Publishing date: 05/11/2015

Document title: ITC Monitoring Report 2015

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Agency for the Cooperation of Energy Regulators

Report to the European Commission on the implementation of the ITC mechanism in 2014

November 2015

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Table of Contents

1 **Introduction** 4

2 **Process of review** 5

3 **Review of the 2014 ITC implementation** 6

3.1 General alignment between the 2014 ITC implementation and the Regulation 6

3.2 Reduction of transits 6

3.3 Compensation for transmission losses 7

3.4 Criteria for valuing losses 8

3.5 Values of Losses 9

3.6 Compensation for cross-border infrastructure 10

3.7 Contributions to the ITC fund 10

3.8 Accuracy of data 11

4 **Concluding remarks** 11

Annex – Tables and Figures 11

Table 1 Reduction in Transits 11

Table 2 Derivation of compensation for transmission losses 12

Table 3 Derivation of compensation for cross-border infrastructure 14

Table 4 Derivation of contributions to the ITC fund 15

Table 5 Overview of compensation and contribution to the ITC Fund 16

Table 6 Summary of criteria for valuing losses at national level (2011-2014) 17

Table 7 Losses' values used in ITC mechanism and actual Losses' values for years 2013 and 2014 (€/MWh) 19

Table 8 Website links of the relevant documents for losses valuation 20

Fig.1A The evolution of the losses' values per year and country (€/MWh) 21

Fig 1B The evolution of the losses' values per year and country (€/MWh) 22

1 Introduction

Pursuant to point 1.4 of Annex Part A of Commission Regulation (EU) No 838/2010 on laying down guidelines relating to the inter-transmission system operator compensation mechanism and a common regulatory approach to transmission charging[1] (the "Regulation"), the Agency for the Cooperation of Energy Regulators (the "Agency") is responsible, since 2012, for preparing a yearly monitoring report on the implementation of the Inter-Transmission System Operator Compensation ("ITC") mechanism and the management of the ITC fund. The data and information used for compiling this fourth Report[2] have been collected and provided by the European Network of Transmission System Operators for Electricity ("ENTSO-E") and by the National Regulatory Authorities ("NRAs") of the Member States participating in the ITC mechanism.

The ITC scheme, defined by the Regulation, was implemented on 3 March 2011. Under the Regulation, the ITC fund was established by the ENTSO-E for the purpose of compensating transmission system operators ("TSOs") for the costs incurred on national transmission systems due to the hosting of cross-border flows of electricity ("transits"). The ITC fund consists of two parts, which are aimed at covering, respectively, the costs of the incurred transmission losses and the costs of making infrastructure available. TSOs participating in the ITC mechanism ("ITC Parties") receive compensation from the ITC fund based on the transits they carry, and contribute to the ITC fund based on their net import and export flows. Non-participating countries connected to the ITC Parties ("Perimeter countries"[3]) pay a transmission system use fee for their scheduled imports from and scheduled exports to the ITC Parties' networks.

The implementation of the provisions of the Regulation regarding the ITC mechanism and the management of the ITC fund is carried out by ENTSO-E through the legal framework of the ITC clearing and settlement multi-year agreement (ITC agreement) concluded between 34 ITC Parties[4] on 9 February 2011.

This Report covers the same domain as in previous years - compliance of the implementation of the ITC mechanism with the Regulation; however it expands to the valuation of losses and the impact of factors other than transits on the losses incurred on national transmission systems as a result of hosting cross-border flows of electricity.

The Report is structured as follows:

- Chapter 2 summarises the Agency's review process;

[1] OJ L 250, 24.9.2010, p.5

[2] The previous ACER ITC Monitoring Reports are the following: ITC monitoring Report 2011, http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ITC%20monitoring%20report%202011.pdf;
ITC Monitoring Report 2012, http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ITC%20Monitoring%20Report%202012.pdf.
ITC monitoring Report 2013 http://www.acer.europa.eu/Official_documents/Acts_of_the_Agency/Publication/ITC%20Monitoring%20Report%202013.pdf

[3] Belarus, Moldova, Morocco, Russian Federation, Turkey and Ukraine

[4] All Member States including Northern Ireland except Cyprus and Malta and the following third countries: Albania, Bosnia and Herzegovina, FYR of Macedonia, Montenegro, Serbia, Norway and Switzerland

- Chapter 3 presents the Agency's findings with regard to the general alignment of the implementation of the ITC mechanism in 2015 with the Regulation and with regard to specific aspects;

- Chapter 4 provides the Agency's concluding remarks on the implementation of the ITC mechanism in 2014; and

- The Annex contains tables of relevant data and data sources regarding the valuation of losses.

2 Process of review

The Agency reviewed the implementation of the ITC mechanism and the management of the ITC fund in 2014 based on:

- The ITC Clearing and Settlement Multi-Year Agreement ("the ITC Agreement");
- Relevant data and information from ENTSO-E in relation to the implementation of the ITC mechanism in 2014;
- NRAs' criteria for the valuation of transmission losses for the purpose of calculating the losses' compensation amount in the ITC mechanism.

ENTSO-E operates the ITC mechanism through the ITC Agreement, which contractually sets out ENTSO-E's and ITC Parties' duties and entitlements. It also sets out detailed ITC procedures, including the submission, audit and validation of data, calculation of compensation and contribution amounts, and the clearing and settlement of the ITC fund.

The ITC settlement lags real time by six months to accommodate data audit and validation steps. The final data relating to the implementation of the ITC mechanism in 2014 was thus submitted by ENTSO-E to the Agency at the end of June 2015. The Agency appreciates the fact that ENTSO-E had also provided some descriptive information[5].

Through the ITC Agreement, ENTSO-E appointed two TSOs (Amprion GmbH and Swissgrid ag) as 'ITC Data Administrators' to manage relevant data and to carry out the clearing and settlement. The ITC Agreement includes yearly and monthly data audits and/or validation procedures involving all ITC Parties.

