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Comments concerning draft guidelines on Inter TSO Compensation – ITC

Introduction

The development of common European rules and regulations, to secure a common platform for trade and competition in the electricity sector, is of imperative importance. Hence, The Norwegian Electricity Industry Association, EBL, welcomes the opportunity, on behalf of our members in transmission, distribution and generation utilities, to comment on ERGEGs proposal on Inter TSO Compensation, ITC.

We are deeply concerned that the proposed solution will give disincentives and counteract the objectives of creating a well functioning pan European electricity market (Directive 2003/54/EC concerning common rules for the internal market in electricity).

It is a common understanding that any flow based tariff will distort incentives. As the payments from the TSOs will depend directly on flows, TSOs that are net contributors to ITC will have incentives to set available transfer capacity (ATC) artificially low and reconsider developing physical cross-border capacities. This will aggravate a situation where such capacities are set much lower than they should, and may lead to a more national focus rather than an increased focus on developing an efficient pan European electricity market.

The ITC mechanism has a very narrow scope and does not provide a fair burden sharing between power consumers in different countries. ITC focuses on a very limited set of data, arbitrarily interpreting them as intentional trade flows between producers and consumers, and asking the two parties to pay for the transit through third countries. Imports and exports are beneficial for both countries, and should not be regarded as “third party” use of the grid and therefore not compensated for. Furthermore, the “transit” countries are not victims in this

game; on the contrary, they reap important benefits by being in the middle of the system. They make a profit from participating in the trading, buying at low price on one side of a border and selling at a higher price on the other. These countries are also given the opportunity to use interconnected systems as sources for system services, back-up etc.

In our opinion the ITC mechanism may distort investment and operational incentives for TSOs, ignore major benefits of cross border trade, and distort locational signals for generation and load. A possible removal of the ITC mechanism from the future EU legislation and replacement by an adequate distribution of collected congestion rents should therefore be considered.

If however the ITC mechanism is continued it is of utmost importance to cap the ITC fund and keep it as low as possible to reduce potential negative incentives. There should be a strong regulation/standardisation of the cost basis and the maximum return on capital for TSOs. All income (congestion rent) from cross-border trade should be taken in as a part of the financial basis of the fund. Payments from the fund should be directed towards cross border capacity development and on defined key transit routes through countries.

In the following we will focus on aspects that in our opinion are of vital importance for the development of well functioning regional electricity markets as well as a future pan European electricity market. We will first give our general comments to the proposed ITC scheme, followed by remarks on the explanatory note and the guidelines given in enclosure 1. In enclosure 2 please find earlier forwarded position on ITC expressed by the Confederation of Norwegian Enterprise, the Norwegian Electricity Industry Association and the Federation of Norwegian Industries.

General comments

Incentive principals

An overall objective of EU regulation of the energy and electricity sector is the future goal of creating a well functioning pan European energy market for electricity and gas, and securing a more efficient utilisation of existing and future investments. This can only be done by developing a level playing field for all participating entities in the market. To do so, common market principals and rules for participation must be established. In this process it is vital to strive to remove market hindrances or other obstacles that can be used to undermine competition and free trade.

The Official Journal of the European Union 15.7.2003 refers to several directives e.g. article 251 of the Treaty:

The creation of a real internal electricity market should be promoted through an intensification of trade in electricity, which is currently underdeveloped compared with other sectors of the economy

…. And the allocation of available interconnection capacities, in order to ensure effective access to transmission systems for the purpose of cross border transactions.

The European Parliament, in its Resolution of 6 July 2000 on the Commissions second report on the state of liberalisation of the energy markets, called for conditions for using networks in Member States that that do not hamper cross-border trade in electricity, hence calling the Commission to submit specific proposals to overcome all the existing barriers to intra Community trade.

The creation of effective incentives to remove such barriers and increase the coupling and trade between markets is therefore imperative. As far as we can see the proposed guidelines do not discuss or conclude on this important issue. We fear that the ITC scheme will give the same effects as the former cross border tariff system - an effective barrier for cross border trade and incentives to reduce flows and future investments that should be initiated to increase future cross border trade of electricity. We will illustrate this with the following example:

An increase of exports/imports will generate a shift of physical flows in the system with changes in losses and ITC compensation/payments. If the cost of losses and ITC incurred by an increase of exports/imports is larger than the benefits of trade for the exporting/importing country, the TSO of the exporting/importing country should, from a national welfare point of view, reduce ATC (Available Transfer Capacity) in order to reduce or stop exports/imports. Likewise, if the anticipated costs of a new interconnection (including ITC costs) is higher than the anticipated benefits of trade, the interconnector should not be built.

As far as we can see the proposed ITC system is not fully in compliance with the Energy Directive of 2003. By introducing the ITC-mechanism a new tariff cost will be introduced that hamper cross border trade. In this respect it is questionable if ERGEGs adopted criteria 3, 4 and 5 are obliged.

Permanent structural transit flows

To a large extent the different power systems in Europe have been developed for domestic purposes only. Transit flows generated by an increasing coupling between these power systems has therefore had a minor impact on the former investments in these systems. In addition the random transit flows generated by alternating price scenarios in the different countries will tend to even out the costs and benefits of trade among the different countries. Transit compensation should therefore only be given to proven permanent structural transit flows. The proposed ITC scheme is, as far as we can see, constructed to compensate all "transit" flows in the system, including costs in the system generated for domestic purposes only.

Model comprehensibility, transparency and authentication

We have mustered a significant amount of effort in trying to understand the proposed IMICA model, but regret to admit that our efforts partly have failed. The ability to easily understand and verify the model is vital to secure confidence and acceptance for the ITC mechanism. Introducing a compensation scheme that only a few model experts in Europe fully understand is therefore a matter of concern.

As far as we can see important elements in the model which will give significant impacts on the output are not sufficiently clarified:

- Cost base.
- Calculation of sensitivity factors.
- Determination of reference exchange.
- DC-interconnectors.
- Number of snap shots and appropriate load flow scenarios.

When putting the ITC mechanism into effect there is a need for data collection, authentication and validation of input data, and computation of payments and compensations. As far as we can see the guidelines do not address any of these issues. The

guidelines do not provide any regulation concerning the authority or body empowered to carry out the necessary calculations, how neutrality shall be secured, how payments and compensations shall be controlled and authenticated, or how the necessary activities shall be financed.

Comparable cost basis

The regulation (EC) No 1228/2003 states that *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, LRAIC. When establishing the costs incurred, recognised standard-costing methodologies shall be used.*

The proposed guidelines state that 20 % of the cost shall be based on LRAIC, while 80 % shall be based on regulated values. We support the shift of focus towards a greater emphasis on regulated costs rather than LRAIC. In our opinion the LRAIC is not suitable for determining the cost base. National tariffs are calculated based on regulated costs, i.e. a generator feeding electricity into the national grid or a load withdrawing electricity from the grid pay a tariff based on regulated costs. It is not reasonable that flows through one country generate a "charge" based on another cost basis than the one given for national users. Application of such a principle would be clearly discriminatory.

The regulation mechanisms and cost base are different between countries. Using domestic regulated values could result in overcompensation for transit as a result of "soft regulation" or historical investments that should never have been carried out (gold plating). This can be avoided by using standardised regulated values, e.g. by using average values. In a short term perspective we propose a further reduction of the weighting of LRAIC e.g. 10% / 90%. A long term solution should be based on fully standardised regulated costs.

Benefits

The proposed guidelines conclude that congestion rents incurred due to transit shall be deducted from the total annual revenue. We fully support this view. However, the proposal seems to limit the deduction of congestion rents to existing assets being financed by congestion management and/or TEN-T project incomes. By doing so the TSOs are given incentives for creative accounting of congestion rents in order to limit the deduction. Further more, congestion rents are administered differently by the TSOs e.g. tariff reductions, transmission investments, increased profits etc. Regulation 1228/2003 gives some provisions on how congestion rents between countries shall be treated. Except from this there are no provisions on how internal congestions shall be handled. By not deducting all congestion rents from the total revenue, cross border flows will generate a double income in cases where congestions occur and the congestion rents are not dedicated financing of existing assets. Who will verify that TSO incomes are not "pan caked", and thus leading to overcompensation of the TSO? A solution where congestion rents are not taken fully into account when the cost base is calculated will lead to discrimination between domestic and international users of the grids, and fails to take into accaount the benefits for transit countries.

