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COMMISSION STAFF WORKING DOCUMENT

SUMMARY OF THE IMPACT ASSESSMENT

Accompanying document to the

Commission Regulation laying down guidelines relating to inter-transmission system operator compensation and a common regulatory approach to transmission charging

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1. PROBLEM DEFINITION

1.1. Background

The value of the wholesale electricity market in Europe is over €150 billion per annum, around 10% in trade across national borders. The annual cost of operating the transmission networks for all EU/EEA countries is €10-11bn. The networks used to transport electricity are natural monopolies governed by strict rules on access and pricing.

1.2. Inter TSO Compensation

The nature of electricity networks means that specific import or export charges result in inefficient use of the network. Nonetheless, non-domestic users who import and export over neighbouring transmission systems should pay a fair proportion of the costs of grid operation. These costs can include: **Internal congestion** as a result of cross border transactions; increased **energy losses** as more electrical energy is lost as heat; cross border flows influence the **design and development of the transmission system**.

For some time there has been agreement that transmission system operators (TSOs) should be responsible for compensating other TSOs for costs resulting from actions of users connected to their system with compensation payments reflected in regulatory approved tariffs. Regulation 1228/2003¹ sets out high level principles for inter TSO compensation (ITC), and provides for the adoption of detailed guidelines. Since the adoption of the Regulation the details have been left to voluntary agreement of stakeholders. The number of participating countries in the voluntary mechanisms is now 35. TSOs have made called for ITC be formalised through binding guidelines. To be effective ITC would have to make provision for other countries such as Switzerland to join on a bilateral basis.

Average household prices were 15.3 cents per kilowatt hour in 2007. ITC is equivalent to less than 1/10 of a cent per kilowatt hour. Although total sums are small, voluntary agreement only after very difficult negotiations for 2008-2009². Such agreements, with multiple veto points, are not sustainable. If ITC payments cease the impacts would include: Network users in countries which host transits would have costs imposed upon them by cross border users; National regulators might not approve developments giving internal market benefits; TSOs and regulators might introduce charges which would act as import, export or transit charges.

1.3. Tariff harmonisation

Tariffs are the charges for local system users for use of the transmission system. Exporters pay only the national network charges applicable to generation in the exporting country. Importers pay only the charge applicable to consumption in the importing country. Network pricing affects the internal market in electricity because production and investment take place where charges are lower. These concerns do not apply to the same extent to charges on load as demand is generally inelastic and less mobile.

¹ Provisions relating to ITC and Tariff harmonisation are in substance unchanged in Regulation (EC) 714/2009 adopted as part of the Third Energy Liberalisation Package.

² The ETSO note is available at :
http://ec.europa.eu/energy/gas_electricity/consultations/doc/2009_02_28_tso_explanatory_note.pdf

In 2005 ERGEG prepared draft guidelines on Transmission Tarification.³ These provide a range of 0 – 0.5 per €/MWh for generation charges for Continental Europe, but permit higher average generation charges in the Nordel system, Ireland and the United Kingdom.

2. ANALYSIS OF SUBSIDIARITY: IS EU ACTION JUSTIFIED ON GROUNDS OF SUBSIDIARITY (NECESSITY AND EU VALUE ADDED)?

2.1. Inter TSO Compensation

ITC considers transmission from a European level. Without a European regulator ITC must either voluntarily agreed (which is extremely difficult) or binding rules developed at a European level. TSOs support the adoption of binding guidelines.

The Regulation (adopted in accordance with Article 95 of the Treaty) requires ITC be put in place. It also provides for the Commission to adopt or amend binding guidelines where appropriate.

2.2. Tariff harmonisation

For tariff harmonisation, a European overview helps ensure that potential benefits (in terms of efficient production or investment) beyond national borders are considered. When the Regulators, who are responsible for approving tariffs in the Member States, developed the draft guidelines, they did so in the expectation that they would be adopted as binding guidelines.

3. OBJECTIVES OF EU INITIATIVE: WHAT ARE THE MAIN POLICY OBJECTIVES?

Liberalisation aims to secure the competitiveness of Europe by delivering *competitive, secure and sustainable* energy markets. The Regulation promotes an intensification of cross border trade in electricity by establishing *transparent and non-discriminatory* charges for network use based on *fair, cost-reflective, transparent and directly applicable* rules.

3.1. Inter-TSO Compensation

The specific objectives for ITC are:

Accurate: accurately reflect the physical flows of electricity derived from cross-border flows; determine accurately those responsible for cross-border flows; allow for a correct treatment of perimeter countries.

Compensatory (reflective of costs *and* benefits): capture both costs and benefits as a result of cross-border flows (including benefits of commercial flows); applicable to losses and use of transmission infrastructure; take account of congestion rents.

