

CEER Position Paper

Long term requirements of the Inter-TSO Compensation mechanism (ITC)

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(Electricity Working Group, Cross Border Trade Task Force)

1. From the Regulation on Cross Border Exchanges in Electricity (1228/2003)

Article 3

Inter transmission system operator compensation mechanism

1. *Transmission system operators shall receive compensation for costs incurred as a result of hosting cross-border flows of electricity on their networks.*
2. *The compensation referred to in paragraph 1 shall be paid by the operators of national transmission systems from which cross-border flows originate and the systems where those flows end.*
3. *Compensation payments shall be made on a regular basis with regard to a given period of time in the past. Ex-post adjustments of compensation paid shall be made where necessary to reflect costs actually incurred. The first period of time for which compensation payments shall be made shall be determined in the guidelines referred to in Article 8.*
4. *Acting in accordance with the procedure referred to in Article 13(2), the Commission shall decide on the amounts of compensation payments payable.*
5. *The magnitude of cross-border flows hosted and the magnitude of cross-border flows designated as originating and/or ending in national transmission systems shall be determined on the basis of the physical flows of electricity actually measured in a given period of time.*
6. *The costs incurred as a result of hosting cross-border flows shall be established on the basis of the forward looking long-run average incremental costs, taking into account losses, investment in new infrastructure, and an appropriate proportion of the cost of existing infrastructure, as far as infrastructure is used for the transmission of cross-border flows, in particular taking into account the need to guarantee security of supply. When establishing the costs incurred, recognised standard-costing methodologies shall be used. Benefits that a network incurs as a result of hosting cross-border flows shall be taken into account to reduce the compensation received.*

The requirements for long-term ITC mechanism can be evaluated against the requirements for guidelines stated in Article 8 of Regulation where issues of guidelines are specified to include

- (a) *details of the procedure for determining which transmission system operators are liable to pay compensation for cross-border flows including as regards the split between the operators of national transmission systems from which cross-border flows originate and the systems where those flows end (in accordance with Article 3(2))*
- (b) *details of the payment procedure to be followed, including the determination of the first period of time for which compensation is to be paid (in accordance with the second subparagraph of Article 3(3))*
- (c) *details of methodologies for determining the cross-border flows hosted for which compensation is to be paid under Article 3, in terms of both quantity and type of flows, and the designation of the magnitudes of such flows as originating and/or ending in transmission systems of individual Member States (in accordance with Article 3(5))*
- (d) *details of the methodology for determining the costs and benefits incurred as a result of hosting cross border flows (in accordance with Article 3(6))*
- (e) *details of the treatment in the context of the inter-TSO compensation mechanism of electricity flows originating or ending in countries outside the EEA*
- (f) *the participation of national systems which are interconnected through direct current lines (in accordance with Article 3)*

2. From the 9th Electricity Regulatory Forum Conclusions

The elements to be accomplished in a long-term solution are:

- Definition of the horizontal network and of the criteria to assess the cost of the horizontal network
- Standard costs for the determination of inter-TSO compensation
- Determination of the payments by and to each TSO
- Implementation of the net outcome of compensation/charges to the internal network end-users of each TSO

3. Evolution of use of EU transmission network

Present EU transmission networks were built under regulatory contexts different from now with the purposes of serving mostly local and national interests and giving mutual assistance among national power systems for operation security.

The creation of an IEM entails that part of the grid is used to accommodate power transactions concerning all operators of the IEM, independently of the national power system in which each operator is located. This new situation raises the problem to re-consider the costs determination and the adoption of new pricing mechanisms.

Under this context, the future transactions between IEM and the South East Europe Regional Electricity Market (SEEREM) should also be addressed and taken into account when the

development of the collaboration between IEM and SEEREM will reach the stage of the implementation of the corresponding ITC mechanism in SEEREM.

4. Costs related to hosted flows and their compensation among TSOs

In general, in an electricity transmission network there are no unique and undisputable principles, methodologies or algorithms to divide the total costs of building, maintaining and using the network between connected users. It is known that the costs of the network are both fixed costs, associated with capital costs (depreciation and return on invested capital), and variable costs, associated with system operation and maintenance costs, losses, and bottlenecks.

