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**Report to the European Commission
on the implementation of
the ITC mechanism in 2015**

November 2016

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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 charging¹ (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 fifth Report² have been 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 Parties⁴ on 9 February 2011.

This Report focuses on the compliance of the implementation of the ITC mechanism, the criteria for the valuation of losses at national level and the value of losses used for each individual ITC Party.

The Report is structured as follows:

- Chapter 2 summarises the Agency’s review process;
- 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 summary of findings on the implementation of the ITC mechanism in 2015; and
- The Annex contains tables of relevant data to the ITC fund and information regarding the criteria for the valuation of losses at national level.

¹ OJ L 250, 24.9.2010, p.5

² The previous ACER ITC Monitoring Reports (regarding ITC implementation in years 2011-2014) are available at the Agency’s website:

http://www.acer.europa.eu/Official_documents/Publications/Pages/Publication.aspx

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

⁴ All EU Member States including Northern Ireland (as a separate ITC party) except Cyprus and Malta and the following third countries: Albania, Bosnia and Herzegovina, FYR of Macedonia, Montenegro, Serbia, Norway and Switzerland

2 Process of review

The Agency reviewed the implementation of the ITC mechanism and the management of the ITC fund in 2015 based on:

- The ITC Agreement and its amendments;
- Relevant data and information from ENTSO-E in relation to the implementation of the ITC mechanism in 2015;
- 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 2015 was submitted by ENTSO-E to the Agency on 5 August 2016. The Agency appreciates the fact that, beyond the quantitative data, ENTSO-E also provided some descriptive information⁵.

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 2015 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 3.6 below).

3 Review of the 2015 ITC implementation

3.1 ITC fund in 2015

In 2015, the ITC fund amounted to €253 million, consisting of €100 million relating to infrastructure and €153 million relating to losses. Of the total ITC Fund, €240 million were recovered through contributions from the ITC Parties and the remaining €13 million through the Perimeter countries' fees.

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); results of the yearly audit process in terms of identified errors and measures taken for their correction; and the amendments of the ITC Agreement.

The downward trend in the total amount of the ITC fund observed in 2013 (a 12% decrease compared to 2012) and in 2014 (a 7% decrease compared to 2013, down to €229 million), was reversed in 2015, when the total amount of the ITC fund increased by 11% due to the rise of its losses component (see more details in Section 3.4 below).

An overview of the compensations drawn from, and contributions made to, the 2015 ITC Fund by the ITC Parties is provided in Table 5 in the Annex. Table 5 also shows the contributions from Perimeter countries collected through their directly-connected ITC Parties.

3.2 General alignment between the 2015 ITC implementation and the Regulation

The Agency's review of the relevant parts of the ITC Agreement was 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, in 2015, the TSO of Kosovo (KOSTT) was granted accession as a new party to the ITC Agreement. Besides this, no major amendments to the ITC Agreement were introduced in 2015⁶. The Agency concludes that the general arrangements are still in line with the guidelines set out in the Regulation.

3.3 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 3.4 and 3.7 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 the congestion management methods set out in Point 2 of Annex I to Regulation (EC) No 714/2009⁷.

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

- 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 to 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

⁶ Amendments in the ITC Agreement were made for: Updated schedules due to results of the last ITC audit and yearly updates: 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); 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 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. In 2015, two borders (France - Switzerland and Switzerland - Italy) were still affected by the reduced transit⁸, due to the existence of long-term priority contracts. The Agency also notes that, as of 31 December 2014, the priority access of long-term contracts was terminated on the German-Swiss border which therefore was not affected by the transit reduction in 2015. The amount of transits after reduction has increased by 8% in 2015 (245 TWh) compared to 2014 (227 TWh). The amount of the reduction (5.4 TWh) represents 2% of the transits before the reduction.

3.4 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 losses incurred by a national system as a result of transit 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 volume 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 losses in the ITC Parties' networks due to transits, the values of losses adopted by them, and the compensation received from the losses component of the ITC Fund in 2015.

The Regulation requires ENTSO-E to publish the calculation of the volume of losses and its method. The Agency acknowledges that on 1 September 2016 ENTSO-E published the calculation method and the results for 2015⁹.

Although the value of losses decreased for most ITC Parties¹⁰, the losses component of the ITC Fund increased to €153 million in 2015 (by 19% compared to 2014), due to the rise by

⁸ In the direction France to Switzerland, around 80% of the capacity is 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. This percentage amounts to 100% in the direction Switzerland to France and 20% in the direction Switzerland to Italy.

⁹ ENTSO-E's ITC Transit Losses Data Report 2015, https://www.entsoe.eu/Documents/MC%20documents/ITC_Transit_Losses_Data/160901_ITC_Transit_Losses_Data_Report_2015.pdf?Web=1

¹⁰ Out of 34, the value of losses decreased for 20 ITC Parties, remained equal for 3 and increased for 11. The average value of losses decreased by 6% from 2014 to 2015.