The Agency regards that such a self-governance arrangement in the operation of the ITC mechanism is an appropriate approach and ought to be sufficient for assuring the accuracy of the operation of the ITC mechanism. The Agency does not consider it necessary for its own review to conduct a detailed audit or validation of all the input and intermediate data used in the operation of the 2014 ITC mechanism. The exception, however, is the value of transmission losses, on which the Regulation requires a specific view from the Agency (as reported in more detail in Section 3.5 below).

[5] ENTSO-E provided explanations or description of the results for:
- the calculation of the perimeter country fee;
- transit reduction and explanations regarding each border where transits are reduced due to the allocation of capacity on interconnections which is not compatible with point 2 of the guidelines of Annex 1 of Regulation 714/2009 (ref. clause 1.6);
- yearly audit process in terms of identified errors and measures taken for their correction; and
- the amendments of the ITC Agreement.

3 Review of the 2014 ITC implementation

In 2014, the ITC fund amounted to €229 million, consisting of €100 million relating to infrastructure and €129 million relating to losses. Of these, €213 million were recovered through contributions from the ITC Parties and the remaining €16 million through the Perimeter countries' fees.

The downward trend of the ITC fund value in 2013 (a 12% decrease compared to 2012) continued also in 2014 with a 7% decrease registered in comparison to 2013 (€245 million) due to the reduction in the losses component of the ITC Fund.

An overview of the compensations drawn from, and contributions made to, the 2014 ITC Fund by the ITC Parties is provided in Table 5 of the Annex. It also shows the contributions from Perimeter countries collected through their directly-connected ITC Parties.

3.1 General alignment between the 2014 ITC implementation and the Regulation

The Agency's review of the relevant parts of the ITC Agreement has been carried out in 2012 and described in the Agency's Report on the implementation of the ITC mechanism for the year 2011. The Agency notes that no major amendments to the ITC Agreement were introduced in 2014[6] and that the general arrangements are still in line with the guidelines set out in the Regulation.

3.2 Reduction of transits

Under the Regulation, the transits of electricity carried by an ITC Party are a key input to the determination of the compensation amount the ITC Party is entitled to receive from the ITC fund (see more details in Sections 3.3 and 3.6 of this Report). Point 1.6 of Annex Part A of the Regulation requires that, for the purpose of calculating transits, the amount of imports and exports at each interconnection between the ITC Parties is reduced in proportion to the share of capacity allocated in a manner which is not compatible with Point 2 of the Guidelines on congestion management set out in Annex I of Regulation (EC) No 714/2009[7].

The Agency notes that ENTSO-E took the following steps in line with the definition in the Regulation related to transits reduction:

[6] Amendments in the ITC Agreement were made for:

- Schedule O (*Ex-Ante* Financial Spreadsheet), Schedule P (ENTSO-E convention on Business Day), Schedule S (Contact details), Schedule T (List of yearly Vertical Loads), Schedule U (List of lines and measurement points) and Schedule X (Table of losses costs) updated on yearly basis;
- Technical amendments taken pursuant to Article 7.4.2 of the ITC Agreement and adopted by means of a written notice of the Data Administrators.

[7] OJ L 211, 14.8.2009, p.15, Regulation (EC) No 714/2009 of the European Parliament and of the Council on conditions for access to the network for cross-border exchanges in electricity and repealing Regulation (EC) No 1228/2003. Point 2.1 of Annex I of Regulation (EC) No 714/2009 stipulates that "capacity shall be allocated only by means of explicit (capacity) or implicit (capacity and energy) auctions".

- The affected ITC Parties indicated, for each border concerned, the overall exports and imports, as well as the schedules allocated in a manner which is not compatible with point 2 of the Guidelines on congestion management set out in Annex I of Regulation (EC) No 714/2009;
- The ITC Data Administrators translated this information into the amount by which the relevant transit needs to be reduced; and
- The reduced transit represented the basis for calculating the compensation amounts relating to both the infrastructure and the losses parts of the ITC fund.

Table 1 in the Annex provides a summary of the transits through each ITC Party's network before and after such reductions. The four concerned borders[8] and the four ITC Parties affected by the reduced transit in 2014 were the same as in the previous year, as described in the Agency ITC Report on the implementation of the ITC mechanism in 2013. The amount of transits after reduction have increased by 5% in 2014 (227 TWh) compared to 2013 (217 TWh). The amount of the reduction (6.5 TWh) remained at approximately 3% of the transits before reduction.

3.3 Compensation for transmission losses

Point 4 of Annex Part A of the Regulation defines the key steps for calculating the amount of compensation to be received by an ITC Party for transmission losses incurred by carrying cross-border flows of electricity. These are summarised below:

a) The physical amount of the relevant losses must be calculated by ENTSO-E based on the difference between actual losses with the transit and estimated losses without the transit on the ITC Party's network; and
b) The value of the losses incurred by a national system as a result of the cross-border flows of electricity shall be calculated on the same basis as those approved by the respective NRA in respect of all losses on the national transmission system. Where the relevant NRA has not approved the basis for the calculation of losses, ENTSO-E is required to estimate the value of losses for the purpose of the ITC mechanism.

ENTSO-E sets out the detailed method for the calculation of the level of losses in the ITC Agreement. Based on the review of the ITC Agreement and the dataset submitted by ENTSO-E, the Agency notes that this aspect of the implementation of the ITC mechanism is in line with the definition in the Regulation.

Table 2 in the Annex provides a summary of the volume of the annual transmission losses in the ITC Parties' networks due to the carrying of cross-border transits, the values of losses adopted by them, and the compensation received from the ITC fund in 2014.

The Regulation requires ENTSO-E to publish the calculation of the amount of losses and its method. The Agency acknowledges that ENTSO-E published the calculation method and the results for 2014[9].

[8] The four borders affected by transit reduction are: Switzerland–>Germany, Germany–>Switzerland, Switzerland –>Italy and France–>Switzerland.

[9] https://www.entsoe.eu/Documents/MC%20documents/ITC_Transit_Losses_Data/150828_ITC_Transit_Losses_Data_Report%202014.pdf

The losses component of the ITC fund in 2014 decreased by 11% compared to 2013, primarily due to the drop in the volume (by 4%) and in the value of losses. The increase in transits by 5% and the counter-intuitive decrease in the volume of losses by 4% could, according to ENTSO-E, be explained by the non-linearity of losses, the structure of national grids and the lack of representativeness of snapshots / the number of monthly snapshots.

