

---

**All TSOs' proposal for Use of Congestion Income methodology in accordance with Article 19(4) of the Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity**

For Public Consultation

***Explanatory document***

20 March 2020

---

**DISCLAIMER**

This document is released only for the purposes of the public consultation on the All TSOs' proposal for Use of Congestion Income methodology in accordance with Article 19(4) of the Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity. This version of the Proposal does not in any case represent a firm, binding or definitive TSOs' position on the content.

## Content

1.	Foreword .....	4
1.1.	Document structure .....	4
1.2.	Document scope .....	4
2.	Explanatory remarks of the distinct parts of the UCI Methodology .....	5
2.1.	On Article 3 - Cost categories corresponding to priority objectives.....	5
2.1.1.	On Article 3(1) – List of cost categories corresponding to priority objectives .....	5
2.1.2.	On Article 3(2) – Efficiency of incurred costs .....	7
2.1.3.	On Articles 3(3) to 3(6) – Justification and approval of cost categories .....	7
2.2.	On Article 4 – Congestion Income allocation.....	8
2.2.1.	On Article 4(1) – Possible features of cost categories in relation with TSOs allowed revenue.....	8
2.2.2.	On Articles 4(2) and 4(3) – Assessment of adequate fulfilment of Article 19(2) priority objectives .....	8
2.2.3.	On Articles 4(4) and 4(5) – Conditions under which CI can be used for tariff calculation or placed in a separate internal account line .....	9
2.2.4.	On Article 4(6) – Features of the separate internal account line .....	9
2.2.4.1.	Usefulness of the separate internal account line in TSO's account book, regarding adequate investments and operational expenditures .....	9
2.2.4.2.	Efficiency of the separate internal account line in TSO's account book, regarding accounting and tax issues .....	10
2.2.4.3.	Possible network tariff increase due to implementation of a separate internal account line in TSO's account book .....	10
2.2.4.4.	Possible advantages of a separate internal account line in TSO's account book ..	11
2.2.4.5.	Two possible features of the separate internal account line .....	11
2.2.5.	On Article 4(7) – Multi-year approach of a separate internal account line for reporting purpose.....	12
2.2.6.	On Article 4(8) – Duration of the separate internal account line .....	13
2.2.7.	Conclusion on congestion income allocation .....	13
Annex 1:	Optimum investment level .....	14
A1.1.	Socio-Economic Welfare.....	14
A1.2.	Determining the optimum investment level .....	16
A1.3.	Conclusion on the optimum investment level .....	16
Annex 2:	Suitable investment projects and related costs .....	17
A2.1.	Drivers for investments .....	17
A2.2.	Calculating of cross-zonal impact of an investment on the internal grid?.....	17
A2.3.	Splitting of a project's cost according to its cross-zonal relevance? .....	17
A2.4.	How to choose the specific internal projects Congestion Income is used for .....	18
Annex 3:	Investments accounting, tariff regulation and funding perspectives .....	19
A3.1.	Accounting treatment of transmission assets.....	19

A3.2. Setting TSO's allowed revenue .....	19
A3.3. Setting TSO's tariff .....	20
A3.4. Funding network investments.....	20
<b>Annex 4: Single Interconnector Companies.....</b>	<b>22</b>
A4.1. Appropriate returns and consumer benefit .....	22
A4.2. Case Study – Cap and Floor in Great Britain .....	23
<b>Annex 5: Article 19 of Regulation 2019/943.....</b>	<b>24</b>

## 1. Foreword

Article 19 of the Regulation (EU) 2019/943 on the internal market for electricity (hereafter referred to as “Regulation 2019/943”) establishes that revenues resulting from the allocation of cross-zonal capacity shall be used in priority for guaranteeing the actual availability of the allocated capacity, or maintaining or increasing cross-zonal capacities (Article 19(2)). Congestion revenues may be used for tariff calculation where priority objectives according to Article 19(2) have been adequately fulfilled. The residual revenues shall be placed on a separate internal account for future use for the above purposes (Article 19(3)). By 5 July 2020, a methodology on the use of revenues for the purposes referred to in Article 19(2), the conditions under which those revenues may be placed on a separate internal account line for future use for those purposes, and for how long those revenues may be placed on such an account line shall be proposed by the TSOs after consulting national regulatory authorities (hereafter referred to as “NRA”) and relevant stakeholders (Article 19(4)). TSOs shall report to their NRA on the actual use of that income. Each year by 1st March, NRAs shall inform ACER and shall publish a report setting out how the congestion income (hereafter referred to as “CI”) of the previous year was used, including, inter alia, verification that the amount used for calculating tariffs complies with the methodology developed pursuant to Article 19(4) (Article 19(5)).