26% in the volume of transmission losses due to transits. The impact of transits on the volume of losses (MWh) for the 27 ITC Parties of 26 EU Member States (“EU ITC Parties”) is shown in Table 2 in the Annex.

3.5 Criteria for valuing losses

Pursuant to point 4 of Annex Part A of the Regulation, the value of losses incurred by a national transmission system as a result of the cross-border flows of electricity shall be calculated on the same basis as that approved by the regulatory authority in respect of all losses on the national transmission system. The Agency shall verify the criteria for the valuation of losses at national level, taking particular account that losses are valued in a fair and non-discriminatory way.

The Agency received information about the criteria for valuing losses from NRAs of EU ITC Parties. The Agency also required NRAs to verify how the fair and non-discriminatory treatment is ensured.

The Agency notes that when calculating the value of losses for the 2015 ITC mechanism, each individual EU ITC Party applied the same criteria for valuing the losses used at national level.

The Agency found that, in four Member States, the NRA is not responsible for approving the basis for the calculation of the value of losses.

- In Finland, according to the Finnish electricity market legislation, the Energy Authority has no power to approve *ex-ante* any methodology for network operators to calculate/evaluate network losses. The Energy 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 (PX) prices.
- In Denmark, the Danish Energy Regulatory Authority (DERA) does not approve the basis for the valuation of losses, but assesses whether the method defined by the TSO meets certain high-level principles, such as being objective, reasonable, non-discriminative and transparent. The value of losses is calculated based on a weighted average of PX forward prices, plus the price of the EPAD contracts and balancing costs.
- In Luxemburg, the criteria for valuing losses are already set in the national law on the organisation of the electricity market and calculated based on yearly tenders.
- In Spain, the treatment of losses, including its valuation, is defined in operational codes approved by the Government. Losses are valued according to the day-ahead market price.

Regarding the other EU ITC Parties, the Agency notes that PX prices/pool prices and auctions (or their combinations) are the most frequently used criteria by the NRAs for assigning value to losses. In total, 10 NRAs apply criteria based on PX prices and pool prices, 5 NRAs perform auctions/tenders, mostly on a 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 approach¹¹ based on a combination of PX prices and regulated prices, whilst another NRA (Bulgaria) uses a regulated price only¹².

A summary of the criteria for valuing losses in each country over the years 2011-2015 is shown in Table 6 in the Annex. The website links to the relevant national documents regarding losses valuation are shown in Table 8 in the Annex.

3.6 Values of Losses

For 16¹³ out of 27 EU ITC Parties, it is the NRA who approves the value of losses for the 2015 ITC mechanism.

The variation of energy prices for different products in different markets and from auctions and bilateral contracts resulted in a broad range of values of losses for the EU ITC Parties (from 15.34 €/MWh in Bulgaria to 64.00 €/MWh in Greece), with an average value, weighted by the volumes of losses, of 43.34 €/MWh.

As shown in Table 7 in the Annex, for the majority of the EU ITC Parties (17 out of 27), a higher value of losses was provided for the purpose of the 2015 ITC implementation than the actual 2015 value registered at the end of the respective year. The values of losses provided for the ITC implementation are on average 9% (or €3.91) higher than the actual values¹⁴. A similar finding can be drawn for the 2013 and 2014 ITC implementation¹⁵.

In this respect, the Agency notes that had the actual value of losses been used, this would have led to a €8.7 million (8%) decrease in the compensation for losses in 2015.

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 2015, the weighted average value of losses for ITC Parties from third countries (non-EU ITC Parties) was 48.07 €/MWh, which was 11% higher than the weighted average value for the EU ITC Parties (43.34 €/MWh).

The weighted average value of losses has been further reduced for both the EU ITC Parties and the third countries in 2015 compared to the previous year (6% and 5% respectively), resulting in the lowest figure of average value (44.15 €/MWh) registered in the last five years¹⁶.

The Agency notes that Albania's value of losses of 10.35 €/MWh is still significantly lower than the values provided by other ITC Parties, while this value already represents a 48%

¹¹ Derived from the methodology used to estimate the value of losses for calculation of the network tariffs.

¹² In Bulgaria, the losses are covered by the Nuclear Power Plant "Kozloduy" at a regulated price which is set by the NRA.

¹³ Austria, Bulgaria, Czech Republic, Estonia, Greece, Croatia, Hungary, Ireland, Italy, Netherlands, Northern-Ireland, Portugal, Romania and Spain. In Poland and Slovenia the value of losses which is approved by the NRA for national purposes is used for the ITC mechanism.

¹⁴ The highest difference (€13.6) is calculated for Denmark.

