their approval by national authorities should be subject to verification at a European level to ensure that such authorisations are not to the detriment of wider European interests.
- Congestion management principles should be equally applied to merchant lines (infrastructure). Any exemptions to congestion management rules should be allowed on a time-limited basis and should be specific as well as clearly defined and in particular should not conflict with bullets 2 and 3 above.

Under a merchant line approach, the development of this infrastructure by a private party is typically based on a presumption that there will be sufficient demand by network users to meet the costs of the project. In the case of interconnections between markets, this demand (by the users of the facility) will be driven by the arbitrage possibilities between those two markets.

This is a major difference between approaches one and two, and three. Generally, investors ideally base capacity choices on net present value considerations, and may not explicitly take account of “optimal social welfare”, in the manner that central planning may strive to achieve. In this respect, this third approach may not alone necessarily provide what might be defined as a fully satisfactory level of network investment and may need to be supplemented by other regulatory mechanisms, including those considered under either of approaches one or two.

The firm transmission rights are allocated to the private investors who may sell them or charge their own prices for the use of the line. Ideally, such prices should be congestion-related (market-based). Nevertheless, where a fraction of the merchant infrastructure capacity is not subject to freely negotiated access, it should be treated under the same conditions as the remaining infrastructure that is under open access.

The cost of the infrastructure would be paid for by the developer of the lines and the revenues would not be subject to the ordinary kind of price level regulation, although the same rules for transparency and non-discrimination should apply. Equally, the infrastructure owner(s) would typically bear the risk of not recovering the full costs of construction.

*Principle on the applicable regulatory regime:*

PRINCIPLE #6a. Public authorities should establish, in advance and in a transparent manner, which regulatory regime is to be applied for both national and cross-border investments. Such a regulatory regime should include a clear description of its applicability, the relevant criteria for the financial reward for new infrastructure investments and should describe the relevant criteria applicable to third party access to the new infrastructure.

PRINCIPLE #6b. Merchant infrastructures have to be decided on a case-by-case basis and should continue to be subject to an appropriate *ex-ante* regulatory control for each individual case. Where the merchant status is granted on a time-limited basis, the ongoing regulatory status should be properly re-appraised at the end of this period.

**Principle on the procedures for licensing new infrastructure:**

As stakeholders in new infrastructure projects, TSOs play a central role in their initiation and execution. Because of the impact of the externalities of these projects on the existing infrastructure, TSOs will be involved in decisions on e.g. technical design and the time schedule. Conflicts of interest between these regulated TSO tasks and commercial activities of affiliates must be avoided.

*Principle on the procedures for licensing new infrastructure:*

PRINCIPLE #7. Public authorities should guarantee that procedures applicable to granting required licences for new investments in gas and electricity network infrastructure are non-discriminatory and efficient.

**Principle concerning possible administrative difficulties imposed by countries:**

In order to overcome administrative difficulties for interconnection infrastructures development, more expeditious administrative authorisation procedures should be developed.

*Principle on the applicable regulatory regime:*

PRINCIPLE #8. Swifter, more expeditious administrative authorisation procedures are required for infrastructure development, including, in particular, interconnection infrastructures.

## **ANNEX 1: Regulation and development of new infrastructure: The European panorama**

A distinction can be made between two extreme regulatory models when examining regulation for the development of infrastructure: on the one hand, the centralised planning model or, on the other hand, a market model of private enterprise initiative without central co-ordination. Even in this latter case, however, some rules are laid down by regulators or Member States such as environmental and safety standards or, in some cases, particular rules for market structures and operation such as regulated TPA are the norm<sup>14</sup>.

As part of the planning model, infrastructure development is compulsory and implemented on the basis of centralised planning. Projects are often allocated through public tenders so any company interested in carrying out an already authorised project may submit a bid for it. The project is then awarded following an evaluation based on pre-set technical and economic criteria.

At the other end of the scale of regulatory models, the final decision on whether it is necessary or advisable to develop new infrastructure is left up to private enterprise with no State intervention whatsoever, apart from the particular rules considered in paragraph 1 above.