Transparent and Stable: stable and respond predictably to changes in data and parameters; capable of specification in a way which creates confidence in the method; transparent and capable of being understood and verified.

³ The full details of this consultation process can be found at: http://www.energy-regulators.eu/portal/page/portal/EER_HOME/EER_CONSULT/CLOSED%20PUBLIC%20CONSULTATIONS/ELECTRICITY/Transmission%20Tarification%20Guidelines/CD

Implementable/ Low administrative burden: practical and as easy to implement in terms of data and methodology; not result in excessive costs for national regulators and TSOs; capable of specification.

3.2. Transmission tariffication

The objective of the Regulation is to achieve a *certain degree* of harmonisation to avoid distortions of trade, to facilitate the efficient utilisation of the interconnected transmission system across Europe and avoid the distortion of investment decisions. However, it is also necessary that Member States be able to implement tariffs which encourage efficient network utilisation.

4. POLICY OPTIONS: WHICH OPTIONS HAVE BEEN CONSIDERED AND WHICH HAVE BEEN ASSESSED IN DETAIL?

4.1. Inter TSO Compensation

Scope of EU action

Option 1 No new action by Commission: This would leave the ITC mechanism to the TSOs to develop and regulators to agree. This "business as usual" option is not supported by stakeholders.

Option 2 Suppression of ITC mechanism through guidelines: Some respondents to the consultation argued that congestion payments for scarce interconnection obviate the need for ITC.

Option 3 Adoption of high level principles in guidelines: Guidelines would set out the principles to be followed in the development of a detailed mechanism - the TSOs and ENTSO-E would develop the methodology.

Option 4 Adoption of guidelines to endorse a detailed mechanism: Detailed guidelines adopted by the Commission.

Option 5 – A regionalised approach: There was no support for a regionalised approach from any respondents to the consultation.

Design of ITC Mechanism

Models for estimating the impact of cross border flow typically fall into one of two types:

Option 1: Simplified import-export model consider only flows of electricity between different control systems, focusing on transfers between individual transmission systems or control areas.

Option 2 Complex power flow models replicate the impact of cross border flows of electricity on the interconnected network in its full complexity.

There are several examples of complex models including the Marginal Participation and Average Participant Models, and the IMICA approach. The *With and Without Transit Model* uses a counter-factual of national networks with transits of electricity removed.

Valuation of infrastructure: Regulatory approved values for that element of the network used for cross border flows can be used for ITC, or, alternatively a standardized approach can be taken removing the impact of different regulatory treatment of costs.

Options warranting detailed consideration

Abolition of ITC could result in countries not receiving compensation for hosting cross border flow, as physical flows of electricity differ from the commercial links. Therefore the option of suppressing ITC should not be considered in detail. In view of the minimal support for a regionalized approach, it is not appropriate to pursue this approach. Import–export models and power flow based models warrant detailed consideration – as does the level at which EU action should take place and the valuation of infrastructure.

4.2. Transmission Tarification

Options available in relation to transmission tarification are: No action; Adopt the 2005 draft ERGEG guidelines; Amend the 2005 draft guidelines by adjusting the range of allowable generation tariffs for using the transmission system, by broadening or narrowing the range of allowable generation charges; Relate transmission tariffs to elasticity of demand (several respondents to the consultation called for load tariffs to be based on Ramsey principles); Establish detailed rules setting out both the how national regulators should carry out the assessment of actual costs which can be recovered from system users.

Ramsey pricing is arguably economically more efficient as consumption decisions better reflect (short run) marginal pricing possible. However, in line with subsidiarity, the Regulation gives significant flexibility in relation to transmission tariffs for load. Therefore only options 1, 2, 3 and 5 warrant detailed consideration.

5. ASSESSMENT OF IMPACTS: THE MAIN ECONOMIC, ENVIRONMENTAL AND SOCIAL IMPACTS OF EACH OPTION

5.1. Inter TSO Compensation

Scope of EU action

The level of EU involvement in specifying ITC rules has minimal effect on costs. Voluntary mechanisms and binding guidelines can be designed to fair treatment of third countries. Non member states, including Switzerland, have been involved in the consultation process and at the Florence forum.

Design of ITC Mechanism

ITC payments are marginal in terms of the end result on electricity bills – less than 0.06% of average retail prices. The choice of option has an even smaller impact. How the options contribute to the wider goals for the internal market is a function of the extent they meet the overall objectives for ITC. The design of the ITC mechanism does not have a particular social or environmental impact.

5.2. Transmission tariffication

Regulators generally set transmission tariffs within the bounds of the 2005 draft guidelines developed by ERGEG, with many removing such charges. However, binding guidelines give a legal framework which increases market confidence and certainty.