Regulation 1228/2003 clearly states that benefits that a network incurs as a result of hosting cross border flows shall be taken into account to reduce the compensation received.

EBL strongly recommends that all benefits from capacity allocation are deducted from the total annual revenue.

Uncertainty

The proposal does not include any actual economic impact of introducing IMICA as the preferred model for calculating compensations. Information on previous tested models has shown a wide spread in results that in some cases have given very large amounts of compensations and payments.

As far as we can see there has been no elaborate analysis of the IMICA model, nor any documentation proving that the model is based on sound principles. As of yet we have seen no discussions concerning key regulatory and engineering principles embedded in the proposal.

A model that may give potentially large variations in payments and compensations in combination with actual payments given ex-post, will lead to great uncertainty of costs for domestic network users. Increased risk may lead to a reduced utilisation of cross border networks.

Capping the fund

The proposed ITC scheme raises, in our opinion, many unanswered questions. The IMICA model seems immature and the actual amounts of payments and compensations are not verified. In this respect there is no basis to evaluate the pros and cons of the model and the full impact of introducing the mechanism.

In order to be able to replace the existing ITC mechanism and gain more experience with the proposed model, the total compensation fund must be capped and kept as low as possible, at least no higher than today's level. By doing so, the risk of introducing wrong incentives and adverse payments / compensations can be kept at a minimum.

This concludes our remarks to the proposed guidelines. If there are any needs for further clarification regarding our comments do not hesitate to contact us.

Best regards
The Norwegian Electricity Industry Association

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Enclosure 1

ERGEG Draft Proposal on Guidelines on Inter TSO Compensation

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10 April 2006

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Feil! Fant ingen oppføringer i innholdsfortegnelsen.

EXPLANATORY NOTE

1. Introduction

The Regulation 1228/2003 on cross border exchanges in electricity allows for binding guidelines on inter TSO compensation (ITC) to be adopted by a regulatory Comitology process consistent with Commission Decision 1999/468/EC. This procedure requires the Commission to make a proposal for guidelines to be considered by the Committee referred to in Article 13 of the Regulation.
The attached document accordingly puts forward a proposal for ITC guidelines on the following subjects:

- details of the determination and payment procedure for compensation between TSOs relating to cross border flows; Article 8(2) (a) – (d)
- treatment, in the context of the inter-TSO compensation mechanism, of electricity flows originating or ending in countries outside the EEA; Article 8(2) (e)
- the participation of national systems which are interconnected through direct current lines; Article 8(2) (f)

The main principles adopted by the Commission in its proposal for the detailed ITC guidelines, which are taken from the Articles of the Regulation are set out and explained below.

Article 8(1) of the Regulation requires that when adopting the guidelines for the first time the Commission shall ensure that they cover in a single draft measure at least the issues referred to in paragraph 2(a) and (d), and paragraph 3 of the same article 8, i.e., the guidelines must specify:

8(2)(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);

8(2)(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);

8(3) appropriate rules leading to a progressive harmonisation of the underlying principles for the setting of charges applied to producers and consumers (load) under national tariff systems, including the reflection of the inter-TSO compensation mechanism in national network charges and the provision of appropriate and efficient locational signals, in accordance with the principles set out in Article 4. The guidelines shall make provision for appropriate and efficient harmonised locational signals at European level. Any harmonisation in this respect shall not prevent Member States from applying mechanisms to ensure that network access charges borne by consumers (load) are comparable throughout their territory.

The single draft adopted will include guidelines on Tarification and Inter TSO Compensation. It is expected that both sets of guidelines will apply from 1 January 2007.

2. Participating Entities

There will be 24 participating Member States of EEA in the inter TSO compensation after excluding those Member States or island systems not having any interconnection to the networks of other Member States.

When making calculations, the participating entities may be joined to larger entities for geographical or other well-founded reasons. Joining to larger entities means that participation in the inter TSO compensation will be realised collectively. This method shall be proposed by TSOs involved and approved by the regulators involved according to the Regulation Article 2(b).

Splitting the Member States into smaller entities shall only be allowed in well-founded cases, e.g. for geographical reasons, where the network between these split entities is weak or non-existent. The split shall be approved by the regulator in question.

Other countries (outside the EEA area) may be, de-facto, included in the inter TSO mechanism as a result of measures agreed on the basis of a Treaty between the European Union and the other countries in question or on the basis of a private contract between transmission system operators in those non-EEA countries and the participating entities. Such a contract may have certain conditions relating to the reciprocity in implementation, by non-EEA countries, of this and other guidelines adopted under the Regulation and Directive 2003/54/EC.

3. Approach for Inter TSO Compensation

3.1. Basis for calculating the costs incurred by hosting cross-border flows

According to the Regulation 1228/2003 Article 3(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 existing infrastructure is used to transmit cross-border flows. When establishing the costs incurred, standard-costing methodologies shall be used. All benefits that a network incurs as a result of hosting cross-border flows shall be taken into account and deducted from the allowed total revenues.

The approach described in these Guidelines to define network infrastructure costs applies only to the inter TSO compensation mechanism.

Weighting between forward looking LRAIC and existing network

The costs associated with network assets shall be based on two components:

- costs of existing network assets (“appropriate proportion of existing network”); and
- forward looking long run average incremental cost (LRAIC) of new network assets (“investment in new infrastructure”).

Costs of existing network can be estimated using national regulated values of network operation e.g. regulated asset base or total allowed network related revenues. Forward looking LRAIC have a more standardised cost approach e.g. same depreciation and interest

Comment [how1]: Using Standard-costing methodologies is an important issue. As far as we can see, the proposed guidelines does not properly address this issue.

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Comment [how2]: We fully support that benefits that networks incur as a result of hosting cross-border flows must be taken into account.

Comment [how3]: In our point of view the use of LRAIC is a move in the wrong direction. We therefore support the proposal and encourage a further decrease of this element in the short run. In the long run LRAIC should be removed both in the Regulation 1228/2003 and in the guidelines.

When and for how long is a network asset considered as new. In what way is a harmonised assessment between different countries secured?

rate in all Member States. When combining these two cost components i.e. the forward looking LRAIC and the costs of existing network in order to determine the total ITC costs, a weighting between the two cost components has to be defined.

The cost approach for the ITC mechanism shall be focused on cost recovery of costs incurred by permanent structural transit flows. Therefore a value which is related to cost of existing network may be considered to be more suitable than a value based on a forward looking LRAIC. Different cost values for the external and internal use of the network will lead to discriminatory costing when IEM is considered as the same network used to facilitate both external and internal electricity transfers.

National regulated values are also more appropriate for the objective of cost recovery than values based on forward looking LRAIC because it is not self-evident that forward looking values would be less clustered and varied than national regulated values. Forward looking LRAIC may be considered to be more subjective because they forecast future costs leading in the worst case to less standardised network costs than when using historical costs.

Observations stated above imply that when weighting between the two costing components are considered the greater weight should be given to the national regulated values than to the forward looking LRAIC. The weighting of the national regulated values should be 90 % and the forward looking LRAIC 10 % during the first years of implementation.

Experience of the valuation of forward looking LRAIC can be achieved following the implementation of the ITC mechanism. Further studies are needed before a more standardised costing methodology with an increased weighting of the forward looking LRAIC can be implemented.

The cost of the existing network assets

The annual cost of the existing network is defined using total annual regulated revenue from transmission network operation. The approach implies that the external users of the transmission networks are charged on equal basis compared to the national customers. The approach leads to a more comprehensive view of the national regulatory package when applied to the ITC mechanism leading to more consistent treatment among Member States. However, the approach may result in a spread of regulatory costs as a result of different regulatory parameters among Member States but the spread can fairly be assumed to be less than with other approaches e.g. regulated asset base (RAB) where the definition of the cost of the network is based on only one factor, although a very crucial one, within the national regulatory package.

In some Member States the total annual revenues of TSOs include also non-network infrastructure related services, e.g. system operation, losses, peak load, congestion management and obligations to buy power production. Presently the non-network related revenues may not be separated in the accounting (or tariffs) from the total annual revenues of the network operation. Thus the evaluation of revenues directly related to network operation may lead to some inaccuracies and to less transparent cost figures. In the future, the non-network infrastructure related revenues should be separated more clearly from the actual transmission network operation. Congestion management income and/or the Trans-European Transport Networks (TEN-T) project income shall be excluded from the total annual revenue..