3.4 Criteria for valuing losses

The Agency collected the criteria for valuing losses from NRAs of all EU Members States acting as the EU ITC Parties. The Agency verified the criteria taking into account the Regulation's requirement that losses are valued (for the purposes of the ITC mechanism) in a fair and non-discriminatory way.

The Agency notes that when calculating the value of losses for the 2014 ITC mechanism, each individual EU ITC Party applied the same criteria for valuing the losses used at national level in a non-discriminatory manner.

The Agency found that the Energy Market Authority in Finland does not approve the basis for the calculation of losses because, according to the Finnish electricity market legislation, it has no power to approve *ex-ante* any methodology for network operators to calculate/evaluate network losses. The Energy Market Authority is only able to supervise calculation methods and costs of losses *ex-post*. For the purpose of the ITC mechanism, the Finnish TSO consequently estimates the value of losses based on the power-exchange prices. Further, in Denmark, the NRA approved the forecasted value of losses in 2014 whereas the criteria for the valuation of losses are not approved by DERA. In case of Luxemburg, the criteria for valuing losses are already set in the amended law on the organisation of the electricity market.

The Agency notes that two main criteria (or combinations) for assigning value to losses can be identified:

- Power-exchange (PX) prices and pool prices;
- Auctions.

12 NRAs apply criteria based on PX prices and pool prices, 5 NRAs perform auctions/tenders on yearly or quarterly basis. Furthermore, 6 NRAs use a combination of PX prices and auctions or PX prices and bilateral contracts. One NRA (France) uses an approach[10] based on a combination of PX prices and regulated prices, whilst one other NRA (Bulgaria) uses a different approach based on regulated weighted generator prices.

In 2014, 3 countries (France, Germany and Croatia) reported a change in the criteria related to the valuation of losses. As a result, the Agency notes that in 2014 and compared to 2013, in France and Croatia, the value of losses decreased by 26% and 18% respectively.

A summary of the criteria for valuing losses over the years 2011-2014 is shown per country in Table 6 in the Annex. The website links to the relevant national documents for losses valuation are shown in Table 8 in the Annex.

[10] Derived from the methodology used to estimate the value of losses for calculation of the network tariffs

3.5 Values of Losses

17 NRAs out of 25 approved the value of losses for the 2014 ITC mechanism.

The variation of energy prices for different products in different markets and from auctions and bilateral contracts resulted in a range of values of losses for the EU ITC Parties (from 41.3 €/MWh in Denmark to 65.00 €/MWh in Greece), with an average, weighted by the volumes of losses, of 46.29 €/MWh.

The Agency observed that a vast majority of countries (19 out of 26) provided at the beginning of 2014 a higher value of losses for 2014 than the actual value[11] registered at the end of the respective year. Almost half of the values of losses used in the ITC mechanism are at least by 10% higher than to the actual values registered in at the end of 2014[12]. Only one country reported a value of losses which was by approximately 10% lower than to the actual value in 2014.

In this respect, the Agency notes that had the actual value of losses been used, this would have led to a noticeable decrease in the compensation for losses (i.e. by 8% or €7.4 million in 2014 and by 6% or €8.8 million in 2013). The Agency strongly encourages the ITC Parties to strive towards improving their estimates of the value of losses.

The value of losses estimated in the ITC mechanism and the actual values of losses registered in 2013 and 2014 for the EU-countries are shown in Table 7 in the Annex.

The Agency also reviewed ENTSO-E's approach for setting the relevant values for the ITC Parties from third countries. ENTSO-E used the losses values received in the annual ITC data submission.

The Agency notes that in 2014, the weighted average value of losses of ITC Parties from third countries was 50.55 €/MWh, which was 8% higher than the weighted average value for the EU ITC Parties (46.29 €/MWh).

A significant decrease of 14% in the weighted average value of losses for EU ITC Parties and of 17% for the third countries were registered in 2014 compared to the previous year. The absolute average value decreased by 14% compared to the year before, representing the lowest figure registered in the last four years[13].

The Agency notes that Albania's value of 7.00 €/MWh is an outlier with respect to the values provided by other ITC Parties. Given that Albania received a negative losses compensation from the ITC fund, a change from the value of its current losses to the weighted average value of losses of the ITC Parties would have increased the amount of its negative

[11] The actual value of losses registered for a year is calculated at the end of the year by dividing the total amount paid for the acquisition of the electricity necessary to cover the network losses by the volume of losses registered in the respective year.
[12] A similar trend was observed in 2013.
[13] The evolution of losses values per EU-country over the years 2011-2014 is illustrated in Fig.1A and Fig.1B in the Annex.

compensation (which is effectively a payment into the ITC fund) from €0.003 million to €0.023 million.

3.6 Compensation for cross-border infrastructure

Point 5 of Annex Part A of the Regulation defines the key parameters for calculating the amount of compensation that an ITC Party should receive for the provision of infrastructure to carry cross-border flows of electricity. These are summarised below:

a) The annual cross-border infrastructure sum is set at €100 million until determined otherwise by the European Commission; and
b) The Transit Factor and Load Factor are used to apportion the above sum to each ITC Party. Transit Factor refers to the amount of transits carried by an ITC Party as a proportion of the total transits carried by all ITC Parties. Load Factor refers to the relative amount of transits measured by the square of transits divided by the level of the Load plus transits in proportion to the relative amount of transits for all ITC Parties. In apportioning the infrastructure compensation amount for an ITC Party, the Transit Factor has a weighting of 75% and the Load Factor of 25%.

Based on the review of the ITC Agreement and the final dataset submitted by ENTSO-E, the Agency notes that the compensation amounts relating to the provision of cross-border infrastructure were derived according to the above requirements.

Table 3 in the Annex provides a summary of the annual amount each ITC Party received in 2014 from the two components based on their Transit Factors and Load Factors.