### **The models adopted by European Union countries**

Questionnaires were drawn up on the regulatory environment for the development of infrastructure in the different European Union countries in order to investigate the similarities and differences between them.

The questionnaires were split into three major sections under the following headings:

- Questions on regulatory control.
- Questions on financial remuneration.
- General questions.

The following section reports on the responses and results of the survey on the basis of the replies received, breaking down the content into each of the sections mentioned above.

#### *Questions on regulatory control:*

The main entity responsible for the whole process of developing infrastructure, which runs from the initial identification of the need for the infrastructure right through to the project construction phase, is the operator of the Transmission System (TSO or ISO), except for the project approval phase where the government or regulators play a leading role.

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<sup>14</sup> See also public service obligations.



In the first phase of infrastructure development, in most countries the main signals enabling the identification of new infrastructure needs are: physical flows, demand forecasts and customer requests.

In most countries, governments are the competent body when it comes to defining the ideal projects for new infrastructure as they hold the authority to approve or veto projects. As a general rule, regulators play a more advisory/supervisory role although in some countries they do not participate at all in this phase whilst in others they also have the power to approve or veto projects.

The time frame for infrastructure development plans varies. In the electricity industry, it can range from three to ten years with a revision period of between one and four years. In the gas industry, however, the time frame tends to be ten years for most countries with an annual revision period although in some countries the revision cycle can be as long as four years.

The general criteria taken into account for the development of the system include, first and foremost, security of supply and quality of service and, secondly, economic criteria.

Co-ordination of infrastructure development between the gas and electricity industries works in different ways.

Once the development of infrastructure has been defined and it is time to allocate the projects to build that infrastructure, in most cases those projects are assigned directly to the industry that has proposed them under authorisation. The second method is to allocate them through a public tender and, thirdly, they can be assigned directly to the Transmission System Operator.

The procedure for obtaining permits to build infrastructure –which essentially entails making an application to the local authorities or competent ministry for permission– is highlighted as a complex process.

In the gas industry, once the authorisation has been granted, in principle there is no time commitment (deadline) for the construction of infrastructure which normally depends on the commitments taken on by the developer. The replies were more varied for electricity although in most countries there is a time commitment (set in the network manager contracts) but this is not always the case.

#### *Questions about financial remuneration:*

As far as the remuneration of the preliminary studies for infrastructure development is concerned, the replies differed depending on whether it was the gas or electricity industry. In practice, preliminary studies are co-financed by public funds solely in the case of TEN projects. In other cases, the costs of such studies are normally recovered through access tariffs.

In most countries, the construction of new infrastructure in both industries is financed by developers and in some cases (a minority) totally or partially through public funds.



In both gas and electricity, investment in new infrastructure is recovered in most cases through access tariffs or through access tariffs with an associated settlement procedure.

New infrastructure is remunerated in the same way as old infrastructure in the electricity industry in most countries. That is not the case, however, in the gas industry.

For most countries, in both sectors, the remuneration system does not provide locational signals for the construction of new installations.

As regards the financing of interconnections with a non-EU member country, the answers varied greatly for both gas and electricity. In some countries, they are financed by public funding, access tariffs or the stakeholders. For electricity, third party network access exists in most cases, whereas there were fewer available answers for gas and a number of provisos in certain cases such as when third party network access is impossible or limited to surplus capacity. This kind of interconnections is rewarded principally through tariffs in electricity. In the gas industry, where there were fewer replies on this point, negotiated access tariffs or agreements between governments tend to be used.

#### *General questions:*

A wide range of problems were highlighted in the questionnaires for both gas and electricity. The most important ones referred to the slow and complex administrative procedures required and the need for a stable regulatory environment for infrastructure development. Further work needs to be done on simplifying administrative procedures, cutting down the average time for them to be completed, new methods to obtain authorisations, expropriation periods etc. Reforms are expected to take place in both industries on these points to develop certain rules and regulations in gas and with different aims in electricity, such as quality targets, market signals, remuneration of distribution or the establishment of co-ordination procedures between competent authorities.