¹⁵ In 2013 and 2014 the number of ITC Parties with a value of losses for the ITC implementation higher than the actual value was 21 and 22 respectively. For those two years, the average weighted value of losses provided for ITC implementation was 9% higher than actual one.

¹⁶ The evolution of losses' values per country over the years 2011-2015 is illustrated in Figure 1 in Annex.

increase comparing to the previous year. 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 all ITC Parties would have increased the amount of its negative compensation (which is effectively a payment into the ITC Fund) from €0.03 million to about €0.129 million.¹⁷

Further, the value of losses for Bulgaria used for the 2015 ITC implementation (15.34 €/MWh) is remarkably low compared to the other EU ITC parties. Using the weighted average value of losses of all ITC Parties, the losses compensation from the ITC fund to Bulgaria would be more than 3 times higher (from €0.733 million up to about €2.1 million)¹⁸.

3.7 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 infrastructures 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 infrastructures were derived according to the above requirements.

Table 3 in the Annex provides a summary of the annual amount each ITC Party received in 2015 from the two components based on their Transit Factors and Load Factors.

3.8 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.

¹⁷ This is an estimate derived from the mere multiplication of the volume of losses generated by transit by the weighted average value of losses for all ITC Parties.

¹⁸ Idem.

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 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 year¹⁹. According to ENTSO-E, this is the best possible projection for flows in the subsequent year. The Agency notes that the perimeter fee was 0.6 €/MWh in 2015, which is lower than in previous years (0.7 €/MWh in 2013 and 2014, 0.8 €/MWh in 2011 and 2012). This mainly results from the increased volume of import and export flows²⁰.

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 2015, including the contribution it made on behalf of Perimeter countries it had a direct connection with. The Agency notes that the contribution by Perimeter countries decreased between 2014 and 2015 both in terms of value, from €16 million to €13 million, and in terms of share to the ITC Fund, from 7% to 5%.

3.9 Treatment of third countries

The Agency notes that the ITC Agreement has not changed regarding the treatment of ITC Parties, thus the former findings of the Agency are still valid. In 2012 the Agency noted that the ITC Agreement makes no distinction between categories of ITC Parties, whether participating on a compulsory or voluntary basis under point 2 or through voluntary multi-party agreements under point 3. Therefore, the Agency concluded that the requirements of points 3.2 and 3.4 of Annex Part A of the Regulation are met.

3.10 Accuracy of data

ENTSO-E carried out a distinct monthly internal audit on the 2015 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 Summary of the findings

The Agency concludes that the implementation of the ITC mechanism and the management of the ITC Fund in 2015 continues to be in line with the requirements set out in the Regulation.

¹⁹The perimeter fee has two elements; a loss related component and a framework fund component which are summed and round to a single decimal place to create the perimeter fee:

- the losses related fee is calculated by dividing the WWT(With and Without Transit) Fund size by the sum of scheduled import and export flows, net import and net export flows; and
- the framework fund related fee is calculated by dividing the total contribution (100 million at present) by the sum of scheduled import and export flows, net import and net export flows.

Perimeter fee is calculated on the basis of unaudited data and it is rounded to a single decimal.

²⁰The increase of the flows was higher than the increase of the WWT Fund.

With regard to specific aspects of the ITC implementation in 2015, the major findings include the following:

- Contrary to the last two years, the losses component of the ITC Fund increased by 19% (to reach €153 million) compared to 2014.
- The increase of the losses component of the ITC Fund was mainly triggered by the significant increase (+26%) of the volume of losses incurred by transit compared to 2014.
- For the vast majority of EU ITC Parties, the criteria to calculate the value of losses were still market-based and approved by the respective NRA.
- The weighted average value of losses for the 2015 ITC mechanism (44.15 €/MWh) is the lowest figure registered over the last five years.
- Regarding EU ITC Parties the actual 2015 values of losses are still on average 9% lower compared to the values used for the 2015 ITC mechanism
- In 2015, the perimeter fee decreased to 0.6 €/MWh, (against 0.7€/MWh in 2014). Both the absolute and relative contribution of the Perimeter countries to the ITC Fund decreased compared to 2014.