This paper accompanies the proposed draft Methodology for Use of Congestion Income (hereafter referred to as “the UCI Methodology”) as requested to TSOs by Article 19(4) of Regulation 2019/943. The aim of this paper is to further explain the options and main criteria considered by ENTSO-E when drafting this proposal in the context of the public consultation open from Friday 20<sup>th</sup> March to Friday 1<sup>st</sup> May 2020 included.

### 1.1. Document structure

This document is structured as follows:

- Section 2 provides details on the legal framework,
- Section 3 provides explanatory remarks on the distinct parts of the UCI Methodology,
- Annexes 1 to 3 provide extensive background information on some of the arguments discussed in Section 3,
- Annex 4 describes the specific case of Single Interconnector Companies and
- Annex 5 reproduces the complete text of Article 19 of Regulation 2019/943.

Where some extracts of the UCI Methodology itself are reproduced in the explanatory document, they are shown in *italic*.

### 1.2. Document scope

The Methodology aims at respecting the constraints of Article 19 while providing enough flexibility with implementation, given the national heterogeneity that exists with respect to:

- Regulatory framework: European law does not impose a single regulatory framework for all TSOs. According to Article 59 of Directive 2019/944 on common rules for the internal market for electricity, it is the duty of the NRAs, designated by each Member State, to fix or approve, in accordance with transparent criteria, transmission tariffs or their methodologies. Article 18 of Regulation 2019/943 defines the general principles with which tariffs must comply but leaves freedom to NRAs in terms of the way to achieve those principles.
- Tax regimes: the way various income sources of a TSO may be considered by tax administration can be different across Member States. National regulatory frameworks must take that into account.

- Accounting regimes: Tariffs must reflect TSO costs. The definition of TSO costs is generally ruled by national standards. Depending on these national standards, some cost items might be considered differently.

A general principle is that the methodology must be implemented by every TSO in such a way it does not provide any disincentive to reduce congestion, as stated in Article 19(1) and does not generate any economic disadvantage for the tariff payers and the TSOs, whether the CI is used for covering *inter alia* system operation costs, OPEX, investments, calculating the tariffs or placed on a separate internal account line.

## 2. Explanatory remarks of the distinct parts of the UCI Methodology

### 2.1. On Article 3 - Cost categories corresponding to priority objectives

#### 2.1.1. On Article 3(1) – List of cost categories corresponding to priority objectives

A detailed list of possible costs aimed at fulfilling Article 19(2) priority objectives is provided in Article 3(1) of the methodology. This list is reproduced below *in italic*, including some clarifications in regular characters. All of those costs comply either with Article 19(2) (a) and/or Article 19(2) (b) of the Regulation (EU) 2019/943:

- (a) guaranteeing the actual availability of the allocated capacity including firmness compensation;  
or
- (b) maintaining or increasing cross-zonal capacities through optimisation of the usage of existing interconnectors by means of coordinated remedial actions, where applicable, or covering costs resulting from network investments that are relevant to reduce interconnector congestion.

TSOs shall allocate congestion income to any of these cost categories. By “any” it is meant that it is not obligatory for the every TSOs to allocate CI to all of these cost categories: depending on the individual TSO applicable regulation, CI might be allocated only to one or to some of these cost categories. It is important to state that the exact list and the detailed definition of such costs categories depend on national regulatory framework:

- **System operation costs, including *inter alia*:**
  - i. *Firmness costs meant as costs related to measures activated by TSO(s) that guarantee cross-zonal schedules resulting from firm allocated capacity, in accordance with CACM and FCA Regulations, while complying with the safety standards of secure network operation.*

These measures include remedial actions changing the generation and/or load pattern in order to alleviate cross-zonal congestion, *inter alia*: redispatch, countertrading, renewable energy sources curtailment.