Comment [how4]: We interpret this as a recommendation and not as an instruction. Focus mainly on cost recovery also implies that other costs can be included. In other words the different regulators are free to choose which costs should be taken into consideration. This opens for sub optimisation of different cost approaches between different countries.

The existing grids in Europe are not mainly designed for hosting transit flows. Costs incurred due to transit is therefore mainly increased losses or the need to construct new capacity to handle transit. It is unclear to us how much of the existing networks in Europe are constructed to host transits.

We suggest that the cost approach shall by focused only on recovery of costs incurred by permanent structural transit flows.

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Comment [how5]: This is an important argument which should be emphasised more strongly.

Comment [how6]: We fully support a reduced weighting of LRAIC. At best LRAIC should be ruled out and all cost incurred based on regulated cost. An alternative in the short run would be to further reduce the weighting of LRAIC e.g. 10%.

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Comment [how7]: How can losses and congestion management costs be excluded as non-network infrastructure related services? Is not this as far as losses are concerned in direct contradiction with the regulation, ch. 3.1 first paragraph?

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Comment [how8]: We strongly support this view, not because these incomes are not network infrastructure related, but because they are regarded as a benefit that a network incurs as a result of hosting cross-border flows, ch. 3.1 first paragraph. There is also a descrepancy in connection with ... [1]

3.2. Infrastructure – calculation of compensations

The Regulation sets out that Member States should receive compensation for cross border flows that imply additional costs to the TSO concerned.

The approach applied in the Guidelines relies on the following three concepts:

- Sensitivity factors which form the basis for evaluating the impact of flows on the network of an entity originating and ending outside of the entity (transit)
- Calculation of reference exchanges which form the basis for compensations to be paid
- Transit key in MWh·km to ensure that the impact of a transit on a given entity is correctly taken into account.

The impact of transits on an entity is evaluated using sensitivity factors. These factors describe the 'electrical distances' between ITC entities. The sensitivity factor of an entity A to an exchange of 1 MW from entity B to entity C is defined as the total amount of MW·km induced in all grid elements of an entity A by flows originating in entity B and ending in entity C. An injection of 1 MW shall be distributed proportionally on all generation nodes of an entity B and withdrawal of 1 MW shall be distributed proportionally on all load nodes of an entity C.

Sensitivity factors shall be defined for all possible combinations of entities taking part in the ITC mechanism. This requires the use of a merged European load flow situation. The calculation shall be made ex ante for the following year on snapshots representing the various yearly situations. At least seasonal and daily variations should be taken into account when sensitivity factors are defined.

Sensitivity factors can be computed in different ways depending on the use of the factor. **Absolute sensitivity factors** are calculated by aggregating all MW·km in all grid elements regardless of the direction of the transit flow compared to that of the actual flow in the snapshot. Absolute sensitivity factors will be used to reflect an "electrical distance" between exporting and importing entities when reference exchanges are calculated. Absolute sensitivity factors can be calculated using either a snapshot representing loading of the network or with an empty network representing the network without any load or generation. **Net sensitivity factors** are calculated by aggregating all MW·km in all grid elements with their sign depending on the direction of the transit flow compared to that of the actual flow. Net sensitivity factors can be applied to determine the share of total grid costs to be borne by transit flows.

Calculation of **reference exchanges** between entities reflects the real level of import and export of each entity and their consequences in terms of transits. Reference exchanges defined between pairs of entities are derived from measured net export and import of each entity under the assumption of minimized transits when measured imports/exports are shared between pairs of entities. This leads to the conclusion that the entities responsible for transits will be identified as those closest to the corresponding transited entities. Reference exchanges shall be calculated on an hourly basis reflecting the actual hourly exchanges of electricity. They shall be applied for the computation of compensations to be paid.

Comment [how9]: The expression "global sensitivity factors" are used in the different annexes of the proposed guidelines. We are, however, not able to find any definition of global sensitivity factors in the explanatory note or guidelines.

Comment [h10]: In the current draft guidelines it appears that the calculations of sensitivity factors can be made on historical data, while for reference exchanges the guidelines require data from the year in question. To achieve correct results it is necessary to use the same input data and the same time periode for sensitivity factors and reference exchanges. The length of the time periode should be defined.
Who defines which and how many snapshots to be used? What typical situations should be used - Dry year, wet year or years with normal precipitation?

Comment [how11]: We fail to see why absolute sensitivity factors reflect the electrical distance in the different systems.

Comment [how12]: Net sensitivity factors **can** be applied? Does this open for a choice to be made between different countries and how decides on which approach to choose?

Comment [how13]: It is important that the calculation of sensitivity factors and reference exchanges are based on data from the same snap shots and within the same year! Otherwise these elements will not be comparable and give misleading values.

A **transit key** for each transited entity is calculated in MWh·km thus taking into account the size and length of the network impacted by the transit flows. The numerator of the transit key is the total of MWh·km transited through the entity and the dominator is the total of MWh·km in all grid elements of the entity describing actual use of the grid including domestic and foreign flows. **The transited MWh·km through the entity are given by the sum of all reference exchanges (between third entities) weighted by the sensitivity factors of that entity.** The different sensitivity factors calculated for different snapshots are applied to defined types of operating hours (e.g. peak, off-peak, week, weekend, etc.) that correspond to these snapshots. The transit key is applied to the total cost of the grid infrastructure of this entity to calculate the compensations for this entity. The evaluation of total costs of the grid is described in Section 3.1 of this explanatory note.

3.3. Infrastructure - calculation of contributions of exporting and importing entities

Article 3(2) of the Regulation states that compensation shall be paid by TSOs from which cross border flows originate and the TSOs where the flows end.

The calculation of compensations for transited entities also identifies the entities that should contribute to the inter TSO compensation fund. The contributors shall be the entities of origin or destination of the corresponding reference exchanges. As a consequence, the contributions paid by entities reflect their responsibility in inducing transit flows in other grids. Contributions shall be paid equally by the entities of origin and destination (exporting and importing countries).

Comment [how14]: The total fund should be capped, no higher than to days level, until more experience is gained with the model. In addition there should be introduced a mechanism to override the system if it results in extreme payments for single countries within the total capped compensation fund.

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3.4. Losses

For losses, the guidelines also make the assumption that cross border flows contribute to the total network losses according to the extent to which networks in each participating entity have been affected by cross border flows and in particular transits.

The effects of cross border flows on losses are calculated using a load flow based method described in Annex A. Transits are derived on the basis of actual physical inflows and outflows during a snapshot of the actual network situation. At least 72 snapshots per year shall be used to define losses. The definition of transit for the purpose of determining the effect of cross border flows on losses differs from the definition of transits which is used to determine the effect of cross border flows on infrastructure. Transit -for determination of the effect on losses- is defined as the minimum value of all inflows or all outflows at the interconnectors within a given time period.

Comment [how15]: We fail to see why 72 snapshots should apply. We assume, however, that there is a clear scientific reason for this.

Comment [how16]: Which given time period?

To determine the impact of transit flows, a comparison of the network flows in the actual situation (with transits) and in a situation when transit flows are removed will be made. In order to get the new “without transit” system condition, the determined transit value is distributed among the interconnection lines according to a given relation as described in Annex A.

The costs of losses are allocated between users of the grid by distributing the losses due to transits, by the mean of gross exports and gross imports, equally on those exporting and importing. This will secure that all importing and exporting countries contribute to compensate for increased / decreased losses due to transit. The calculation method

Comment [how17]: How are the losses calculated. Transit flows will in many cases reduce actual losses. In this respect those imposing such transits should be rewarded.

accounts also for a possible beneficial effect of transits on the network, i.e. if transits have a relieving effect on the losses in the network.

During the ex-ante evaluation the reference price for the losses is preferably taken from a quoted power exchange, from a recognised price reporting service or from any other market based tendering process for bulk energy. During ex-post calculations the actual costs incurred due to losses shall be applied when the TSO has the responsibility for the purchase of losses. Otherwise the prices applied during ex-ante calculations shall be used.