3.7 Contributions to the ITC fund

Point 6 of Annex Part A of the Regulation sets out that each ITC Party shall contribute to the ITC fund based on its share of the total absolute amount of Net Imports and Net Exports of all ITC Parties.

Point 7 of Annex Part A of the Regulation sets out that an ITC Party shall levy a transmission system use fee on all scheduled imports and exports between its national transmission system and that of a Perimeter country. ENTSO-E is required to calculate this Perimeter countries' fee each year in advance based on projected flows for the relevant year.

Based on the review of the ITC Agreement and the final dataset submitted by ENTSO-E, the Agency notes that the ITC Parties' contribution amounts were derived at according to the requirements of points 6 and 7 of Annex Part A of the Regulation. The relevant ITC Parties also collected contributions from Perimeter countries with which they have direct connections. ENTSO-E's calculation of the Perimeter countries' fee was based on the equivalent losses and infrastructure compensation for historical flows of the previous year. According to ENTSO-E, this is the best possible projection for flows in the subsequent year. The Agency notes that the perimeter fee had the same value of 0.7 €/MWh in 2014 as in 2013, and encountered a decrease of 12% in comparison to the years 2012 and 2011 due - in particular - to the increase in the import and export flows.

Table 4 in the Annex provides a summary of the annual Net Import, Net Export and the contribution amount each ITC Party paid into the ITC fund in 2014, including the contribution it made on behalf of Perimeter countries it had a direct connection with.

3.8 Accuracy of data

ENTSO-E carried out a distinct monthly internal audit on the 2014 data submitted by the ITC Parties for the monthly preliminary settlement, which eliminated the need for further corrections of the monthly results at the time of the final settlement.

4 Concluding remarks

In 2014, the ITC fund amounted to €229 million, consisting of €100 million relating to infrastructure and €129 million relating to losses.

The Agency notes that the implementation of the ITC mechanism and the management of the ITC fund in 2014 continued to be in line with the requirements set out in the Regulation.

With regard to the specific requirements of Annex Part A of the Regulation, the Agency concludes the following:

- Point 1 (Reduction of transit due to capacity allocation which is not compatible with point 2 of the congestion management guidelines set out in Annex I of Regulation (EC) No 714/2009). There were four relevant borders, involving four ITC Parties, whose transits have been reduced and compensation amounts adjusted accordingly.

- Point 4 (Fair and non-discriminatory criteria for the valuation of transmission losses). All EU ITC Parties determined the value for losses according to the criteria approved by the respective regulatory authority with the exception of Finland. The value of losses for Finland was estimated by the Finnish TSO. 23 NRAs out of 25 adopted market-based criteria for the valuation of losses. All the ITC Parties valuated the losses based on non-discriminatory criteria.

- Point 7 (*Ex-ante* calculation of Perimeter country fee based on projected flows for the relevant year). ENTSO-E's calculation was based on the levels of the previous year, which ENTSO-E regards as the best possible projection for flows in the subsequent year.

Annex – Tables and Figures

Please note that while the actual ITC settlement is in Euro cents, the tables below present all monetary values in millions of Euros rounded to three decimal places.

Table 1 Reduction in Transits

ITC Party	Transit before adjustment (MWh)	Reduction due to non-auctioned interconnection capacity (MWh)	Transit after reduction (MWh)
Albania / AL	288,483	0	288,483
Austria / AT	15,905,493	0	15,905,493
Belgium / BE	3,880,388	0	3,880,388
Bosnia Herzegovina / BA	3,132,715	0	3,132,715
Bulgaria / BG	4,319,338	0	4,319,338
Croatia / HR	6,127,033	0	6,127,033
Czech Republic / CZ	11,140,869	0	11,140,869
Denmark / DK	7,190,085	0	7,190,085
Estonia / EE	3,751,475	0	3,751,475
Finland / FI	3,858,211	0	3,858,211
France / FR	7,175,991	22,891	7,153,100
Germany / DE	33,486,532	5,728	33,480,805
Great Britain / GB	3,700,353	0	3,700,353
Greece / GR	641,717	0	641,717
Hungary / HU	5,688,616	0	5,688,616
Ireland / IE	484,900	0	484,900
Italy / IT	2,303,244	11,780	2,291,464
Latvia / LV	2,946,565	0	2,946,565
Lithuania / LT	898,394	0	898,394
Luxembourg/LU	27	0	27
FYR of Macedonia / MK	2,635,804	0	2,635,804
Montenegro / ME	3,238,842	0	3,238,842
Netherlands / NL	17,845,615	0	17,845,615
Northern Ireland / NI	216,083	0	216,083
Norway / NO	3,775,604	0	3,775,604
Poland / PL	10,197,856	0	10,197,856
Portugal / PT	3,174,806	0	3,174,806
Romania / RO	1,337,737	0	1,337,737
Serbia / RS	4,211,725	0	4,211,725
Slovakia / SK	11,038,230	0	11,038,230
Slovenia / SI	7,170,821	0	7,170,821
Spain / ES	10,430,979	0	10,430,979
Sweden / SE	15,879,599	0	15,879,599
Switzerland / CH	25,010,874	6,427,181	18,583,694
TOTAL	**233,085,005**	**6,467,579**	**226,617,426**