The categorisation of firmness measures, the system dispatch and market arrangements for the determination of redispatch costs may vary among countries.
  - ii. *Firmness compensation costs: TSOs' costs related to compensation of the owners of curtailed transmission rights which cannot be used in order to ensure system security, in accordance with FCA and CACM Regulations.*
  - iii. *Costly Remedial actions activated to maintain or increase capacities with the objective of maximising available capacity in accordance with Article 16 of Regulation (EU) 2019/943.*
  - iv. *Financial net costs associated to hedging options: costs related to hedging products against volatile market spreads, different from long-term transmission rights, offered by TSOs to market operators in accordance with FCA regulation.*

Art. 30 of FCA regulation states that in case there are insufficient hedging opportunities in one or more bidding zones, the competent regulatory authorities shall request the relevant TSOs: (a)

- to issue long-term transmission rights; or (b) to make sure that other long-term cross-zonal hedging products are made available to support the functioning of wholesale electricity markets.
- v. *Remuneration of non-nominated Long-Term Transmission Rights and Financial Transmission Rights as provided by the FCA regulation*
  - vi. *Costs of regional security coordinators (RSCs) and regional coordination centres (RCCs) which perform tasks related to TSO regional coordination in one or more capacity calculation regions.*
  - **Costs resulting from network investments that are relevant to reduce interconnector congestion, including inter alia:**
    - vii. *Investment costs.* Such costs can be considered in two main ways:
      - *Investment expenditures for reinforcement of existing assets or new assets which contribute to maintaining or increasing cross-zonal capacity.* Such expenditures represent the money spent during the studies and construction phases of the asset.
      - *Costs included in the TSO's Allowed revenue, usually made of:*
        - i. *Capital expenditure costs during the depreciation period of the asset: depreciation and capital remuneration (equity and/or debt) related to investments which contribute to maintaining or increasing cross-zonal capacity.*
        - ii. *Remuneration of assets under construction related to investments which contribute to maintaining or increasing cross-zonal capacity.*
        - iii. *Where appropriate, cost of long-term leasing of network elements that increase cross-zonal capacity*
    - viii. *Other costs resulting from network investments included in the allowed revenue:*
      - *Maintenance OPEX related to assets which contribute to maintaining or increasing cross-zonal capacity*
      - *Taxes directly linked to assets which contribute to maintaining or increasing cross-zonal capacity and are thus considered as OPEX.*

This includes local taxes directly linked to the existence of the asset, for instance tax on pylons or transformers.
      - *Electrical losses resulting from assets contributing to cross-zonal capacity (excluding those losses covered by the Inter-TSO Compensation mechanism).*

In order to avoid double coverage of losses costs, the share of losses covered by the Inter-TSO Compensation mechanism shall not be included in the costs to which CI is allocated.
      - *Other costs related to the optimisation of usage of new and existing interconnectors, where it is duly justified by the TSO and NRA how such costs are of cross-zonal relevance.*

*Investments considered when allocating CI include:*

- *Interconnectors*
- *Cross zonal assets*
- *Internal assets that contribute to additional interconnection cross-zonal capacity.*

Above cost categories include costs related to the achievement of the minimum binding level of capacity available for cross-zonal trade (70%) target requested by Article 16(8) of the 2019/943 Regulation. This

will entail the need for network developments, and an increase in the use of costly remedial actions to increase the capacity offered to the market and guarantee further cross-border exchanges. Congestion Income can be spent on such purposes pursuant to Article 19(2). In case an action plan in accordance with Article 15 of Electricity Regulation or a derogation in accordance with Article 16(9) have been approved for a given year, use of congestion income shall include all relevant measures which have to be performed in pursuit of the implementation of the action plan and of solutions to the issues that the derogation seeks to address.