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	426,672	0	426,672
Austria / AT	18,451,414	0	18,451,414
Belgium / BE	2,453,018	0	2,453,018
Bosnia / BA	3,772,063	0	3,772,063
Bulgaria / BG	4,232,600	0	4,232,600
Croatia / HR	5,514,252	0	5,514,252
Czech Rep. / CZ	15,466,191	0	15,466,191
Denmark / DK	7,798,375	0	7,798,375
Estonia / EE	4,947,905	0	4,947,905
Finland / FI	5,424,051	0	5,424,051
France / FR	9,223,272	25,793	9,197,479
Germany / DE	31,222,894	0	31,222,894
Great Britain / GB	2,349,811	0	2,349,811
Greece / GR	1,460,914	0	1,460,914
Hungary / HU	6,248,595	0	6,248,595
Ireland / IE	419,950	0	419,950
Italy / IT	2,703,044	6,309	2,696,735
Latvia / LV	3,224,009	0	3,224,009
Lithuania / LT	729,396	0	729,396
Luxembourg/LU	8	0	8
FYROM / MK	2,775,193	0	2,775,193
Montenegro / ME	2,225,279	0	2,225,279
Netherlands / NL	20,866,779	0	20,866,779
Northern Ireland / NI	336,694	0	336,694
Norway / NO	4,727,210	0	4,727,210
Poland / PL	12,636,976	0	12,636,976
Portugal / PT	3,595,185	0	3,595,185
Romania / RO	1,295,410	0	1,295,410
Serbia / RS	5,361,154	0	5,361,154
Slovakia / SK	12,258,228	0	12,258,228
Slovenia / SI	7,857,993	0	7,857,993
Spain / ES	10,732,906	0	10,732,906
Sweden / SE	11,924,965	0	11,924,965
Switzerland / CH	27,730,652	5,368,169	22,362,483
TOTAL	250,393,059	5,400,271	244,992,787

Table 2 Derivation of compensation for transmission losses

ITC Party	2014			2015		
	Impact of Transit on losses volume (MWh)	Value of losses (€/MWh)	Compensation (€million)	Impact of Transit on losses volume (MWh)	Value of losses (€/MWh)	Compensation (€million)
Albania / AL	-448	7.00	-0.003	-2,917	10.35	-0.030
Austria / AT	106,035	47.96	5.085	166,379	37.57	6.251
Belgium / BE	34,579	61.34	2.121	28,464	62.24	1.772
Bosnia / BA	23,281	46.63	1.086	45,482	46.63	2.121
Bulgaria / BG	54,421	51.35	2.795	47,799	15.34	0.733
Croatia / HR	40,541	51.80	2.100	62,670	51.51	3.228
Czech Rep. / CZ	114,536	42.41	4.857	218,848	39.26	8.592
Denmark / DK	298,152	41.30	12.314	296,314	38.00	11.260
Estonia / EE	92,458	44.04	4.072	144,928	44.10	6.391
Finland / FI	161,717	48.58	7.856	248,456	46.48	11.548
France / FR	95,701	51.44	4.923	136,293	51.44	7.011
Germany / DE	259,874	44.79	11.640	370,682	40.00	14.827
Great Britain / GB	-56,966	61.69	-3.514	-33,501	63.02	-2.111
Greece / GR	10,053	65.00	0.653	19,757	64.00	1.264
Hungary / HU	27,641	43.14	1.192	27,248	39.25	1.069
Ireland / IE	4,649	64.53	0.300	1,415	60.74	0.086
Italy / IT	-694	62.40	-0.043	-32,118	51.06	-1.640
Latvia / LV	48,161	47.00	2.264	53,617	51.54	2.763
Lithuania / LT	2,056	55.00	0.113	5,410	55.52	0.300
Luxembourg/LU	0	42.32	0.000	0	37.22	0.000
FYROM / MK	13,398	60.00	0.804	17,058	62.00	1.058
Montenegro / ME	15,582	49.59	0.773	4,775	50.03	0.239
Netherlands / NL	98,236	49.20	4.833	197,420	45.60	9.002
Northern Ireland / NI	1,456	64.53	0.094	777	60.74	0.047
Norway / NO	90,055	37.29	3.358	122,547	33.17	4.065
Poland / PL	198,949	41.40	8.236	305,899	41.87	12.808
Portugal / PT	47,506	53.50	2.542	59,711	50.49	3.015
Romania / RO	-16,070	45.84	-0.737	-17,147	39.59	-0.679
Serbia / RS	55,881	45.27	2.530	75,387	48.05	3.622
Slovakia / SK	58,463	55.77	3.260	78,706	46.86	3.688
Slovenia / SI	41,793	55.73	2.329	60,788	56.22	3.418
Spain / ES	80,282	43.02	3.454	96,307	43.65	4.204
Sweden / SE	511,917	44.30	22.678	321,668	42.58	13.697
Switzerland / CH	261,295	56.25	14.698	361,697	52.92	19.141
TOTAL	2,774,492	N/A	128.663	3,490,818	N/A	152.760