A functional distinction of transmission service costs should suggest to classify costs in the following manner:

1. transmission infrastructure costs
2. transmission system operation costs

It is known that although the cost as per 2. above are not related to the costs of infrastructure their shape and entity signal degree of infrastructure adequacy.

The pricing mechanism of transmission services adopted should address known objectives, notably:

- covering all the fixed (infrastructure) and variable (use of system) costs incurred in the service production (revenue objective);
- be compatible with the establishment of correct signals (efficient prices) in terms of location, use and development of the transmission system (economic efficiency objective).

In general, it has to be considered that:

- network owners can, to some extent, obtain cost recovery through efficient pricing of network use and access rights. Pricing of marginal losses and efficient auctions can be part of this. But in general, the actual cost of the network will be higher than any income from efficient pricing mechanisms. The difference between costs of the network and any income for efficient prices can be called “residual costs”;
- it is important to make a distinction between efficient price signals and cost-recovery of the transmission service. The case of losses can illustrate this. The value of marginal losses associated with a marginal change in input/output at any connection point is part of the correct price signal to users of the network. To the network operator/owner the relevant cost is the actual average losses, measured as the difference between units (MWh) put into the network and units taken out of the network. Marginal losses are in general substantially higher than average losses.

Eventually, it must be considered that out of the cost-total incurred in the transmission grid, part of these are assigned to the TSO and other parts may be assigned to the different parties depending on the national regulation. Local issues are outside the ITC scope.

5. Criteria of the Inter-TSO Compensation mechanism

The importance of a sound regulation of the transmission activity should not be underestimated. Although the cost of transmission is not of much relevance when compared to the total cost of electricity, a poor solution to any of the three basic aspects of transmission regulation: investment, access and pricing, may well result in a significant loss

of efficiency in the functioning of the power system. Transmission regulation is, by far, the most contentious issue when trying to implement any kind of multi-national market.

In the context of cross border electricity trading in a multinational market, the success of the regulatory framework depends on several factors. Here we shall concentrate only on the method of network cost allocation that is needed to implement a mechanism of inter-TSO payments, since in broad terms, this is the approach of cross-border tariffication that has been adopted within the IEM. As we shall see, the choice of this method has different implications and this decision should not be taken lightly.

Any method adopted should as far as possible not introduce large immediate changes for any one TSO or Member State. Such changes may well reflect the historic development of transmission networks on the basis of the need to balance generation and demand within each control area, with no or little reference to neighbouring systems. To the extent that large changes are introduced by an otherwise desirable method it will be helpful, although not essential, for it to be capable of being subject to non-discriminatory transitional arrangements over time.

Hence, for the establishment of a long term solution of an ITC mechanism it is of utmost importance:

- to characterize the costs raised by hosting flows;
- to define which costs are subject to “compensation” among TSOs;
- to evaluate which costs (or which portion of such costs) should be efficiently allocated;
- to transfer the assigned costs to national level by common and agreed mechanism not distorting the adopted level of efficiency.

A set of criteria that a long term Inter-TSO compensation mechanism should be required to meet is defined below. The application of these criteria to a few selected methods is a task that should be addressed later. Both tasks should draw from the knowledge and experience that have been gathered during the few years of the application of the provisional inter-TSO payment mechanism, and also from the continuous evaluation that has taken place of this provisional method and the proposed alternatives for a long-term mechanism.

These criteria look at

- the *consistency*: i.e. the consistency of the network cost allocation method with the underlying paradigm of the IEM that is contained in the EC Regulation and the methodological decisions already made within the context of the Florence Forum.
- the *soundness*: Soundness of the method in all relevant aspects (economic, technical or legal) will facilitate its understanding and minimize potential conflicts in its application, therefore contributing to its acceptance. Can the method be derived or find justification from sound economic and engineering principles? Does it rely on non-justified hypotheses or definitions? Do the results make sense? Can relevant counterexamples be found? Will the method be perceived as fair?
- the *practical aspects*: The practical aspects in the implementation of the method can sometimes be decisive in the final choice of one method or another. Excessive complexity in the algorithms, difficulties in data acquisition and handling or lack of robustness in the results may dissuade from choosing one particular method.