### 2.1.2. On Article 3(2) – Efficiency of incurred costs

The relevant mechanisms and remedial actions contributing to objectives (a) and (b) have to be deemed as efficient and compliant with national and European regulation. Firmness compensation mechanisms are considered in the European regulation by articles 79 of CACM and 61 of FCA. Additionally, TSOs coordinate the use of costly resources (such as countertrading and redispatching) taking into account their economic efficiency. Based on this principle, regulation provides for the development of methodologies for cross-border coordination of remedial actions (e.g. article 76 of SOGL, article 35 of CACM).

In accordance, with Article 75 of CACM Regulation, costs relating to the obligations imposed on TSOs of ensuring firmness shall be assessed by the competent NRAs. Costs assessed as reasonable, efficient and proportionate shall be recovered in a timely manner through network tariffs or other appropriate mechanisms as determined by the competent regulatory authorities.

To evaluate efficiency regarding investments, the following aspects are considered:

- **Optimum investment level:** as extensively described in Annex 1, developing interconnection capacity up to full price convergence results in overinvestment. Adequate fulfilment of the priority objectives can be reviewed on a yearly basis but should always take into account the long-term vision for the optimal interconnection level in terms of socio-economic efficiency. For that reason, TSOs do not propose to use a rigid indicator such as reaching a “target capacity” for assessing if chosen measures are efficient in pursuit of the priority objectives. Instead, TSOs propose to have a strong and transparent exchange with NRAs on the measures that should or should not be performed in order to adequately maintain or increase capacities. TSOs are convinced that the need for investing into interconnection capacity is not uniform for all relevant borders and needs to be assessed case by case. Therefore, **considering that in any case all CI should mandatorily be spent sooner for investing, may result in costs that are economically unjustifiable for the community.**
- **Suitable investment projects and related costs:** to assess the eligibility of investment projects, it is important to determine which investments possess cross-zonal relevance. Not only interconnectors investments contribute to maintain or increase the cross-zonal capacity but also certain internal projects. As extensively described in Annex 2, since it is not possible to quantify in an indisputable way an investment's contribution to cross-zonal capacity, and since investments are built as a whole with no possibility to split their cost by drivers, **the cost of such investments should be taken into account fully for reporting on the use of congestion income.**

### 2.1.3. On Articles 3(3) to 3(6) – Justification and approval of cost categories

Article 3(3) states that *The TSO shall duly justify the reason why concerned cost categories associated to investments are of relevance to the priority objectives set out in Article 19(2) of the Regulation (EU) 2019/943*, and lists some possible means of justification that can be used.

Articles 3(4) and 3(5) state that *the TSOs shall clearly establish, in advance, for which of the cost categories CI will be used, and that this information shall be provided by the TSO to the NRA in accordance with the national regulatory practices or any other method decided by the NRA, and with a frequency decided by the NRA.* By “frequency” it is meant that the requested information shall not be necessarily provided on a yearly basis, it can be provided e.g. for a multi-year period.

Article 3(6) states that it is the role of the relevant NRA to *assess and approve the cost categories identified by the TSO in terms of their relevance in contributing to the priority objectives set out in Article 19(2) of Regulation 2019/943.*

## **2.2. On Article 4 – Congestion Income allocation**

### **2.2.1. On Article 4(1) – Possible features of cost categories in relation with TSOs allowed revenue**

In most national applicable regulations, above cost categories are part of TSO's allowed revenue or investment expenditures. In some national regulatory frameworks, CI and some of above cost categories are pass-through items in the TSO's financial statement, in particular system operation costs incurred for the activation of costly remedial actions needed to guarantee the availability of the allocated capacity in all market timeframes or for maintaining or increasing cross-zonal capacities by means of coordinated remedial actions.

### **2.2.2. On Articles 4(2) and 4(3) – Assessment of adequate fulfilment of Article 19(2) priority objectives**

Article 4(2) states that TSOs shall allocate CI to costs *approved by the relevant NRA according to Article 3(6) of the UCI Methodology.*

Where some of the CI is used when calculating network tariffs, the respective national regulatory authorities are competent to assess if the TSO(s) under their regulatory oversight has/have undertaken adequate efforts with respect to the priority objectives set out in paragraph 2 of Article 19 of the Electricity Regulation.