3.5. Payment procedure

According to Article 3(3) and Article 8(2)(b) of the Regulation Inter-TSO Compensation Guidelines shall specify details of the payment procedure to be followed. Compensation payments shall be made on a regular basis with regard to a given period of time. Ex-post adjustments of paid compensations shall be made when necessary to reflect costs actually incurred.

Inter TSO compensation payments will be made per calendar year with regard to cross border flows of electricity hosted annually by TSOs. Provisional payments of compensations will be made between TSOs on a monthly basis during the year.

Comment [how18]: It is important that these calculations are based on data from the same year.

Monthly provisional payments of compensations will be based on ex-ante calculations using forecast data from cross border flows to be hosted by each TSO and from the transmission network costs incurred by the hosting of these cross border flows.

During the “on run” period, required data is collected monthly from each TSO and the monthly settlement procedure between TSOs is performed.

Based on data collected during the year an ex-post annual settlement will be carried out for the purpose of reconciliation to finalise the compensation payments of each year. Before this ex-post reconciliation payment, the Commission must receive the collected data and it will approve the final annual values of compensations to be paid or received per year by each TSO.

Audit procedures must be performed during different stages of the process by TSOs and regulators in order to give transparency to the process.

3.6. Determination of first period of time

According to Article 3(3) of the Regulation, the Guidelines shall determine the first period of time for which compensation payments shall be made.

4. Treatment of Flows Starting or Ending in Non-Participating Countries (Non – EEA Countries)

Under the Regulation, it is possible for TSOs in Member States to levy charges for flows from outside countries covered by Community legislation (i.e. the EU and EEA Member States). These countries outside Community legislation are denoted here as non-participating countries or entities. The charges allow the TSOs to recover any costs on their

own network associated with both imports from and exports to such non-participating countries.

Network users importing or exporting electricity to non-participating entities are required to contribute the compensation fund for each physical inflow or outflow according to methodology defined in Annex A. This amount may be collected from parties nominating flows from non-participating entities in order to recognise the potential effect of these flows on the participating entities. The Guidelines assume that the practice will continue in so far as the entities concerned are not subject to a separate legal agreement or legislative measure adopted under a bilateral Treaty in which the ITC mechanism to comply with this Guidelines is adopted.

5. Systems interconnected through DC Interconnectors

5.1. DC interconnectors that form part of the general regulated asset base

Article 8(2)(f) of Regulation states that the Guidelines shall specify the participation of national systems which are interconnected through direct current (DC) lines, in accordance with Article 3.

These Guidelines take the view that, in general, participation in the inter TSO compensation mechanism, and the removal of charges relating to cross border transactions will not be affected by whether power systems of Member States are connected by AC or DC lines.

Therefore DC lines, where they form part of the regulated asset base of the participant concerned, will be included in the network in that Member State. To the extent that the Member State concerned is hosting cross border flows, costs relating to DC lines would be included in the network costs for which compensation would be due.

5.2. DC interconnectors that are legally separate entities from TSO and do not form part of the regulated network

DC interconnectors which are separate from the general regulated asset base of the TSO and which do not form part of the general regulated network, including those with exemptions from third party access and exempted according to Article 7 of the Regulation, are excluded from the network for the purpose of inter TSO compensation.
The owners of these lines will contribute to the compensation fund according to the methodology defined in Annex A but they will not receive any compensation from the compensation fund.

Comment [how19]: This will further increase negative incentives for cross border trade, while no compensations are given and the payments go directly on the companies bottom line.

5.3. DC interconnectors that have both regulated and unregulated features ("hybrids")

Interconnectors having both the regulated and unregulated features described in Sections 5.1 and 5.2 above are treated for the inter TSO compensation so that the regulated part of the interconnection may be included in the network asset base for the inter TSO compensation thus receiving also compensations from the cross border flows. The unregulated part of the interconnection is not included in the network asset base for the inter TSO compensation and it shall contribute to the compensation fund as any other network entity but it shall not receive any compensation from the fund.

GUIDELINES ON INTER TSO COMPENSATION

1. Participants and Participation

1.1 Transmission system operators[1] (TSOs) in all EU and EEA Member States, which are connected to the network of another TSO, shall participate in the inter TSO compensation mechanism either as a single entity or collectively. Participation collectively in the inter TSO compensation mechanism shall be approved by the regulator(s) involved and notified to the Commission. A separate network within a Member State forms one entity as regards to the inter TSO compensation mechanism.

1.2 Transmission system operators in non-EEA countries may join the inter TSO compensation mechanism where a Treaty is established between the EU and the relevant non-EEA countries where the participation in the Inter TSO mechanism has been agreed. The Commission shall be notified in the case of a private contract between participating entities and non-participating entities from non-EEA countries before non-participating entity can join the inter TSO compensation mechanism.

Comment [how20]: How shall non-EEA countries be treated in cases where an agreement for participation in the ITC mechanism has not been signed? This should be clarified.

2. Cost base – Network and Forward Looking LRAIC

General

2.1 Regulators shall provide costs associated with:

(a) network assets

(b) transmission losses

for the purposes of inter TSO compensation.

2.2 In relation to costs associated with network assets costs shall be based on:

(a) the costs of existing network assets; and
(b) the forward looking long run average incremental cost (LRAIC) of new network assets.

2.3 An overall unit cost, calculated as a weighted average of 2.2(a) and 2.2(b) above shall be calculated in Euros/km per year (for lines) or Euros/MVA[2] per year (for transformers) according to the following weighting:

[1] Transmission system operator (TSO) means a natural or legal person responsible for operating, ensuring the maintenance of and, if necessary, developing the regulated transmission system in a given area according to Directive 2003/54/EC and, where applicable, its interconnections with other systems, and for ensuring the long term ability of the system to meet reasonable demands for transmission of electricity.
[2] MVA of nominal installed power of a transformer

(a) Costs of existing network asset = 80 %;

(b) LRAIC of new network assets = 20 %

These unit costs shall be applied in the calculation of the total cost of the grid in Annex A.

2.4 Regulators shall provide jointly the unit costs associated with network operation to the Commission and TSOs yearly by the end of September. The values of unit costs shall be used to define the receipts and payments of compensations under Section 3 of the Guidelines according to procedure defined by TSOs and approved by regulators.

Comment [how21]: Who approves / qualifies the unit costs, regulators, the Commison or other authority?

2.5 If significant differences among adjacent entities exist in unit costs and if they differ from those applied to national purposes the Commission may decide by proposal of regulators to set a cap to the maximum unit cost for a dedicated asset class.

Comment [how22]: How will this effect the total compensation fund. Reduced payments must lead to reduced compensation. How will the Commission decide which entity that shall be given a reduced compensation?
It is important to avoid remuneration of "Gold plated" systems and avoid discrimination between domestic and foreign network users. Special treatment of some countries would be clearly discriminatory. Transperrancy for all participating countries is important in special cases of capping.

Costs of existing network assets

2.6 In relation to 2.2 (a) above, the cost of existing network assets, regulators shall provide a unit cost estimate based on data from year t-1, both for the purposes of reconciliation of payments in relation to year t-1 and for the purposes of an ex ante estimate of year t+1 in the following way:

(a) For each participating entity under this jurisdiction, each regulator shall provide a value for total allowed network related revenue by participating entities. This amount should only include revenue related to network assets (including return on network assets, depreciation on network assets and operating costs related to maintenance of network assets). It should exclude any revenue related to System Operation, network losses and other non-network asset related activities such as the costs of control room and despatch operations, the net costs of balancing the system and the costs of procuring ancillary services. Each regulator shall deduct the participating entity's congestion management and/or the Trans-European Transport Networks (TEN-T) projects income from the total allowed revenues.

Comment [how23]: Who controls that the cost of total allowed network related revenue for each participating entity is correct?

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Comment [how24]: We agree that congestion rent income should be deducted, but this deduction should not be restricted to those incomes that are allocated to financing existing assets. The deduction of congestion rents should not rely on whether or not such incomes are used for financing new assets. This type of income is a benefit of cross-border trade and should therefore be deducted. Could initiate creative accounting schemes etc. Likewise counter trade costs dedicated for handling cross-border flows should be included in the cost base, as far as the cost are transparent and based on open market marked solutions.

Deleted: in order to take account of existing assets being financed by congestion management and/or TEN-T project income.