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	426,672	7,400	0.131	0.011	0.142
Austria / AT	18,451,414	30,889	5.649	3.370	9.018
Belgium / BE	2,453,018	71,819	0.751	0.040	0.791
Bosnia / BA	3,772,063	11,732	1.155	0.448	1.603
Bulgaria / BG	4,232,600	30,447	1.296	0.252	1.548
Croatia / HR	5,514,252	17,082	1.688	0.657	2.345
Czech Rep. / CZ	15,466,191	33,864	4.735	2.368	7.103
Denmark / DK	7,798,375	22,094	2.387	0.994	3.381
Estonia / EE	4,947,905	7,466	1.515	0.963	2.478
Finland / FI	5,424,051	62,394	1.660	0.212	1.872
France / FR	9,197,479	445,788	2.816	0.091	2.906
Germany / DE	31,222,894	312,703	9.558	1.384	10.943
Great Britain / GB	2,349,811	302,600	0.719	0.009	0.728
Greece / GR	1,460,914	46,714	0.447	0.022	0.469
Hungary / HU	6,248,595	30,533	1.913	0.518	2.431
Ireland / IE	419,950	25,835	0.129	0.003	0.132
Italy / IT	2,696,735	248,929	0.826	0.014	0.840
Latvia / LV	3,224,009	6,044	0.987	0.548	1.535
Lithuania / LT	729,396	9,412	0.223	0.026	0.249
Luxembourg/LU	8	4,114	0.000	0.000	0.000
FYROM / MK	2,775,193	7,989	0.850	0.349	1.199
Montenegro / ME	2,225,279	3,324	0.681	0.436	1.117
Netherlands / NL	20,866,779	67,261	6.388	2.413	8.801
Northern Ireland / NI	336,694	8,881	0.103	0.006	0.109
Norway / NO	4,727,210	94,348	1.447	0.110	1.557
Poland / PL	12,636,976	86,239	3.869	0.789	4.657
Portugal / PT	3,595,185	35,425	1.101	0.162	1.262
Romania / RO	1,295,410	35,136	0.397	0.022	0.419
Serbia / RS	5,361,154	33,840	1.641	0.358	1.999
Slovakia / SK	12,258,228	17,366	3.753	2.477	6.230
Slovenia / SI	7,857,993	12,525	2.406	1.479	3.885
Spain / ES	10,732,906	180,286	3.286	0.295	3.580
Sweden / SE	11,924,965	94,846	3.651	0.650	4.301
Switzerland / CH	22,362,483	46,948	6.846	3.524	10.369
TOTAL	244,992,787	2,452,272	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	1,928,678	529,269	0.000	0.576	0.000	0.901
Austria / AT	12,551,225	989,557	0.000	3.172	0.000	4.961
Belgium / BE	20,801,877	1,751	0.000	4.873	0.000	7.622
Bosnia / BA	97,102	2,224,748	0.000	0.544	0.000	0.851
Bulgaria / BG	0	5,309,945	0.891	1.244	0.891	1.945
Croatia / HR	7,642,162	15,257	0.000	1.794	0.000	2.805
Czech Rep. / CZ	22,657	13,052,681	0.000	3.063	0.000	4.790
Denmark / DK	8,083,074	1,851,712	0.000	2.327	0.000	3.640
Estonia / EE	388,024	429,400	0.000	0.191	0.000	0.299
Finland / FI	12,543,689	1,776	1.170	2.939	1.170	4.596
France / FR	23,912	61,993,419	0.000	14.527	0.000	22.721
Germany / DE	919,444	52,145,044	0.000	12.430	0.000	19.441
Great Britain / GB	21,056,957	54,836	0.000	4.945	0.000	7.735
Greece / GR	6,884,933	16,406	0.326	1.617	0.326	2.528
Hungary / HU	8,217,882	753	1.251	1.925	1.251	3.011
Ireland / IE	1,295,700	618,845	0.000	0.448	0.000	0.701
Italy / IT	48,142,719	18,270	0.000	11.281	0.000	17.645
Latvia / LV	1,049,331	199,372	0.000	0.293	0.000	0.457
Lithuania / LT	3,288,181	0	0.973	0.770	0.973	1.205
Luxembourg/LU	4,247,792	0	0.000	0.995	0.000	1.556
FYROM / MK	2,420,095	126	0.000	0.567	0.000	0.887
Montenegro / ME	864,722	273,214	0.000	0.267	0.000	0.417
Netherlands / NL	9,891,610	1,133,862	0.000	2.583	0.000	4.039
Northern Ireland / NI	937,087	354,345	0.000	0.303	0.000	0.473
Norway / NO	2,530,534	16,413,027	0.029	4.437	0.029	6.940
Poland / PL	1,650,929	1,500,184	0.021	0.738	0.021	1.154
Portugal / PT	4,481,920	2,215,512	0.000	1.569	0.000	2.454
Romania / RO	34,251	6,570,089	0.063	1.547	0.063	2.420
Serbia / RS	1,234,583	1,897,804	0.000	0.734	0.000	1.148
Slovakia / SK	2,683,014	112,859	0.251	0.655	0.251	1.024
Slovenia / SI	1,186,883	1,117,488	0.000	0.540	0.000	0.844
Spain / ES	4,218,049	1,817,741	1.482	1.414	1.482	2.211
Sweden / SE	106,892	23,206,167	0.000	5.461	0.000	8.541
Switzerland / CH	5,770,608	6,074,656	0.000	2.775	0.000	4.340
TOTAL	197,196,517	202,140,114	100.00		152.76	