Reducing allowed average generator transmission charges should ensure that all generators on an equivalent basis. Such a change should have no effect on relative prices within a particular system as generators adjust prices to reflect the charge. However in the short run there could be a windfall gain for generators at the costs of customers. Negative pricing to retain locational signals could lead to difficulties in implementation.

Harmonising the methodology for the calculation of tariffs should ensure that all generators are treated equivalently. However EU level rules could undermine the ability of regulators to take local circumstances into account – including environmental considerations – without any particular advantage compared to a "results based" approach.

6. COMPARISON OF OPTIONS: WHAT IS THE PREFERRED OPTION ON THE BASIS OF WHICH CRITERIA/ JUSTIFICATION?

6.1. Inter TSO Compensation

6.1.1. Scope of EU action

Voluntary processes are becoming unmanageable, and all major stakeholders consider binding guidelines on the ITC mechanism, and on transmission tariffication, will support completing the internal energy market. Stakeholders have asked the Commission to develop binding Guidelines as an "honest broker" without a direct stake in the final rules.

6.1.2. Design of ITC Mechanism

The coherence of each of the options is directly related to its effectiveness at achieving its objectives. The assessment of the effectiveness of the various models was informed by expert advice from consultants and the experiences of ERGEG and ETSO and the consultation with stakeholders at the Florence forum and in the public consultation process.

Accuracy Experience with power flow based model shows actual results are highly volatile and often counter-intuitive. There is little confidence that they provide the promised accuracy. This is less of an issue with a single counter-factual, as in the *With and Without Transit Model*. Import export models of transits give a good overall view of the amount of transits. This offsets such models shortcomings of in how cross border flows originated.

Transparency and Stability This is difficult with complex power flow based models. Confidence is required not only in the model but also in large amounts of underlying data which is difficult to verify.

Simplified import-export models are much easier to understand and have limited inputs. Stakeholders find it relatively simple to verify the results of the model.

Compensatory If accurate, power flow models identify the costs and benefits cross border power flows. It is also possible to identify injections and withdrawals of power which cause cross border flows.

This approach is similar to the approach adopted by national regulators when assessing total revenues for TSOs.

Implementable /Low Administrative burden Additional data collection costs for either option should not be significant. The detailed design phase of a complex power flow model would be time-consuming and require significant testing.

Experience with the IMICA model shows that important problems can present themselves during the application of complex models. Simplified import-export models are easy to implement and apply. The additional resources required by TSOs or national regulators required to oversee a simple export system would be minimal.

Summary ITC Mechanism

	<i>Accuracy</i>	<i>Transparency</i>	<i>Compensatory</i>	<i>Implementable /Low Administrative burden</i>
Import Export	Medium	High	Medium	Medium-High
Complex Power-flow	Low – uncertain and sensitive to assumptions	Low	High	Medium
	(Higher when simplified counterfactual used)	(Higher when simplified counterfactual used)		

Valuation of infrastructure

A standardised costing approach acts as a form of incentive regulation for TSOs and national regulators and avoids the need to harmonise the calculation of the costs of the transmission network across member states. Basing compensation for the use of infrastructure on regulatory approved values should mean that domestic tariffs and ITC compensation payments are consistent. Currently the definition of transmission varies between member states. Moreover, not all transmission lines are used for cross-border flows.

Treatment of lines with dedicated funding

Some transmission lines are not financed through general tariffs. Compensating TSOs for the costs of making such infrastructure available to cross border trade could amount to double payment.

Conclusions Inter TSO Compensation

For infrastructure a simple import export model is to be preferred, with a fund to compensate all TSOs for the infrastructure costs associated with cross border flows. This should be based on a technical assessment of long run average incremental cost. *With and Without Transit* should be to assess losses.

6.2. Transmission tariffication

Focusing on the methodology underlying the calculation of tariffs could ensure that generators were treated equivalently, but only by preventing regulators taking account of local circumstances and undermining subsidiarity.

There is no significant evidence in favour of adopting a different range of charges to the 2005 draft guidelines. It is therefore not appropriate to make significant changes. The consultation process indicated support for formally adopting the 2005 draft guidelines.

Conclusion Adopting the 2005 draft guidelines would serve to increase legal certainty for market participants increasing the coherence of the rules in the internal market without undermining existing current regimes.

7. MONITORING AND EVALUATION: WHAT ARE THE ARRANGEMENTS TO ESTABLISH THE ACTUAL COSTS AND BENEFITS AND THE ACHIEVEMENT OF THE DESIRED EFFECTS?

The effectiveness of the new arrangements in meeting the objectives of the regulation should be subject to review by the Agency for the Co-operation of Energy Regulators to be established under the forthcoming Agency Regulation.