Criterion #1: Legislative. Any method adopted must comply with the Electricity Regulation and Directive. This is a matter of existing law and must be the first priority. That is, it must for example :

- form a basis for compensation for costs incurred as a result of hosting cross-border flows of electricity
- be established on the basis of the forward looking long-run average incremental costs taking into account losses, new infrastructure and existing infrastructure
- determine the magnitude of cross-border flows on the basis of the physical flows of electricity
- account for, the compensation that shall be paid by the transmission system operators from which cross-border flows originate and the systems where those flows end

Crirerion #2: *The ITC mechanism shall take into account as far as possible all cross border flows, complying with Article 3 of the Regulation.*

Criterion #3: *The method for network cost allocation must be consistent with the fundamental approach inspiring the construction of the IEM: “The overall goal is for the IEM to function in the same way as a national market ... In the long term a pan-European tariffication mechanism would contribute to the further integration of markets”¹. These are elements of the fundamental approach that is known as the “single system paradigm”. In so doing there is a need for the proper integration of the South East European Electricity Market (SEEREM) into the ITC mechanism of the IEM. Any such mechanism implemented in SEEREM should not create any distortions of the trade between the two regions.*

Criterion #4: *The method for network cost allocation must be consistent with the overall framework of transmission regulation, so that any mutual implications with other aspects of transmission regulation do not create undesirable conflicts, now or in the future. Is the method consistent with the remaining elements of cross-border transmission regulation?*

- investment in new infrastructures;
- locational signals for operation and investment;
- congestion management
- network tariff harmonization and potential pan-European or at least regional transmission tariffs.

Criterion #5: Economic. Given that the law is not detailed and allows flexibility in the choice of ITC method, and that the CEER has as its goal the establishment of an efficient and effectively competitive single market, we as regulators are free to choose economic criteria next. Hence, any method adopted should:

- be consistent with the promotion of competition. It needs to retain a ‘level playing field’ and to remain non-discriminatory.

¹ EU Commission staff Working Paper, “Strategy Paper: Medium term vision for the Internal Electricity Market (IEM)”, draft, October 2003.

- promote economic efficiency (productive efficiency, allocative efficiency) or at least not distort efficiency.
- be transparent, reasonable and cost reflective.
- be consistent with the proper regulation of monopoly networks and in particular a regulatory regime that encourages efficient network operation and investment, and which provides no perverse incentives for transmission expansion.
- be consistent with the long term development of the IEM. This will include consideration of plans for congestion management, tariff harmonization and transmission investment. The method needs to be a step on the way to the European market functioning as a single market.
- be consistent with the general regulatory principles for transmission / TSOs in the EU and Member States. This will include openness and transparency, and the treatment of regulated revenue and methods for encouraging and rewarding investment.
- be based on sound economic principles and on objective, transparent and controllable criteria.
- use standardised costing methodology to define the cost of the whole network (including interconnectors) within a country.
- produce reasonably stable and predictable results that can be verified or replicated easily.

Criterion #6: Technical soundness. The method shall be based on sound engineering principles or have technical justification. It shall not have technical inconsistency in the algorithms that are needed for the application of the method. The results of application of the method must make engineering sense.

Criterion #7: Implementation. The method adopted needs to be reasonably straightforward and cost effective to implement. The manageability of data acquisition and handling must be made clear and data should be available or easy to collect. These issues will also need to be seen in the context of what the TSOs say they can deliver. Volume of required data must be feasible and easy to process. Information, procedures or commonly agreed definitions that are required to apply the method must be available. An example is: Definition of standard costs of network infrastructure.

Criterion #8: Ability to be easily understood and verified. Any method adopted shall be simple and easy to understand and to apply. The basic concept of the method shall be easy to explain and communicate.