(b) Each regulator shall also provide the total circuit length (in km) of transmission network assets within the network asset base of participating entities that they regulate for each of the following asset classes:
(i) Class A: above 300kV AC line;
(ii) Class B: 220kV to 300kV AC line;
(iii) Class C: other AC lines;
(iv) Class D: DC lines of any voltage;

Comment [how25]: Real or calculated km?

(c) Each regulator shall also provide the total installed capacity (in MVA) of transformers within the regulated asset base of participating entities that they regulate in each of the following asset classes:
(i) Class E: transforming between voltages of assets in class B and class A, or between voltages of assets in class A or between voltages of assets in class B;
(ii) Class F: transforming between voltages of assets in class C and class B or class A;

(d) Each regulator shall give an estimate of entity specific weighting values which express the per km costs of line assets within class B, class C and class D as a percentage of the per km costs of line assets within class A. Each regulator shall also give an estimate of country specific weighting values which express the per MVA cost of transformer assets in class E and class F as a percentage of the per km costs of line assets within class A. Regulators shall share their methodology for arriving at these weighting factors with each other, justifying significant differences between the values derived.

(e) These weighting factors shall be calculated based on
- (i) Estimates of the current (rather than historic) relative costs of procuring network assets in each different class;
- (ii) The cost of line assets should include a share of substation costs (for example by taking into account the average cost of line switchgear bays and the average number of line switchgear bays per km of line assets in each class);
- (iii) The costs of transformer assets should include a share of substation costs (for example by taking into account the average cost of switchgear bays of each voltage and the average number of switchgear bays of each voltage per MVA of transformer capacity in each class);
- (iv) The costs of regulated HVDC links should also include a share of converter costs (for example by taking into account the average cost of converter stations, and the average number of converter stations per km of HVDC line);

(f) Unit costs for class A, B, C and D line assets, and for class E and F transformer assets are required as inputs to the cost allocation method described in Annex A. Regulators shall calculate per km line costs for each asset class in accordance with the following formulae:

$$UC_A = \frac{TR}{\sum_{i=A}^{F} L_i * WF_i}$$

$$UC_j = UC_A * WF_j \quad \text{for j = B, C, D, E and F}$$

where:

UC_A represents the unit cost of line assets in class A
TR is the total annual revenue of the relevant participating entity
$\sum_{i=A}^{F}$ is the sum over asset classes A to F
L_i is the length or MVA of equipment of a certain class i
WF_j is the weighting factor representing the unit cost (km or MVA) of equipment of a certain class j as a percentage of the unit cost (km) of line assets in class A
UC_j is the unit cost of line or transformers of a certain class j

Annex B shows an example how unit costs of different classes are defined.

Comment [how26]: Why a share? Who defines how large a share to be incorporated? How large a share is allocated the different classes and how ensure that double registry is not applied? By opening up for including a share of costs different costs may be included by different regulators. Detailed descriptions of which cost elements that can be included should therefore be given.

Comment [how27]: DC-links have no purpose without converter stations. By opening up for including a share of costs different costs may be included by different regulators. Detailed descriptions of which cost elements that can be included should therefore be given.

Comment [how28]: Why are unit costs calculated? We fail to see the referred cost allocation method in annex A.

Forward looking long run average incremental cost of new assets

2.7 In relation to the forward looking long run average incremental cost of new network assets regulators shall provide estimates of the annualised incremental investment cost of providing additional lengths of a new transmission line in one of the line asset classes described above in Euro/km. Regulators shall provide costs based on recent data for the purposes of an ex ante estimate of year t+1. There shall be no reconciliation of forward looking long run average incremental cost data in relation to year t-1. Regulators shall provide costs taking into account the following methodological guidelines:

(a) The estimate should be based on recent experience of the cost of constructing new transmission line capacity. Regulators should consider investment projects which are reasonably representative of the capacity provided by the chosen asset type elsewhere on the network. If no such representative projects have been undertaken recently, regulators shall exercise their discretion to estimate the construction costs (for example, with reference to costs in another international system or systems which are likely to have similar cost characteristics);

(b) installation, testing and commissioning expenditure should be taken into account when costs are estimated;

(c) in addition to the capital cost, the annual operating cost of the asset shall be calculated as 2% of the Gross Asset Value of the asset.

(d) only direct costs of transmission network and substations should be taken into account when incremental costs are estimated and there should be no allocation of joint and common costs to the incremental costs (e.g. project management overhead across a number of investment projects, corporate centre costs etc.);

(e) The investment cost of a line shall be divided by the total length to derive a cost per km. The investment cost of a transformer shall be divided by the total capacity in MVA to derive a cost per MVA.

(f) Regulators shall derive an annual forward looking average incremental cost by taking the annuity of the total cost estimate over a 40 year period and using a standard nominal rate of interest agreed by regulators.

2.8 In deriving the cost estimates referred to in paragraph 2.6, regulators shall exercise their discretion to estimate incremental costs which are genuinely representative of the network of the relevant participating entity as a whole. Regulators shall be transparent and share their methodology and outputs, in particular explaining their choices of representative projects.

2.9 Regulators shall estimate the annual forward looking incremental costs of assets in classes A, B, D and E by applying the weighting factors referred to in paragraph 2.5(d) to the cost estimated according to paragraph 2.6. These values shall be defined as LRAIC A, B, D and E and applied to calculate the total cost of the grid required in Annex A.

Comment [how29]: All costs used for LRAIC should be baesed on auditable data and base don actual experienced investments. The guidelines should describe a standard method for providing the referred estimates.

Comment [how30]: We fail to see the meaning of this statement.

Comment [how31]: Procurement of network assets are done from an international market. Standard cost should therefore be elaborated. Gold plated system should not be allowed to set the baseline for costs and later transit compesation.

Comment [how32]: An annual operating cost of assets of 2% of the gross asset value seems rather high. In Norway 1.3 -1.5% is normal for planning purposes. It is worth mentioning that Norway has in many cases extreme environmental conditions with deep fjords, high mountains, extreme weather conditions and production facillaties placed far from consumption. In addition consumption is widely spred in rural aereas.

Comment [how33]: For network assets 35 years is more appropriate. This may not be of significant importance but will depend on the choosen nominal rate of interest. What happens if the regulators cannot agree? In our view the interest rate should not be subject of negotiations between regulators, but should be specifically pointed out in the guidelines or at least the principals for calculating the interest rate.

Comment [how34]: 2.7?

Comment [how35]: of new assets?

Comment [how36]: 2.6

Comment [how37]: 2.7?

Comment [how38]: Total cost of the grid or for new assets?

Cost of transmission losses

2.10 In relation to the cost of transmission losses, regulators shall provide an ex ante estimate of the cost in each year in accordance with one of the following approaches, where approach (a) is to be preferred to approach (b), which is in turn preferred to approach (c):

(a) With reference to the forward price of electricity (for an appropriate volume profile) taken either from a quoted exchange, from a recognised price reporting service or any other market based tendering process for bulk energy (for example, tenders to provide losses);

(b) If a reference price for the jurisdiction in question does not exist or is not believed to be appropriate or reliable, with reference to the forward price of electricity in a neighbouring country (for an appropriate volume profile) taken either from a quoted exchange or from a recognised price reporting service, and taking into account as appropriate transportation costs and any cost (or, if relieving congestion, revenue) in relation to market based congestion management regimes (again, for an appropriate volume profile);

(c) If reference prices for the jurisdiction in question or its neighbours do not exist or are not believed to be appropriate or reliable, with reference to a method which attempts to estimate the forward price of electricity (for an appropriate volume profile), provided that the method is acceptable to regulators.

2.11 In relation to the cost of transmission losses, regulators shall provide an ex post estimate of the cost in each year in accordance with one of the following approaches:

(a) Where the TSO has responsibility for the purchase of losses, with reference to the unit cost in relation to the purchase of losses actually incurred by the TSO;

(b) Where the TSO does not have responsibility for the purchase of losses, in accordance with one of the following approaches, where approach (i) is to be preferred to approach (ii), which is in turn is to be preferred to approach (iii):

(i) If available, with reference to recorded short term prices of electricity (with an appropriate weighting over the year, representing an appropriate volume profile) taken either from a quoted exchange or from a recognised price reporting service;

(ii) Otherwise with reference to recorded short term prices of electricity in a neighbouring jurisdiction (with an appropriate weighting over the year, representing an appropriate volume profile), adjusted in accordance with paragraph [2.10(b)]

(iii) If recorded day ahead prices for the jurisdiction in question or its neighbours do not exist or are not believed to be appropriate or reliable, with reference to a method which attempts to estimate the short term price of electricity (for an appropriate volume profile), provided that the method is acceptable to regulators.