Table 2 Derivation of compensation for transmission losses

ITC Party	Impact of Transit on losses volume (MWh)	Value of losses for ITC (€/MWh)	Compensation (€ million)
Albania / AL	-448	7.00	-0.003
Austria / AT	106,035	47.96	5.085
Belgium / BE	34,579	61.34	2.121
Bosnia Herzegovina / BA	23,281	46.63	1.086
Bulgaria / BG	54,421	51.35	2.795
Croatia / HR	40,541	51.80	2.100
Czech Republic / CZ	114,536	42.41	4.857
Denmark / DK	298,152	41.30	12.314
Estonia / EE	92,458	44.04	4.072
Finland / FI	161,717	48.58	7.856
France / FR	95,701	51.44	4.923
Germany / DE	259,874	44.79	11.640
Great Britain / GB	-56,966	61.69	-3.514
Greece / GR	10,053	65.00	0.653
Hungary / HU	27,641	43.14	1.192
Ireland / IE	4,649	64.53	0.300
Italy / IT	-694	62.40	-0.043
Latvia / LV	48,161	47.00	2.264
Lithuania / LT	2,056	55.00	0.113
Luxembourg/LU	0	42.32	0.000
FYR of Macedonia / MK	13,398	60.00	0.804
Montenegro / ME	15,582	49.59	0.773
Netherlands / NL	98,236	49.20	4.833
Northern Ireland / NI	1,456	64.53	0.094
Norway / NO	90,055	37.29	3.358
Poland / PL	198,949	41.40	8.236
Portugal / PT	47,506	53.50	2.542
Romania / RO	-16,070	45.84	-0.737
Serbia / RS	55,881	45.27	2.530
Slovakia / SK	58,463	55.77	3.260
Slovenia / SI	41,793	55.73	2.329
Spain / ES	80,282	43.02	3.454
Sweden / SE	511,917	44.30	22.678
Switzerland / CH	261,295	56.25	14.698
TOTAL	**2,774,492**	**N/A**	**128.663**

Table 3 Derivation of compensation for cross-border infrastructure

ITC Party	Transit (MWh)	Load* (GWh)	Transit Factor based compensation (€million)	Load Factor based compensation (€million)	Total Infrastructure compensation (€million)
Albania / AL	288,483	7,173	0.095	0.006	0.102
Austria / AT	15,905,493	26,515	5.264	3.445	8.709
Belgium / BE	3,880,388	71,243	1.284	0.116	1.400
Bosnia Herzegovina / BA	3,132,715	11,853	1.037	0.378	1.415
Bulgaria / BG	4,319,338	31,314	1.430	0.302	1.732
Croatia / HR	6,127,033	17,056	2.028	0.935	2.963
Czech Republic / CZ	11,140,869	33,957	3.687	1.590	5.277
Denmark / DK	7,190,085	21,435	2.380	1.043	3.423
Estonia / EE	3,751,475	7,545	1.242	0.720	1.961
Finland / FI	3,858,211	62,617	1.277	0.129	1.406
France / FR	7,153,100	441,705	2.367	0.066	2.433
Germany / DE	33,480,805	320,118	11.081	1.831	12.912
Great Britain / GB	3,700,353	314,900	1.225	0.025	1.249
Greece / GR	641,717	50,485	0.212	0.005	0.217
Hungary / HU	5,688,616	28,755	1.883	0.543	2.425
Ireland / IE	484,900	25,621	0.160	0.005	0.166
Italy / IT	2,291,464	267,448	0.758	0.011	0.770
Latvia / LV	2,946,565	6,593	0.975	0.526	1.501
Lithuania / LT	898,394	9,359	0.297	0.045	0.343
Luxembourg/LU	27	4,136	0.000	0.000	0.000
FYR of Macedonia / MK	2,635,804	8,358	0.872	0.365	1.237
Montenegro / ME	3,238,842	3,778	1.072	0.863	1.935
Netherlands / NL	17,845,615	61,608	5.906	2.315	8.221
Northern Ireland / NI	216,083	8,927	0.072	0.003	0.074
Norway / NO	3,775,604	93,225	1.250	0.085	1.334
Poland / PL	10,197,856	86,729	3.375	0.620	3.995
Portugal / PT	3,174,806	37,487	1.051	0.143	1.194
Romania / RO	1,337,737	38,293	0.443	0.026	0.469
Serbia / RS	4,211,725	32,945	1.394	0.276	1.670
Slovakia / SK	11,038,230	17,459	3.653	2.470	6.123
Slovenia / SI	7,170,821	12,480	2.373	1.511	3.885
Spain / ES	10,430,979	191,530	3.452	0.311	3.763
Sweden / SE	15,879,599	99,700	5.255	1.260	6.516
Switzerland / CH	18,583,694	47,232	6.150	3.031	9.181
TOTAL	226,617,426	2,499,578	75.000	25.000	100.000

* This is the total amount of electricity which exits the national transmission system to distribution systems and to end consumers directly connected to the transmission system, as well as to electricity producers for their consumption in the generation of electricity.

Table 4 Derivation of contributions to the ITC fund

ITC Party	Net Import (MWh)	Net Export (MWh)	Contribution to infrastructure (€million)		Contribution to losses (€million)	
			Perimeter countries	ITC Party	Perimeter countries	ITC Party
Albania / AL	3,067,542	0	0.000	0.738	0.000	0.968
Austria / AT	12,157,693	1,457,792	0.000	3.275	0.000	4.296
Belgium / BE	16,936,066	121,186	0.000	4.103	0.000	5.382
Bosnia Herzegovina / BA	22,310	2,862,122	0.000	0.694	0.000	0.910
Bulgaria / BG	0	4,153,587	1.107	0.999	1.107	1.311
Croatia / HR	4,769,268	93,143	0.000	1.170	0.000	1.534
Czech Republic / CZ	46,152	16,666,421	0.000	4.020	0.000	5.273
Denmark / DK	5,623,087	2,618,245	0.000	1.982	0.000	2.600
Estonia / EE	14,056	996,182	0.000	0.243	0.000	0.319
Finland / FI	14,746,383	0	1.162	3.547	1.162	4.653
France / FR	19,580	65,503,736	0.000	15.761	0.000	20.674
Germany / DE	2,924,213	39,587,208	0.000	10.226	0.000	13.413
Great Britain / GB	19,795,350	3,506	0.000	4.762	0.000	6.247
Greece / GR	6,919,251	1,129	0.328	1.665	0.328	2.184
Hungary / HU	7,847,664	1,586	1.581	1.888	1.581	2.477
Ireland / IE	2,318,121	198,851	0.000	0.605	0.000	0.794
Italy / IT	44,444,505	85,156	0.000	10.711	0.000	14.050
Latvia / LV	1,307,119	76,630	0.000	0.333	0.000	0.437
Lithuania / LT	2,832,300	0	1.300	0.681	1.300	0.894
Luxembourg/LU	4,152,480	0	0.000	0.999	0.000	1.310
FYR of Macedonia / MK	2,960,046	0	0.000	0.712	0.000	0.934
Montenegro / ME	644,801	399,517	0.000	0.251	0.000	0.330
Netherlands / NL	15,004,343	273,934	0.000	3.675	0.000	4.821
Northern Ireland / NI	1,406,108	91,557	0.000	0.360	0.000	0.473
Norway / NO	2,457,996	17,129,313	0.037	4.712	0.037	6.180
Poland / PL	2,428,115	495,422	0.250	0.703	0.250	0.922
Portugal / PT	4,072,611	3,169,921	0.000	1.742	0.000	2.285
Romania / RO	1,192	7,018,944	0.043	1.689	0.043	2.215
Serbia / RS	3,115,901	817,549	0.000	0.946	0.000	1.241
Slovakia / SK	1,877,060	393,962	0.199	0.546	0.199	0.717
Slovenia / SI	83,271	2,775,080	0.000	0.688	0.000	0.902
Spain / ES	1,878,337	1,977,456	2.042	0.927	2.042	1.217
Sweden / SE	266,912	16,633,985	0.000	4.065	0.000	5.333
Switzerland / CH	3,092,481	7,425,528	0.000	2.530	0.000	3.319
TOTAL	**189,232,314**	**193,028,649**	**100.000**		**128.663**	