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	-0.030	0.142	0.000	0.000	0.901	0.576	-1.364
Austria / AT	6.251	9.018	0.000	0.000	4.961	3.172	7.136
Belgium / BE	1.772	0.791	0.000	0.000	7.622	4.873	-9.933
Bosnia / BA	2.121	1.603	0.000	0.000	0.851	0.544	2.329
Bulgaria / BG	0.733	1.548	0.891	0.891	1.945	1.244	-2.691
Croatia / HR	3.228	2.345	0.000	0.000	2.805	1.794	0.974
Czech Rep. / CZ	8.592	7.103	0.000	0.000	4.790	3.063	7.842
Denmark / DK	11.260	3.381	0.000	0.000	3.640	2.327	8.674
Estonia / EE	6.391	2.478	0.000	0.000	0.299	0.191	8.378
Finland / FI	11.548	1.872	1.170	1.170	4.596	2.939	3.545
France / FR	7.011	2.906	0.000	0.000	22.721	14.527	-27.331
Germany / DE	14.827	10.943	0.000	0.000	19.441	12.430	-6.101
Great Britain / GB	-2.111	0.728	0.000	0.000	7.735	4.945	-14.063
Greece / GR	1.264	0.469	0.326	0.326	2.528	1.617	-3.065
Hungary / HU	1.069	2.431	1.251	1.251	3.011	1.925	-3.938
Ireland / IE	0.086	0.132	0.000	0.000	0.701	0.448	-0.932
Italy / IT	-1.640	0.840	0.000	0.000	17.645	11.281	-29.726
Latvia / LV	2.763	1.535	0.000	0.000	0.457	0.293	3.548
Lithuania / LT	0.300	0.249	0.973	0.973	1.205	0.770	-3.371
Luxembourg/LU	0.000	0.000	0.000	0.000	1.556	0.995	-2.551
FYROM / MK	1.058	1.199	0.000	0.000	0.887	0.567	0.803
Montenegro / ME	0.239	1.117	0.000	0.000	0.417	0.267	0.672
Netherlands / NL	9.002	8.801	0.000	0.000	4.039	2.583	11.181
Northern Ireland / NI	0.047	0.109	0.000	0.000	0.473	0.303	-0.619
Norway / NO	4.065	1.557	0.029	0.029	6.940	4.437	-5.813
Poland / PL	12.808	4.657	0.021	0.021	1.154	0.738	15.532
Portugal / PT	3.015	1.262	0.000	0.000	2.454	1.569	0.255
Romania / RO	-0.679	0.419	0.063	0.063	2.420	1.547	-4.352
Serbia / RS	3.622	1.999	0.000	0.000	1.148	0.734	3.740
Slovakia / SK	3.688	6.230	0.251	0.251	1.024	0.655	7.737
Slovenia / SI	3.418	3.885	0.000	0.000	0.844	0.540	5.919
Spain / ES	4.204	3.580	1.482	1.482	2.211	1.414	1.195
Sweden / SE	13.697	4.301	0.000	0.000	8.541	5.461	3.996
Switzerland / CH	19.141	10.369	0.000	0.000	4.340	2.775	22.396
TOTAL	152.76	100.000	6.46	6.46	146.30	93.54	0.000

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

Country	2011-2012	2013	2014	2015
AT	The TSO buys yearly (up to 2 years in advance), monthly and daily products through auctions 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 are calculated based on average price of yearly tenders.			
BG	Losses' values are calculated based on generators' weighted average price.			Losses' value is based on the price of the Nuclear Power Plant "Kozloduy" regulated by the NRA (EWRC)
CZ	Bi-annual tenders	Losses' values 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 4 th quarter and monthly products).		
DE	Average base-load prices		Losses' values 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' values are calculated on an hourly basis, using Nord Pool Spot wholesale market prices.		
ES	Losses are valued according to day ahead market price.			
FI	The losses' values are calculated by the TSO based on the power-exchange prices.			
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' values are estimated based on weighted average Day-ahead market prices.		

Country	2011-2012	2013	2014	2015
HR ²¹		Historical and signed contractual prices.	Losses' values 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 held quarterly.			
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 held quarterly. (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 are 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.		

²¹ Croatia became an EU Member State during 2013.