Comment [how39]: They shall use this approach if possible! The regulators can not be given the possibility to choose a more favourable pricing method.

Comment [how40]: What are the criteria for excluding solutions?

Comment [how41]: We do not aprehend the meaning of this?

Comment [how42]: As above!

Comment [how43]: All regulators? If not, which regulators? What happens if they cannot agree?

3. Determination of Receipts and Payments of Compensations

3.1 Annex A describes the methodology used to define the receipts and payments of compensations among the participating entities both for costs of infrastructure and losses. The net payments for each entity shall be defined summing up the net payments for both infrastructure and losses.

3.2 If the methodology described in Annex A leads to the unreasonable payments compared to the national remunerations of the grids the common decision to cap the amount of receipts and payments of compensations after established auditing procedure shall be made by the regulators. This decision shall be notified to the Commission. In the case the common decision is not reached the final decision to cap the amount of receipts and payments of compensations shall be made by the Commission.

Comment [h44]: Which criteria defines unreasonable payments?

Comment [how45]: In our point of view the fund and or payments given by the model should been calculated prior to public hearing followed by detailed examples of how the system is intended to work. The described model raises many unanswered questions and a hifh degree of uncertainty. We therefore strongly recommend that in addition to introducing exits ways within the ITC mechanism, that the total ITC fund is capped at no higher than to days level of the total fund to secure a reasonable system for all parties until the model is scrutinized in more detail.

4. Compensations from Non-Participating Entities

4.1 Non-participating entities shall, when their networks are connected to the networks of participating entities, contribute to the inter TSO compensation mechanism to the extent that physical inflows or outflows are recorded to these participating entities.

4.2 The contribution of these non-participating entities shall be defined according to the methodology defined in Annex A. However, the compensations for these non-participating entities will be zero for each hour of the year.

4.3 Participating entities affected shall recover these amounts from the network users, who have contracts or reservations to import the electricity from (or export the electricity to) the non-participating networks.

Comment [h46]: What happens if these countries do not contribute and the importing countries are dependent on imports?

4.4 Where a specific collective agreement under a private contract or a Treaty measure to include countries outside EEA Member States in the inter TSO compensation mechanism exists between entities in participating and non-participating countries and adheres to the terms of the inter TSO compensation mechanism, the paragraphs 4.1 – 4.3 will not apply.

5. Payment Procedure

The procedure for the calculation and payment shall be:

(1) November year (Y-1): Calculation of indicative compensation to be paid on the basis of flows during the calendar year (Y-2), the methodology set out in Annex A and the unit costs defined according to Section 2 of the Guidelines.

(2) During Year Y: Monthly payments between entities according to the methodology to be notified by the entities to the Commission and regulators.

(3) March-June (Y +1): Calculation of the actual compensation due on the basis of flows during the calendar year (Y) and the methodology set out in Annex A.

(4) End of June (Y+1): The Commission shall approve the compensations in a Commission decision, pursuant to Article 3(3) of the Regulation.

6. Transparency on the mechanism

TSOs should annually release information for the previous year related to the actual cross-border flows, the total cost of the horizontal network (with disaggregated data as to the standard costs and the forward looking long-run average incremental costs), the cost of transmission losses, the total amount of the fund, the redistribution among TSOs and any other relevant information relating to the compensation mechanism.

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7. Revision of the guidelines

Based on the experience gained with the mechanism (notably the methodology described in Annex A and the consideration of forward looking long-run average incremental costs for cost calculation), the guidelines shall be revised no later than two years after entry into force and thereafter every two years.

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8. First Period of Inter TSO Compensation

First period of payments according to these Guidelines shall be 1 January 2007 – 31 December 2007.

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Annex A – DESCRIPTION OF METHODOLOGY

A1 Infrastructure – Cost Allocation

Procedure for calculation

Calculation proceeds in five steps:
(a) Calculation of sensitivity factors
(b) Calculation of reference exchanges between exporting and importing entities
(c) Calculation of compensations due to transits
(d) Calculation of contributions due by exporting and importing entities / contributions due to export and import flows
(e) Calculation of net payments by an entity

Calculation of sensitivity factors

A1.1 Sensitivity factors describing the electrical distance between the ITC entities shall be calculated as follows
(a) Sensitivity factors are defined in MW·km and are defined as the total amount of MW·km induced in the grid elements of entity C caused by an additional flow of 1 MW originating in entity A (distributed pro-rata to the amount of generation at each relevant node in the load flow snapshot of entity A) and ending at entity B (distributed pro-rata to the amount of load at each relevant node in the load flow snapshot entity B). Definition of sensitivity factors shall be made for all possible combinations of entities C, A and B.
(b) Different entities when making calculations shall apply the same load flow algorithm (either DC or AC load flow algorithm).
(c) An appropriate number of snapshots of load flow data sets ("scenarios") from participating entities shall be used for calculating different sensitivity factors representing different system situations. The number of snapshots shall be as representative as possible of seasonal and daily variations within the power system. The snapshots from participating entities are merged to introduce the relevant flow paths between the participating entities.
(d) Sensitivity factors shall be defined to be consistent with the measured net import/export values of year Y.

Comment [how47]: Who defines an appropriate number of snapshots?

Comment [how48]: Exchange is driven by price differences between systems, given by differences in demand due to weather, temperature and markets trends. Production cost due to alterations in precipitation, fuel price, emission cost etc. How are these different major influential aspects considered taken into account when deciding on relevant snap shots?

A1.2 Sensitivity factors shall be computed in different ways depending on the use of these factors:
(a) Absolute sensitivity factors shall be calculated by aggregating all MW·km caused by induced flows in all grid elements regardless of the direction of the induced flow compared to that of the actual flow on the network during the snapshot. These absolute sensitivity factors shall be used to reflect the "electrical" distance between exporting and importing countries and they are taken into account when reference exchanges are calculated.
(b) Net sensitivity factors shall be calculated by aggregating all MW·km caused by induced flows in all grid elements taking into account the direction of the flow. These net sensitivity factors will be used to determine the share of total grid costs to be borne by transit flows, i.e. transit key.

Calculation of reference exchanges between exporting and importing entities

A1.3 Reference exchanges refer to the electricity exchanges between two given entities. Reference exchanges take place between each net exporting entity and net importing entity. They form the basis for the calculation of compensations to be paid by participating entities. These exchanges will identify the entities responsible for transits as those closest to the corresponding transited entities.

A1.4 Reference exchanges Xij for each pair of a net exporting entity i and a net importing entity j shall be defined for each hour such that:

(a) for a net exporting entity i, the sum of the reference exchanges between this entity i and all net importing entities is equal to its net export

$$\sum_j X_{ij} = \textit{Net export of entity } i$$

(b) for a net importing entity j, the sum of the reference exchanges between all net exporting entities and this entity is equal to its net import

$$\sum_i X_{ij} = \textit{Net import of entity } j$$

(c) the reference exchanges Xij meeting requirements in equations in (a) and (b) are determined such as to minimise the use of the transited grids

$$\min \sum_{i,j} X_{i,j} \left(\sum_k \tau_{ij}^k\right)$$

where τ_{ij}^k is the absolute sensitivity factor of entity k for an exchange from entity i to entity j.

A1.5 An examle of the calculation of the reference exchanges is included in Annex C.

Calculation of compensations due to transits

A1.6 Compensations due to entity k is defined by applying a transit key in MWh·km such as (transit key equation)

$$\textit{Transit key}_k = \frac{\textit{MWh} \cdot \textit{km transited through country } k}{\textit{total MWh} \cdot \textit{km through country } k}$$

(a) the total MWh·km through entity k is defined as the total amount of MW·km for actual flows in all grid elements of the entity over all hours of the year using the same snapshots as to calculate the sensitivity factors.

(b) the MWh·km transited through the entity k is defined as the sum of reference exchanges weighted by the net sensitivity factors of entity k, for each hour of the year; here the sensitivity factors shall correspond to the export/import situations used to define the sum of reference exchanges.