Article 4(3) states that this assessment shall concern the 12-month period ending on 31 December of the previous year and that it shall be based on the approved cost categories as per Article 3(6) of the UCI Methodology.

Adequately fulfilling the priority objectives means spending money for the measures established in advance and agreed with the NRA, including investing and spending money to survey future investments. By planning adequate investments for the future, priority objective (b) is fulfilled even if such investments are currently stalled due to various reasons such as technical problems, lack of resources from cable manufacturers, local opposition etc.

**The adequate fulfilment can be granted even if in this given year the expenditures corresponding to the approved cost categories are lower than CI.**

The adequate fulfilment will be explicitly stated to ACER in the yearly report pursuant to Article 19(5) of the Regulation.

**Thus, it can be considered that a TSO fulfilled Article 19(2) priority objectives a given year even if all agreed infrastructure projects have not been commissioned yet, and even if availability of the minimum binding level of capacity available for cross-zonal trade (70%) has not been achieved yet.**



### 2.2.3. On Articles 4(4) and 4(5) – Conditions under which CI can be used for tariff calculation or placed in a separate internal account line

Article 4(4) states that *Where the priority objectives set out in Article 19(2) of the Regulation (EU) 2019/943 have been adequately fulfilled, and CI exceeds expenditures corresponding to the cost categories which were approved by the NRA pursuant to Article 3(6) of this Methodology, remaining CI may be used according to possibility (i) and / or (ii) below:*

- i. *As income to be taken into account by the regulatory authorities when approving the methodology for calculating network tariffs or fixing network tariffs, or both.*
- ii. *Placed on a separate internal account line for any future financing requirements associated to objectives set out in Article 19(2) of the Regulation (EU) 2019/943 TSO may face.*

“Taking into account CI when approving the methodology for calculating network tariffs or fixing network tariffs” means that CI is used to reduce tariff the year it is collected.

The possible features of the separate internal account line are discussed in chapter 2.2.4.

Article 4(5) states that *Where the priority objectives set out in Article 19(2) of the Regulation (EU) 2019/943 have not been adequately fulfilled, and CI exceeds expenditures corresponding to the cost categories which were approved by the NRA pursuant to Article 3(6) of this Methodology, residual CI shall be placed on a separate internal account line.*

This is imposed by Article 19(3) of Regulation (EU) 2019/943, whatever the efficiency of this separate internal account line and the consequences on tariff increase.

### 2.2.4. On Article 4(6) – Features of the separate internal account line

Before placing such amounts on a separate internal account line, **usefulness** (see chapter 2.2.4.1) and **efficiency** (see chapter 2.2.4.2) of this account should be considered, and the **consequences on network tariff level** should be carefully considered (see chapter 2.2.4.3). **Possible advantages** of a separate internal account line in TSO's account books are explained in chapter 2.2.4.4. Finally, **consequences on the feature of the separate internal account line** are explained in chapter 2.2.4.5.

#### 2.2.4.1. Usefulness of the separate internal account line in TSO's account book, regarding adequate investments and operational expenditures

Placing CI in a separate account line in TSO's account book means "storing" CI by constituting a provision or a deferred income. However, adequate investments and operational expenditures can in most cases be undertaken without storing money in a separate internal account line. Indeed, in general for TSOs (as for any other companies in other industry sectors), there are basically two ways to fund a network investment:

- Using capital (debt and / or equity),
- Using contribution from third parties (private contributions or public subsidies such as EU grants from the Connecting Europe Facility – CEF).

As explained in details in Annex 3, there should be no obligation to establish a direct **financial** relation between congestion income and interconnection investments. As for most companies in the world, any discrepancy between TSO's revenue and investment expenditures are covered by debt, and possibility new equity, or contribution from third parties including EU grants from the CEF.

Regarding OPEX it is not necessary to establish a direct relation between congestion income and OPEX linked to interconnection capacity. Instead, such costs can be included by NRAs in TSO's allowed revenue, independently from the level of CI.