Table 7 Losses' values used in ITC mechanism and actual Losses' values for years 2013-2015 (€/MWh)

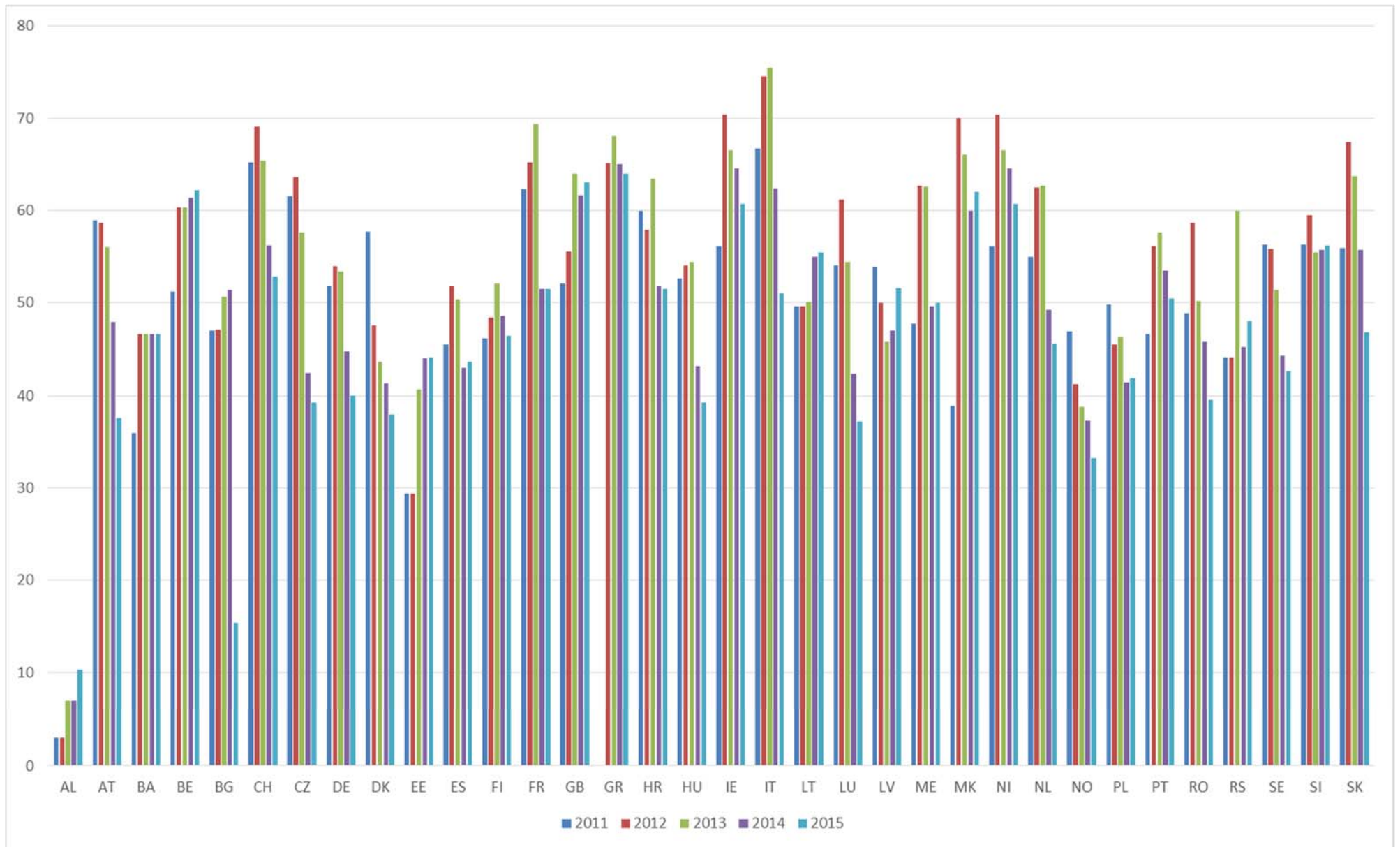
	Losses' values used in ITC mechanism 2013	Actual losses' values in 2013	Difference between ITC and actual figures	Losses' values used in ITC mechanism 2014	Actual losses' values in 2014	Difference between ITC and actual figures	Losses' values used in ITC mechanism 2015	Actual losses' values in 2015	Difference between ITC and actual figures
AT	56.07	56.07	0	47.96	47.96	0	37.57	37.57	0
BE	60.32	53.91	6.41	61.34	46.83	14.51	62.24	49.60	12.64
BG	50.66	45.10	5.56	51.35	34.80	16.55	15.34	23.32	-7.98
CZ	57.60	48.24	9.36	42.41	39.93	2.48	39.26	39.22	0.04
DE	53.42	52.69	0.73	44.79	44.39	0.4	40.00	36.21	3.79
DK	43.69	35.00	8.69	41.30	30.00	11.3	38,0	24,40	13.6
EE	40.67	45.03	-4.36	44.04	39.45	4.59	44.10	32.74	11.36
ES	50.33	45.58	4.75	43.02	42.93	0.09	43.65	51.28	-7.63
FI	52.13	51.23	0.9	48.58	50.99	-2.41	46.48	48.22	-1.74
FR	69.44	55.97	13.47	51.44	48.94	2.5	51.44	43.70	7.74
GB	63.96	58.20	5.76	61.69	59.07	2.62	63.02	55.14	7.88
GR	68.12	45.30	22.82	65.00	60.20	4.8	64.00	54.40	9.6
HR	63.38	57.67	5.71	51.80	44.87	6.93	51.51	43.16	8.35
HU	54.48	53.87	0.61	43.14	40.35	2.79	39.25	42.93	-3.68
IE	66.51	65.59	0.92	64.53	63.76	0.77	60.74	48.92	11.82
IT	75.50	65.15	10.35	62.40	53.96	8.44	51.06	54.31	-3.25
LT	50.10	55.52	-5.42	55.00	53.74	1.26	55.52	44.85	10.67
LU	54.47	54.47	0	42.32	42.32	0	37.22	37.22	0
LV	45.84	51.01	-5.17	47.00	54.10	-7.1	51.54	42.48	9.06
NI	66.51	65.59	0.92	64.53	63.76	0.77	60.74	48.92	11.82
NL	62.70	65.05	-2.35	49.20	48.32	0.88	45.60	44.90	0.7
PL	46.38	43.74	2.64	41.10	39.33	1.77	41.87	42.71	-0.84
PT	57.60	44.81	12.79	53.50	42.45	11.05	50.49	51.18	-0.69
RO	50.22	45.40	4.82	45.84	39.60	6.24	39.59	37.80	1.79
SE	51.38	48.67	2.71	44.30	44.74	-0.44	42.58	41.50	1.08
SI	55.51	47.39	8.12	55.73	45.54	10.19	56.22	46.68	9.54
SK	63.66	52.80	10.86	55.77	40.59	15.18	46.86	46.86	0