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A1.7 The transit key Transit key$_k$ shall be used to calculate the net payments for entity k (compensation equation).

$$\textit{Compensation}_k = \textit{Transit key}_k \cdot \textit{total cost of grid}_k$$

where the total cost of the grid is defined according to Section 2 of the Guidelines.

Calculation of contributions of exporting and importing entities

A1.8 Contribution paid by each entity i shall be based on the reference exchanges Xij defined for each hour of the year for that entity. Contributions are split equally among exporting and importing entities. Each entity i will pay a contribution such as (contribution equation):

$$Contribution_i = \frac{1}{2}\sum_{j,t} X_{ij}^{t}\left(\sum_{k}\tau_{ij}^{k}\frac{total\ cost\ of\ grid_k}{total\ MWh\cdot km_k}\right)+\frac{1}{2}\sum_{h,t} X_{hi}^{t}\left(\sum_{k}\tau_{hi}^{k}\frac{total\ cost\ of\ grid_k}{total\ MWh\cdot km_k}\right)$$

where the first part of contribution is the payment for hours when entity i is exporting and the latter part of contribution is the payment for hours when entity i is importing.

A1.9 Contributions shall be defined for all entities i for each hour of the year.

Direct current (DC) interconnectors

Comment [h49]: We fail to understand the intentions of this regulation and how it is actually intended carried out. The handeling of DC-interconnectors should be clearified.

A1.10 DC interconnectors shall be represented in the calculation as fictive and separate entities at each end of the DC interconnection. The formation of the fictive entities shall be made based on the ownership of the DC interconnector assets.

A1.11 Costs of DC interconnectors shall be separated from the total cost of the grid if DC interconnectors are a part of the regulated network of the entity i when payments for entity i are defined.

A1.12 The methodology to define receipts and payments of compensations for DC interconnector is same as presented in paragraphs A1.1-A1.9. However, when compensations and contributions are calculated the effects of entities residing on the other side of the interconnector shall be appropriately taken into account in line with principles defined in the paragraphs A1.1-A1.9.

Comment [how50]: Which effects are in quesiton?

A1.13 Payments for DC interconnectors that are legally separate entities from TSO and thus not a part of the regulated network shall be defined according to paragraphs A1.1-A1.9 but the compensation for these interconnectors is set to zero. Furthermore, the DC interconnectors having both regulated and unregulated features, i.e. hybrids, shall be treated for the inter TSO compensation so that the compensation of the unregulated part of the interconnection is set to zero.

Comment [how51]: Why?

Calculation of net payments to an entity due to use of infrastructure

A1.14 Net payments for an entity i shall be defined such as

$$Net\ payment_i = contribution_i - compensation_i$$

where the compensation is defined based on the compensation equation (paragraph A1.7) and the contribution is defined based on the contribution equation (paragraph A1.8).

A2 Losses – Cost Allocation

Comment [how52]: Why is ITC calculated differently for losses – seperat modell?

A2.1 The method considers the impact of transits on each participating entity. It is based on a comparison between the network flows for two situations. One is the reference situation (containing actual flows) and the other is a situation after removing transits.

A2.2 Each participating entity shall provide an appropriate number (at least 72) of load flow data sets ("scenarios"), preferably snapshots based on actual network operation. The selection of time stamps of load flow data sets shall be such that they represent one year covering weekdays, weekends, daytime, night time etc. The time stamps shall be identical for all participating entities. Time stamps will be proposed by TSOs and agreed by regulators. The determination of losses shall consider all network elements of asset classes A, B, C, D, E and F (as defined in paragraph 2.5(b) and (c)) that can be identified in the load-flow data sets, including interconnectors ending at so-called X-nodes. The interconnectors shall be modelled such that each interconnecting line is split into two parts which consist of the line lengths to the borders of Member States or respective TSOs. Participating entities and regulators shall agree on a common data format to be used for the load flow data sets (e.g. the UCTE format).

A2.3 The load flow data sets shall be checked for consistency by comparing the interconnector flows between adjacent parties. Flow deviations above a threshold level of five percent of the average of the two flows (so-called excessive deviations) shall be attributed as follows:

Comment [how53]: Why 5 %?

(a) If for a given scenario one participating entity i has excessive deviations on more than one border, but the respective neighbouring entities only have excessive deviations on their borders to i, the excessive deviations shall be attributed exclusively to participating entity i.

(b) In all other cases the excessive deviations shall be attributed by 50 % to each of the two entities connected by the interconnector with the respective deviation if not agreed otherwise among entities involved.

For each scenario, the absolute number of excessive deviations attributed to a participating entity shall be divided by the number of tie lines of that entity in order to determine the percentage of excessive violations. The average percentage of excessive violations over all scenarios attributed to each participating entity shall be made available to all regulators and all participating entities on a yearly basis.

A2.4 Losses shall be determined by a DC load flow algorithm that only considers active power flows. The determination of losses shall consider all network elements identified in the load flow data sets.

A2.5 For the determination of "transits" each participating entity shall compute the flows on interconnectors (including DC links and merchant lines) both in importing and exporting direction for each individual snapshot. The transit is defined as the minimum of imports and exports. Once the total value of transit has been determined, it is distributed among the interconnectors according to the following relations:

A2.6 Each participating entity shall determine the losses PVs per scenario s with a load flow calculation.

A2.7 For each individual scenario s, the losses shall be weighted with the proportion ws of the year the considered snapshot is representative for. The weighting shall be defined by TSOs based on time stamps according to paragraph A2.2 of this Annex.

A2.8 Determination of compensations for losses

(1) With a first load flow calculation for the reference situation (situation containing the actual flows) total active power losses $P_{Vactual}$ induced on all the elements connected to the grid during the snapshot shall be identified.

(2) The determined transit on each interconnector ($Transit_{ic}$) is removed by adjusting the active power balance of each X-node to be found at the end of an interconnector.

(3) After removing transit flows on the interconnectors a second load flow calculation for the situation without transits shall be done. The calculated total active losses for this situation represent the losses caused by domestic network utilisation $P_{Vdomestic}$ on all the elements connected to the grid during the snapshot. The losses caused by transits on the grid are defined as the difference of the total active power losses (with transits) and total active power losses caused by domestic network utilisation (without transits):

$$P_{Vtransit} = P_{Vactual} - P_{Vdomestic}$$

(4) The compensation for losses caused by transits per scenario s is determined as follows:

$$Compensation_s = \left(P_{Vtransit,s} \cdot LossCost\right) \cdot w_s$$

where:

$P_{Vtransit,s}$	losses per scenario s
LossCost	cost of transmission losses determined according to 2.9 and 2.10
W_s	weighting factor describing the annual representativeness of scenario s (scenarios from Annex A, paragraph 2.2)

(5) The total yearly compensation $Compensation_i$ for each participating entity i equals the sum of compensations across all scenarios (compensation for losses):

$$Compensation_i = \sum_{\forall s} Compensation_s$$

A2.9 Contributions due to losses for each entity i shall be distributed equally on those exporting and importing entities.

A2.10 Net payments due to losses for an entity i shall be defined such as

$$Net\ payment\ due\ to\ losses_i = contribution\ \ due\ \ to\ losses_i - compensation\ for\ losses_i$$

where compensation for losses includes cost of losses for an entity i caused by hosting cross border flows and contribution due to losses is defined based on net flows of exporting and importing entities.

A3 Payments due to both Infrastructure and Losses

Total payments by an entity i are given by summing up the payments due to both infrastructure and losses of entity i.

Enclosure 2

ITC threatens efficiency of European electricity markets

The ITC mechanism works against the objective of creating an efficient pan-European power market by distorting both operational and investment incentives for TSOs. It is a common understanding that any flow based tariff will distort incentives, and as the payments from the TSOs will depend directly on flows, TSOs that are net contributors to ITC will have incentives to set available transmission capacity (ATC) artificially low and reconsider developing physical cross-border capacities. This will aggravate a situation where such capacities are set much lower than they should. New cross border projects will be endangered e.g. in Norway new cables to Denmark and the UK may be permanently stopped, and security of supply in a dry year may be at risk due to reduced integration with thermal based energy systems.

The ITC mechanism may lead to a more national focus rather than an increased focus on developing a pan European electricity market.