Table 5 Overview of compensation and contribution to the ITC Fund

(All figures in € million)	Compensation		Contribution on behalf of Perimeter countries		Contribution ITC Party		Final net position
	losses	infrastructure	losses	infrastructure	losses	infrastructure	
Albania / AL	-0.003	0.102	0.000	0.000	0.968	0.738	-1.607
Austria / AT	5.085	8.709	0.000	0.000	4.296	3.275	6.223
Belgium / BE	2.121	1.400	0.000	0.000	5.382	4.103	-5.964
Bosnia Herzegovina / BA	1.086	1.415	0.000	0.000	0.910	0.694	0.897
Bulgaria / BG	2.795	1.732	1.107	1.107	1.311	0.999	0.002
Croatia / HR	2.100	2.963	0.000	0.000	1.534	1.170	2.359
Czech Republic / CZ	4.857	5.277	0.000	0.000	5.273	4.020	0.841
Denmark / DK	12.314	3.423	0.000	0.000	2.600	1.982	11.154
Estonia / EE	4.072	1.961	0.000	0.000	0.319	0.243	5.471
Finland / FI	7.856	1.406	1.162	1.162	4.653	3.547	-1.262
France / FR	4.923	2.433	0.000	0.000	20.674	15.761	-29.079
Germany / DE	11.640	12.912	0.000	0.000	13.413	10.226	0.912
Great Britain / GB	-3.514	1.249	0.000	0.000	6.247	4.762	-13.274
Greece / GR	0.653	0.217	0.328	0.328	2.184	1.665	-3.634
Hungary / HU	1.192	2.425	1.581	1.581	2.477	1.888	-3.910
Ireland / IE	0.300	0.166	0.000	0.000	0.794	0.605	-0.934
Italy / IT	-0.043	0.770	0.000	0.000	14.050	10.711	-24.035
Latvia / LV	2.264	1.501	0.000	0.000	0.437	0.333	2.995
Lithuania / LT	0.113	0.343	1.300	1.300	0.894	0.681	-3.719
Luxembourg/LU	0.000	0.000	0.000	0.000	1.310	0.999	-2.309
FYR of Macedonia / MK	0.804	1.237	0.000	0.000	0.934	0.712	0.395
Montenegro / ME	0.773	1.935	0.000	0.000	0.330	0.251	2.127
Netherlands / NL	4.833	8.221	0.000	0.000	4.821	3.675	4.559
Northern Ireland / NI	0.094	0.074	0.000	0.000	0.473	0.360	-0.664
Norway / NO	3.358	1.334	0.037	0.037	6.180	4.712	-6.274
Poland / PL	8.236	3.995	0.250	0.250	0.922	0.703	10.106
Portugal / PT	2.542	1.194	0.000	0.000	2.285	1.742	-0.292
Romania / RO	-0.737	0.469	0.043	0.043	2.215	1.689	-4.257
Serbia / RS	2.530	1.670	0.000	0.000	1.241	0.946	2.012
Slovakia / SK	3.260	6.123	0.199	0.199	0.717	0.546	7.722
Slovenia / SI	2.329	3.885	0.000	0.000	0.902	0.688	4.624
Spain / ES	3.454	3.763	2.042	2.042	1.217	0.927	0.989
Sweden / SE	22.678	6.516	0.000	0.000	5.333	4.065	19.795
Switzerland / CH	14.698	9.181	0.000	0.000	3.319	2.530	18.030
TOTAL	**128.66**	**100.000**	**8.05**	**8.05**	**120.61**	**91.95**	**0.000**

Table 6 Summary of criteria for valuing losses at national level (2011-2014)