Source: ENTSO-E provided the losses' values used in ITC mechanism; NRAs provided the actual losses' value

Table 8 Website links of the relevant documents for losses valuation

Country	Website links of the relevant documents for losses valuation
BG	http://dker.bg/files/DOWNLOAD/methodology_3.pdf http://dker.bg/files/DOWNLOAD/naredba-regtsenelen-16jan2015.pdf
DE	http://www.bundesnetzagentur.de/cln_1431/DE/Service-Funktionen/Beschlusskammern/1BK-Geschaeftszeichen-Datenbank/BK8-GZ/2014/2014_0001bis0999/2014_200bis299/BK8-14-260_450_502_772/BK8-14-0260_0450_0502_0772-91_Beschl%C3%BCsse.html;jsessionid=B44899DCB1B6BB519A026ABA615DF278?nn=269902
EE	http://www.konkurentsiamet.ee/index.php?id=15429 ,
ES	http://www.boe.es/boe/dias/2015/12/19/pdfs/BOE-A-2015-13875.pdf
FR	http://www.cre.fr/en/documents/deliberations/decision/turpe-4-htb2
GB	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 https://diavgeia.gov.gr/doc/Q3AHIAE-ZYP?inline=true
HR	http://www.hera.hr/hr/docs/2014/Odluka_2014-12-11_07.pdf
HU	http://www.mekh.hu/download/2/85/10000/1092%20per%202012%20hat%C3%A1rozat%20RHD%202013.pdf
IT	http://www.autorita.energia.it/allegati/docs/16/TIS_2016.pdf
LT	http://www3.lrs.lt/pls/inter3/dokpaieska.showdoc_l?p_id=353848 http://www.regula.lt/Docs/nutarimas_3.pdf#search=O3-3
LU	http://www.ilr.public.lu/electricite/legislation/legis_nat/texte_coordonne_electricite.pdf http://www.legilux.public.lu/leg/a/archives/2012/0075/a075.pdf#page=8
IE	http://www.allislandproject.org/en/market_decision_documents.aspx?article=5d38d587-f2a2-4b69-9ad0-32779f0bb813
NL	https://www.acm.nl/nl/onderwerpen/energie/codes-energie/overzicht-codes-energie/ https://www.acm.nl/nl/publicaties/publicatie/14243/Regulatorische-accountingregels-RAR-TenneT-2013/ 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%20SE.pdf http://www.erse.pt/pt/electricidade/regulamentos/acessoasredesaasinterligacoes/Documents/Anexo%20I%20Perfis%20de%20Perdas%202016.xls
RO	http://www.anre.ro/ro/energie-electrica/legislatie/metodologii-tarife/transport-si-servicii-de-sistem
SE	http://www.svk.se/contentassets/53e8b6dcdf9e4e12811773a738f02f78/prislista2015.pdf
SI	http://www.agen-rs.si/elektricna-energija3
SK	http://www.urso.gov.sk/sites/default/files/vyhl_221-2013.pdf

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





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