The ITC mechanism has a very narrow scope and does not provide a fair burden sharing between power consumers in different countries. ITC focuses on a very limited set of data, arbitrarily interpreting them as intentional trade flows between producers and consumers, and asking the two parties to pay for the transit through third countries. Import and export are beneficial for both countries, and should not be regarded as "third party" use of the grid and should therefore not be compensated for. Furthermore, the "transit" countries are not victims in this game; on the contrary, they reap important benefits by being in the middle of the system. They make a profit from participating in the trading, buying at low price on one side of a border and selling at a higher price on the other. These countries are also given the opportunity to use interconnected systems as sources for system services, back-up etc.

The ITC mechanism should be considered removed from the future EU legislation and replaced by an adequate distribution of collected congestion rents.

If, however, an ITC scheme is continued despite its negative effects, it is vital that:

- The total compensation fund is capped and kept as low as possible.
- There is a strong regulation/standardisation of the cost basis and the maximum return on capital for TSOs.
- All income (congestion rent) from cross-border trade is taken in as a part of the financial basis of the fund.
- Payments from the fund are concentrated on capacity development across borders and on key transit routes through countries.

1. Background

The ITC mechanism was introduced in March 2002. The aim was to compensate for transit as the border tariffs were removed. Border tariffs were considered as one of several obstacles in developing an integrated and efficient European electricity market. The first year the mechanism included 9 countries in continental Europe. For 2006 this has increased to 19 countries with a total maximum turnover of 395 M€. Several models for a new mechanism have been studied, with substantial differences in total compensation. A recent study (Consentec and Frontier Economics) indicates that the total compensation can be 5 times as high as the current level.

As the border tariffs have been removed the efficiency of the market has increased. We have a more efficient allocation of cross border capacity via market based congestion management. Efficiency is and will be further improved by development of cross border exchange of balancing and ancillary services. The income from these activities should be passed on to the TSOs customers via grid tariffs. In addition, trade will increase the total welfare by increased consumer- and producer surplus.

Regulation 2003/1228 EC points out the direction of the future ITC mechanism. The Regulation states the need for a compensation mechanism and details of design. The main feature of the mechanism is to secure a compensation for costs incurred as a result of hosting cross border flows. The regulation emphasises fairness, efficiency and transparency. It explicitly requires that in the ITC mechanism, benefits of hosting transits must be taken into account to reduce the compensation received.

2. Is ITC compatible with EU policy for designing the electricity market?

Relevant legislation for the EU electricity market, including the Regulation 2003/1228, is based on economic efficiency. A fundamental result is the “ban” on cross border tariffs (Regulation, Article 4.5). Another is the appraisal of market based congestion management. In the Preliminary report of the Electricity sector Inquiry of 16. February 2006 the Commission emphasised implicit auction as the most efficient method of congestion management. The reason for this is clear: Cross border tariffs and explicit auctions do not ensure economic efficiency neither in a short nor in a long term perspective.

A highly relevant question is whether the proposed ITC mechanism is in line with the overall objective and requirements set out in Directives and Regulations.

2.1. ITC mechanisms distorts incentives for TSOs

Despite the aim of avoiding distorting signals from cross border tariffs, substantial ITC payments will force TSOs to consider options to reduce these payments. Within the existing mechanism TSOs are given incentives to reduce ITC payments by means of reducing the ATC (Available Transfer Capacity), justified as system security. The outcome for the TSO is reduced ITC payments. The consequence for the European market is a deceleration or reversion of market integration,

Significant ITC payments will also distort investment signals for TSOs, as future ITC costs may represent a cost of increasing cross border capacities. This will also contribute to a deceleration or reversion of market integration, as the incentives for new investments to increase cross-border trade are reduced or removed. Such negative incentives are in direct contrast to the headlines in the report from the sector inquiry to increase further market integration.

From an operational and investment point of view, the ITC-proposals could lead to a less efficient use and development of cross border capacities and slow down or halt the process of integrating the markets.

2.2. ITC ignores major benefits of cross border trade

Cross border electricity trade results in benefits. These benefits traditionally materialise as changes in producer and consumer surpluses and eventually scarcity rents collected at congested trading points. Thus even if there were no congestions at all, and Europe in such a hypothetical case faced one single price for electricity at all locations, there would be significant benefits for all countries participating in the trade. The existence of congestions and consequently regional price differences does not change this fundamental fact, but contributes to an extra benefit via congestion rents.

The ITC mechanisms will reallocate these benefits without recognising the initial allocation of costs and benefits. Benefits from trade must be taken into account when the fund for ITC is calculated.

2.3. ITC mechanisms distorts incentives for generation and load

Significant ITC payments will, via TSO-tariffs, provide additional pricing signals to generation and load to already existing market signals, such as geographical differences in market prices and national differences in grid tariffs. Failure to i) maximise the utilisation of all physical available cross border capacity and ii) make optimal capacity expansions, will inevitably lead to less efficient electricity generation, on both a short and a long term horizon. This is why the Regulation focuses on “intensification of trade” and “bans” cross border tariffs. The economic and environmental impacts of such distortions can be substantial.

3. Key features to minimise distortions

To avoid distortions from an ITC mechanism, the compensation must be purely lump sum. This, however, is hardly feasible as a practical long-term solution. Thus, if an ITC scheme is continued, it is vital to minimise the distortions that inevitably will follow such a scheme.

3.1. Compensation should be based on transit only

Cross border physical flows of electricity (import/export) arise from electricity trade between the players in the organised markets. Regular electricity exchange (import/export) between countries/regions can not be regarded as “third party” use of the grid and should therefore not be compensated for.

Only in special cases were structural transit flows exist e.g. Switzerland, or in cases where new interregional capacity is needed to develop a true pan European electricity market, transit compensation schemes could be justified. In such cases potential key transit routes through countries must be verified.

3.2. Regulated/standardised costs should be used as the cost base

The national tariffs are calculated based on regulated costs. This means that a generator feeding electricity into the national grid or a load withdrawing electricity from the grid pay a tariff based on regulated costs. It is not reasonable that flows through one country generate a “charge” based on another cost basis than the one given for national users. Application of such a principle would be clearly discriminatory.

A long term solution should be based on fully standardised costs.

3.3. Congestion rent must be taken into account calculating the cost base

Congestions in an electricity network results in congestion rents. Traders and/or TSOs capture the rent, depending on the type of mechanism employed for allocation of cross border capacities. The size of the rent does not depend on either explicit or implicit auctions. As mentioned above, such congestion rents are one of the benefits of trade.

Article 3(6) of Regulation 2003/1228 explicitly requires that "Benefits that a network incurs as a result of hosting cross-border flows shall be taken into account to reduce the compensation received." The Regulation also states that congestion rents should be used to:

- Reduce national tariffs.
- Invest in transmission lines.
- Counter trade.

Either one of these purposes will only benefit the national users of the grid. If the congestion rent is used for investments in one specific line, the TSO should then not be allowed additional cost coverage through the national tariff. Similarly the TSO should not receive a compensation for transit on the same line. Similar examples could be made for the alternative bullet points mentioned above.

Thus, a solution where congestion rent is not taken into account when the cost base is calculated, leads to discrimination between national and international users of the grid, and fails to consider benefits for transit countries.

3.4. The total fund should be capped and kept low

Simulations of the different models, carried out by ETSO and Consentec, indicate large variations in the total compensation. It is a matter of deep concern when simulations indicate that single countries may pay a net cost to the ITC fund of several hundred million Euros. Such levels of payment give TSOs incentives to restrict cross border flows or initiate other actions to reduce the costs of transit. Such actions may counteract the objective of creating an integrated efficient European market and lead to an increasingly domestic focus for safeguarding national interest.

Large differences in compensation given by the different proposed models clearly demonstrate the uncertainty in choosing a specific model to calculate an accurate and reasonable level of compensations and payments. The lack of transparency regarding domestic grid costs will be a serious concern for new consumers and generators. By capping and keeping the total compensation fund low, the probability and potential impact of making larges mistakes can be reduced.

Page 5: [1] Comment [how8] **Hans Olav Ween** **5/10/2006 1:46:00 PM**

We strongly support this view, not because these incomes are not network infrastructure related, but because they are regarded as a benefit that a network incurs as a result of hosting cross-border flows, ch. 3.1 first paragraph. There is also a descrepancy in connection with articel 2.6 in the propsed guidelines. Article 2.6 should therefore be corrected.