Country	2011-2012	2013	2014
AT	The TSO buys upfront products through auctions (from 2 years in advance to day-ahead) according to the predicted required quantities in a regular process (weekly products). The average price of these procurements becomes the value of losses.		
BE	Losses' values calculated based on average price of yearly tenders.		
BG	Generators' weighted average price.		
CZ	Bi-annual tenders	Losses are calculated based on electricity purchased through electronic auctions, (annual, quarterly, monthly, day ahead or intraday basis) on the balancing market, and from market data of the futures products (Power Exchange Central Europe aka PXE), which are not traded yet or need to still be predicted (typically the 4th quarter and monthly products).	
DE	Average base-load prices		Losses are calculated based on yearly tenders and Day-ahead market prices.
DK	Losses values are calculated based on a weighted average of Nasdaq Commodities OMX forward prices plus price of the EPAD contracts (electricity price area differentials) and balancing costs. The calculation uses a 60% weight for the price in DK1 and a 40% weight for the price in the DK2 price area 2.		
EE	Approved limit for the weighted average of prices of electricity	The losses are calculated on an hourly basis, using Nord Pool Spot wholesale market prices.	
ES	Losses' values are calculated based on the average wholesale market price (Day-ahead market, balancing market and redispatching).		
FI	(see main text)		
FR	Losses' values are calculated based on forward products and hourly adjustments with spot products and balancing market prices.		Losses' values are calculated based on forward products and hourly adjustments with spot products and balancing market prices and regulated prices of ARENH mechanism - the regulated access to EDF's incumbent nuclear electricity.
GB	Losses' values are calculated based on forward market prices, quarterly weighted.		
GR	For 2011 set at 0, as importers were charged losses through Transmission Loss Factors. For 2012, as in 2013.	Losses' value estimated based on weighted average Day-ahead market prices/	
HR[14]		Historical and signed contractual prices.	Losses are calculated based on historical and signed contractual prices, forward market price, balancing market prices, insurance premium and weighted average price of cross-border transmission capacity.
HU	Losses are calculated based on the weighted average market purchase price.		
IE	Losses' values are calculated based on the average Directed Contracts (DC) price for the same period. DC auctions are now held quarterly which provides more up to date information.		

[14] Croatia became an EU Member State during 2013.

Country	2011-2012	2013	2014
IT	Losses' values are calculated as the weighted average wholesale market price.		
LT	Losses' values are calculated based on forecast bilateral contracts prices, prices in the spot market, prices from neighboring countries (mainly Nordic countries) and forecast balancing costs.		
LU	Losses' values are based on yearly public tendering procedure.		
LV	Losses' values are calculated as the weighted average of Baltpool price adjusted with balancing price.	Losses value are calculated as weighted average of Nord Pool Spot prices of the Latvian trading area adjusted by balancing price.	
NI	Losses' values are calculated based on the average Directed Contracts (DC) price for the same period. DC auctions are now held quarterly which provides more up to date information. (same as for IE).		
NL	Losses' values are calculated based on yearly auctions.		
PL	Losses' values are calculated based on the forward electricity prices, prices of bilateral contracts for next year and historical prices.		
PT	Losses' values are calculated based on the weighted average hourly price for day ahead energy market – MIBEL - for the whole year and for the Portuguese area.		
RO	Losses' values calculated based on forecasted value of acquisition cost of electricity covering losses.	Losses' values calculated based on annual average price established on the Centralised Market for Bilateral Contracts, Day-Ahead Market, intraday market and balancing market.	
SE	Losses' values calculated based on electricity futures products, including a premium for the risks that may be related to the management of network losses.		
SI	Losses' values calculated based on average peak (30%) and baseload (70%) futures prices from EEX.		
SK	Losses' values are calculated based on average EEX power exchange electricity price with adjustments/	Losses' values are calculated based on Average PXE stock Exchange electricity price with adjustments.	

Table 7 Losses' values used in ITC mechanism and actual Losses' values for years 2013 and 2014 (€/MWh)

	losses' values used in ITC mechanism 2013	Actual losses' values in 2013	Losses' values used in ITC mechanism 2014	Actual losses' values in 2014
AT	56.07	56.07	47.96	47.96
BE	60.32	53.91	61.34	46.83
BG	50.66	45.10	51.35	34.80
CZ	57.60	48.24	42.41	39.93
DE	53.42	52.69	44.79	44.39
DK	43.69	35.00	41.30	30.00
EE	40.67	45.03	44.04	39.45
ES	50.33	45.58	43.02	42.93
FI	52.13	51.23	48.58	50.99
FR	69.44	55.97	51.44	48.94
GB	63.96	58.20	61.69	59.07
GR	68.12	45.30	65.00	60.20
HR	63.38	57.67	51.80	44.87
HU	54.48	53.87	43.14	40.35
IE	66.51	65.59	64.53	63.76
IT	75.50	65.15	62.40	53.96
LT	50.10	55.52	55.00	53.74
LU	54.47	54.47	42.32	42.32
LV	45.84	51.01	47.00	54.10
NI	66.51	65.59	64.53	63.76
NL	62.70	65.05	49.20	48.32
PL	46.38	43.74	41.10	39.33
PT	57.60	44.81	53.50	42.45
RO	50.22	45.40	45.84	39.60
SE	51.38	48.67	44.30	44.74
SI	55.51	47.39	55.73	45.54
SK	63.66	52.80	55.77	40.59

Table 8 Website links of the relevant documents for losses valuation

Country	Criteria regarding valuation of losses	Value of losses 2014
BG	http://dker.bg/files/DOWNLOAD/methodology_3.pdf	
DE	http://www.bundesnetzagentur.de/cln_1431/DE/Service-Funktionen/Beschlusskammern/1BK-Geschaeftszeichen-Datenbank/BK8-GZ/2014/2014_200bis299/BK8-14-260_450_502_772/BK8-14-0260_0450_0502_0772-91_Beschl%C3%BCsse.html	
EE	http://www.konkurentsiamet.ee/index.php?id=15429,	
ES	Royal Decree 216/2014, of 28th March, establishing the methodology to calculate the voluntary price for small consumer of electricity and its legal regime. See the seventh interim provision.	http://www.cnmc.es/es-es/energ%C3%ADa/energ%C3%ADael%C3%A9ctrica/mercadomayorista.aspx
FR	http://www.cre.fr/en/documents/deliberations/decision/turpe-4-htb2	
GB	forward market trade prices (as reported by ICIS Heren): http://www.icis.com/heren/channel.aspx?channel=power	
GR	http://static.diavgeia.gov.gr/doc/%CE%92%CE%99%CE%9A%CE%9D%CE%99%CE%94%CE%9E-%CE%A5%CE%9B%CE%91	http://static.diavgeia.gov.gr/doc/%CE%92%CE%99%CE%9A%CE%9D%CE%99%CE%94%CE%9E-%CE%A5%CE%9B%CE%91
HR	http://www.hera.hr/hr/docs/2014/Odluka_2014-12-11_07.pdf	
HU	http://www.mekh.hu/gcpdocs/51/1092%20per%202012%20határozat%20RHD%202013.pdf	
IE		http://www.allislandproject.org/en/transmission_decision_documents.aspx?article=5d9a6485-4f5d-431f-a207-2a6fc4005557
LT	http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=353848	
LU	http://www.ilr.public.lu/electricite/legislation/legis_nat/texte_coordonne_electricite.pdf).	http://www.creos-net.lu/fournisseurs/electricite/appel-doffres/annee-2014.html
NL	https://www.acm.nl/nl/publicaties/publicatie/11999/Methodebesluit-TenneT-transport-2014-2016	
PT	http://www.erse.pt/pt/electricidade/regulamentos/acessoasredesaasinterligacoes/Documents/RARI%202014%20	