Most countries do not believe there to be any threat to investments in the future although some did answer yes to that question.

Likewise, most answers pointed out that long-term contracts are necessary and should be maintained.

One of the objectives and advantages of the European internal market must be security of supply. In this context, it would be paradoxical if cross-border trade could be interrupted in crisis periods, as happens to be the case at present with some bilateral arrangements. Specific cross-border provisions should be developed so that security of supply can actually be guaranteed in times of crisis.

The replies concerning the construction of infrastructure without prior capacity reservation varied in both gas and electricity although the cases where that capacity has previously been reserved are predominant in gas.

In most countries, there is no specific capacity reservation threshold.

As regards the implementation of a co-ordinated European-wide management system for the development of infrastructure, the replies were more balanced in electricity. In the gas industry, however, most countries feel that it would be useful in a transitional phase although there are some opposing views in favour of preferably leaving this kind of action to private enterprise.

On the question of setting up an appropriate framework for an agreement on a minimum interconnection level, most countries agree with this idea for both gas and electricity although some countries believe it would be more appropriate for the matter to be resolved through market forces or for the proposal to be solely indicative.

Most countries believe that for both industries it would be advisable to define guidelines to facilitate the financing of investments.

## **ANNEX 2: Efficiency in the use of infrastructure**

The efficient use of infrastructure is a necessary prerequisite for optimal development of infrastructure although it is not considered sufficient to achieve this aim on its own. In any event, industry regulation must facilitate the efficient use of infrastructure, including incentives for effective demand-side management and system flexibility tools (e.g. through the use of interruptible contracts) to respond to network constraints.

Efficiency in the use of infrastructure is the outcome when a set of factors all function properly. Those factors are non-discriminatory third party access, system management, regulated access tariffs, transparency in the use of the network, the actual use of the installations, congestion management, and effective market structures. Hence an unequal degree of liberalisation in national markets will jeopardise efficiency in the use of infrastructure.

The guidelines for an effective use of infrastructure have been defined or are being defined in the work underway in the European gas and electricity Fora. The most salient guidelines in the regulation of each one of these factors are given below.

Through efficient access to and use of existing infrastructure, signals and incentives for efficient new infrastructure investment can emerge.

### **Third party network access**

Access to infrastructure must not be discriminatory. To avoid any market distortions and to facilitate cross-border trade, the owners of infrastructure should offer any third party the same range of services under the same conditions, including those applied to the companies in their own group. In this context, transparency vis-à-vis market agents is equally important.

The owners of infrastructure must provide services and third party access rules that facilitate trade with neighbouring systems.

Consequently, third party access to the network of different systems requires greater co-ordination between system operators (TSOs or ISOs), non-discriminatory criteria and rules when allocating available capacity, effective, expeditious information exchanges and flows and a certain degree of flexibility in the effective use of the available capacity during a given time period.

### **Independence in network management**

Transmission and distribution systems must be operated independently of all the agents generating/supplying and selling energy so that non-discrimination between system users is guaranteed. TSOs no longer should have an interest in protecting their integrated supply company; instead they should be interested in maximising profits through their transportation activities alone. Unbundling of network ownership is the preferred route to follow.

Co-ordination between managers of interconnected systems and the enforcement of transparent, homogeneous and effective operating procedures is especially relevant with regard to the management of transit and interconnection infrastructure.

The entities that run energy balancing markets must be independent of market participants. If some market participants directly or indirectly participate in the equity of these entities they must be subject to legal requirements ensuring the independence and impartiality of the management.

### **Network usage tariff systems**

Tariffs for the use of the network must be transparent, objective and non-discriminatory, simple to apply, and reflective of costs. When strictly applied, cost-reflectiveness implies the use of locational signals.

Infrastructure operators must publish on the Internet the main terms and conditions for the services they render. In particular, they must publish access tariffs, charges for each additional service and also the network map, identifying its frontier points and available capacities.

Infrastructure operators must also publish at least the following information:

- General tariff methodology (based on costs, international benchmarking, etc.).
- Definition of base cost or regulated revenue, if necessary, to determine tariffs (valuation of assets and depreciation principles applied).
- Tariff structure (from point to point, entry/exit, zonal or nodal system, postage stamp system).
- Functional allocation and capacity/commodity allocation principles.
- Detailed tariff design (tariff elements) including charges for excess over and above the contracted capacity and deviations.
- Tariff indexing (if applicable), or principles for tariff adjustment.
- Specific tariffs or rules applied to transmission in the opposite direction to congestion (or otherwise appropriate locationally varying tariffs).
- Separately identified tariffs and rules for specific services.
- Regulatory procedure in the determination of tariffs.

Given that the use of different tariff systems may be an obstacle to free trade and to the efficient operation and development of infrastructure, the principles of access tariffs should be convergent.

In electricity, the CEER has identified the need for a harmonised Community tariff framework for cross-border trade and the allocation of interconnection capacity is necessary for a number of reasons including the removal of widely different cross-border access tariff regimes, the avoidance of tariff pancaking for transit and a reduction in the possibility of congestion. A highly important step has been taken in the electricity industry on this issue with the establishment of the methodology for compensation between system operators. Eventually, this methodology could develop into a pan-European structure of transmission prices where the access prices would be associated to the costs that are incurred due to the actual energy flows taking place in the European network. In other words, it would be the mechanism for inter-TSO

payments in order to compensate for the costs system operators incur as a consequence of cross-border flows.

In the electricity industry, another important aspect of the structure of national tariff systems in the context of cross-border trade is the relationship between the costs allocated to generation and those allocated to consumption. Differences in the tariff schemes may put the agents in a given country at an advantage or at a disadvantage. Therefore, to guarantee competition with a level playing field, these tariff schemes should be convergent to the extent that the differentiated application of tariffs causes significant distortions to trade. In any case, the future developments of the CEER WG on harmonisation of principles for tariffs should be taken into account.

The share-out of costs between supply and consumption in line with actual flows and the costs they give rise to, supported by a cost-reflective tariff structure (a zonal or nodal type of structure for the electricity industry or entry/exit structure for the gas industry) might be a good instrument to convey locational signals that would allow the system to be optimised. Practical approaches should be developed for these signals whenever needed.

### **Transparency in the use of the network**

The shortcomings of existing infrastructure capacity for energy exchanges between some member countries and the inefficient use of such capacity with changing energy flows point to the need for procedures and mechanisms to be set up so that information about the capacity that is really available can be readily furnished. This is an important priority to facilitate competition and the prospects for efficient trade.

Consequently, infrastructure operators at the frontier points of their installations must publish information regularly on the Internet about maximum, available capacity in a user-friendly format.

That public disclosure should include a general outline of the calculation of available capacity together with the reliability margin adopted based on the physical characteristics of the network.

### **Mechanisms to eliminate or at least reduce patterns of behaviour that could be detrimental to third parties**

If contractual but not physical congestion exists (i.e. a situation where all the capacity is reserved under firm contracts but 100% of the capacity is not actually being used), the non-used capacity must be reallocated to those customers who actually wish to use it. This has a knock-on effect on the efficient use of the system and tries to prevent patterns of behaviour that could be detrimental to third parties, preventing anyone from indiscriminately hoarding the capacity to stop new agents from coming into the system. Other mechanisms could also be used to prevent inefficient utilisation of the network facilities or to mitigate market power.

Consequently, “use-it-or-lose-it” or other advanced capacity release mechanisms should be implemented, passing on capacity from agents who have reserved a given

capacity but are neither using it nor offering it on a secondary capacity market to other agents who intend to effectively use it.

### **Secondary capacity markets**

Infrastructure operators should allow capacity reservations to be traded on secondary markets as a way of ensuring a more liquid gas and electricity markets. Secondary markets foster the efficient use of the installations by cutting down the non-utilised capacity and by allowing the reflection of new information, including possible congestion, in prices.

Hence, secondary capacity markets meet the need to maximise market efficiency, enforce the principle of non-discriminatory access to networks and remove barriers to entry, making competition more dynamic. Freely negotiated prices on secondary markets are good signals for whether or not investments are needed.