Country	Criteria regarding valuation of losses	Value of losses 2014
	SE.pdf; http://www.erse.pt/pt/electricidade/regulamentos/relacoescomerciais/Documents/SubRegulamenta%C3%A7%C3%A3o/Anexo%20I%20Perfis%20de%20Perdas%202015.xls	
RO	http://www.anre.ro/ro/energie-electrica/legislatie/metodologii-tarife/transport-si-servicii-de-sistem	http://www.anre.ro/ordin.php?id=1027.
SI	http://www.agen-rs.si/elektricna-energija3	
SK	http://www.urso.gov.sk/sites/default/files/vyhl_221-2013.pdf	http://www.urso.gov.sk/sites/default/files/vyhl_184-2012.pdf

Fig.1A The evolution of the losses' values per year and country (€/MWh)

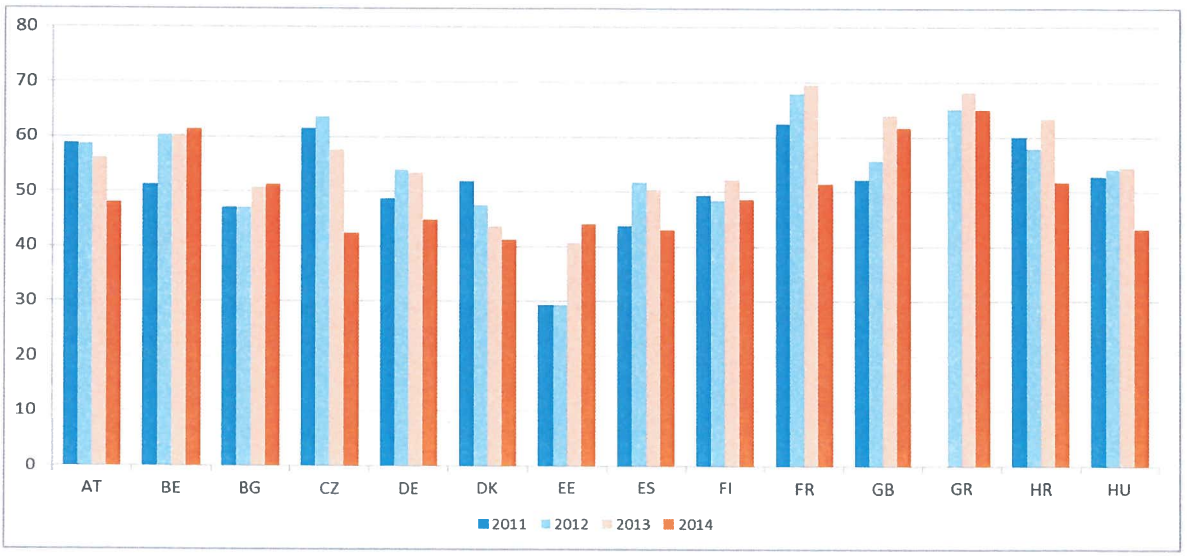
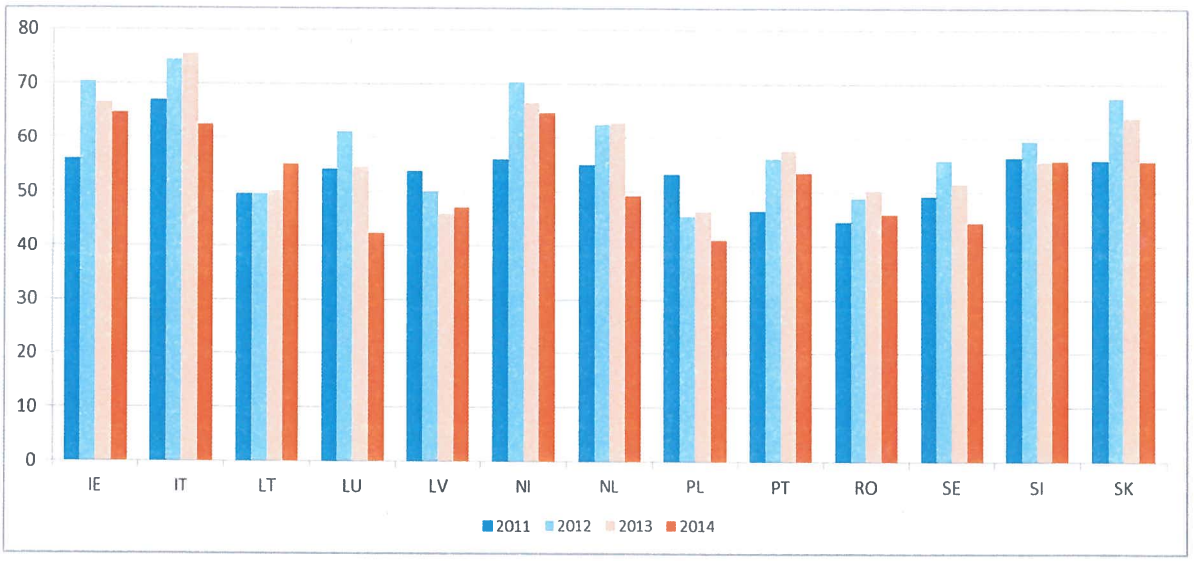


Fig 1B The evolution of the losses' values per year and country (€/MWh)



Publishing date: 05/11/2015

Document title: ITC Monitoring Report 2015

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