Information transparency is another principle that must likewise be enforced if secondary markets are to be developed, together with the tradability of transportation rights.

The system operator should play an active role to provide a sufficiently flexible framework for the development of a secondary capacity market by facilitating the re-utilisation of non-utilised capacity through free trading of network access capacity rights. Such rights should allow a mix of long-term and short-term access.

Furthermore, capacity trading can send signals to the system operator about the needs for additional investment in capacity and help towards adequate development of infrastructure.

### **Congestion management**

Congestion management method(s) should operate in an economically efficient manner and provide appropriate economic signals for both efficient economic dispatch of existing plant and efficient investment in additional network infrastructure and/or generation.

Congestion management method(s) should promote effective competition as well as tradability of capacity across Member States, should not aggravate market power and should be non-discriminatory.

All relevant information related to cross-border trade should be published in a transparent and timely manner.

TSOs should ensure that the maximum capacity of the interconnections and the transmission networks affecting cross-border flow is made available while maintaining the network security standards at an acceptable level. In the case of gas, in any capacity allocation regime, specific anti-hoarding measures should be put in place. Such mechanisms could include short-term “use-it-or-lose-it” (or “non-used contracted

capacity release”, NUCCR) and the consideration of longer-term capacity release mechanisms.

Congestion management procedures will tend to generate revenue only in the event of congestion. The procedure for its distribution should neither distort the allocation process in favour of any party requesting capacity or energy nor provide a disincentive to TSOs to decrease the amount of congestion. Care must also be exercised so the incentives for the TSO to reduce congestion costs do not end up compromising the security of operation of the system.

Capacity allocation and congestion management are compatible with the market mechanisms used (spot, short-term, long-term, hub trade, etc.) and should be capable of adapting to evolving market circumstances. Capacity allocation and congestion management should promote interoperability between systems.

### **Long-term contracts**

Congestion management (as a short-term mechanism) and long-term contracts are related issues. Infrastructure operators should be encouraged to offer a range of both long-term and short-term services under transparent, non-discriminatory conditions. Among others, the “use-it-or-lose-it” mechanism may be of help in reducing these problems and neutralise this relationship between congestion management and long-term contracts. An additional issue is the design of the procedures to allocate the network capacity among long-term rights and shorter-term markets.

On no account may the contracts that are signed include exclusivity clauses, favourable treatment clauses or any other clause that may be in breach of articles 81 and 82 of the European Union Treaty.

The holder of capacity must not have any pre-emptive rights for the renewal of the contract.

Specifically for gas, long-term take-or-pay contracts, for instance, have had a role to play in providing some certainty to the gas market to secure sufficient volumes and have been used as the means to finance upstream investments. Outside the EU, in future, companies may continue to require shippers to contract gas on a take-or-pay basis. These long-term TOP contracts are often backed with long-term capacity contracts (ship-or-pay contracts). These long-term TOP and capacity reservation contracts have been an important tool to secure gas supplies and to finance infrastructure, especially in the case of costly projects. Such contracts may suit the more traditional model of delivery of gas through a single linear pipeline to the EU's borders and the integrated nature of companies outside of the EU. For this reason, companies external to the EU may continue to exert pressure for this form of contract.

A key priority for the CEER on gas is to promote the development of trading hubs. If pricing points are to emerge from trading hubs, liquidity and tradability are essential and if gas (commodity) trades continue to be tied to infrastructure contracts this may impede the emergence of genuine gas-to-gas competition. For these reasons, it is likely that the traditional financing of infrastructure –not only through transportation



charges but linked to the energy component– is unlikely to fit in with the realities of liberalised markets. Within the jurisdiction of the EU, regulators should focus upon appropriate transportation charges capable of securing long-term investment in infrastructure.

It is a matter of concern that the signing of long-term supply and capacity reservation contracts may be used to foreclose the market, making it difficult for third parties to enter. Additionally, careful consideration needs to be given to the role that Member States take in designing market structures that might actually leave little room for more flexible gas supply contracts.