**There should be no obligation to “store” CI in a separate internal account line during preceding years to fund adequate future cross-zonal related expenses. Allocating CI to tariff calculation is another possibility. In the latter case, if in the future it becomes adequate to spend additional**

money for meeting article 19(2) objectives, then increase of tariff or of other transmission-related charges can cover the cost of remedial actions, firmness costs or OPEX, whereas most TSOs can resort to additional debt or equity for investments. Depreciation and return of such investments are covered by future tariffs.

#### 2.2.4.2. Efficiency of the separate internal account line in TSO's account book, regarding accounting and tax issues

Accounting and tax rules differ from one country to another, which can have various consequences:

- **Certain national accounting principles allow the treatment of CI as a deferred income if transferred to a separate internal account.** CI is registered as money the TSO receives for services, which have not yet been delivered. The TSO owes money to its customers, therefore CI is recorded as a liability until the services (e.g. guaranteeing the actual availability of the allocated capacity or maintaining or increasing cross-zonal capacities) are finally provided. In the year CI is transferred to the internal account, no revenues are shown in the profit and loss statement for the fiscal year in which CI was received. As a deferred income (liability), it is disclosed on the balance sheet for that year and **no corporate taxes or other levies have to be paid.**
- **Whereas in other countries, tax rules forbid to constitute tax-free provisions for future investments.** Thus, CI cannot be neutralized by a corresponding liability, leading to increasing the profit the TSO recovers from tariffs compared to what would have been in case CI was taken into account for tariff calculation. **Such profit is submitted to corporate tax which results in reducing the amount actually available for future investments.** Avoiding this loss would necessitate a disproportionate change in Member States tax policies that would not be in line with the practice of other economy sectors.

#### 2.2.4.3. Possible network tariff increase due to implementation of a separate internal account line in TSO's account book

This chapter describes the impact on network tariffs of the implementation of a separate internal account line in TSO's book:

- Placing CI on a separate internal account line which cannot be touched until used for Article 19(2) priority objective means that **for a given period of time, network users can not benefit from that income and tariff level is higher.** If CI is placed on a separate internal account line for an investment scheduled for instance 5 years later, **it boils down to requesting network users to immediately pay on the full cost of an investment which will start providing them with additional social welfare only later** (on Y+6, the year after the investment is made). Even if later tariff payers can expect saving money thanks to the SEW provided by the investment, current grid users are not always the same as future grid users.
- **Whereas using CI for calculating tariff (i.e. reducing tariffs at the time CI is collected), then using debt or equity to fund the cash gap (which is common corporate finance practice) in Y5 and then put the asset in the RAB, means network users will pay a share of the asset every year between Y6 and Y45 (if the asset is depreciated over 40 years), thus at the same time they benefit from the associated welfare.**

Figure 1 shows the impact on tariff level where a separate internal account line in TSOs book is implemented, compared to a situation where no separate internal account line exists in TSO books (a share of CI is then used for tariff reduction),:

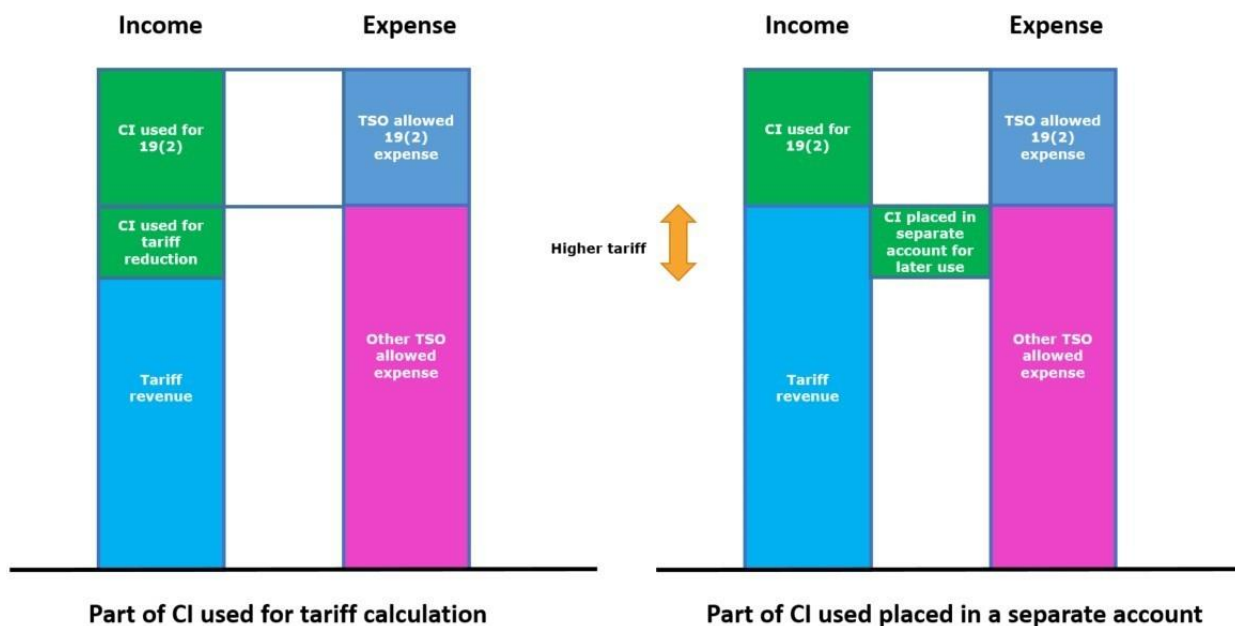


Figure 1: impact of a separate internal account line on network tariff level

Another unwanted effect of storing CI on a separate internal account line and overly restricting the possibilities to pay it back to customers through tariff reduction, is that large amounts of money can accumulate on the separate internal account line. In the case that the CI accumulated on the separate internal account line exceeds the amount that could be efficiently invested in interconnectors, NRA might at the end allow using this money for tariff reduction. That way, network users would have been prevented, for several years, from benefiting from this income.

#### 2.2.4.4. Possible advantages of a separate internal account line in TSO's account book

Some countries make use of the following advantage of the separate internal account line: due to the fact that it is difficult to forecast exact values of investment expenditures and congestion revenues in a given period, and usually, the yearly interconnection investment expenditures are different (either higher or lower) than yearly congestion revenues, CI can be placed on separate internal account, and then spent for interconnection investments.

Other cases where a separate internal account line in TSO's account book would be useful are, for instance:

- where it is considered the TSO might have difficulties in the future to find new sources of money such as debt or equity,
- or when it is considered necessary to smooth out anticipated large tariff increase due to expected high counter trading and redispatching costs or investments.

#### 2.2.4.5. Two possible features of the separate internal account line

As explained in above chapters, obliging to place the residual CI in a separate internal account line in TSO's account books where efficiency of such an account is low due to accounting and tax issues, and/or where such a separate internal account line leads to steep network tariff increase, might not constitute an appropriate incentive to fulfil priority objectives in the future.

Article 4(6) of the UCI Methodology states that *the most efficient way of implementing the internal separate account line shall be chosen among the two following possible features:*

- A separate account line in TSO's account book, or a functionally equivalent facility,

- Or separate account line for reporting purpose, or a functionally equivalent facility, of income and expenditure related to cross-zonal capacities.

The “functionally equivalent facility” corresponds to existing (e.g. a foundation to which CI has been placed for later use) as well as future detailed setups with which TSOs and NRAs might decide.

Both above possibilities allow funding of any future requirements associated to Article 19(2) priority objectives:

- in case of a separate account line in TSO’s account book, the money stored in the separate account will be directly used for such purpose,
- in case of a separate account line for reporting purpose, CI can be used for tariff calculation and such future requirements will be funded e.g. via future increase of tariff, debt or equity,.

Either for the separate account line in TSO’s account book or for reporting purposes, same clarity and transparency is provided on CI use for cross-zonal expenditures.

This shows that NRAs have many possibilities to deal with CI and cross-zonal related expenses: **EU regulation does not impose a one-fits-all regulatory framework. Depending on the TSO context, and on the national accounting and tax standards, NRAs can choose the most appropriate tool.**

### 2.2.5. On Article 4(7) – Multi-year approach of a separate internal account line for reporting purpose

The compliance with Article 19(2) objectives should be considered from a multi-year approach, since CI and expenditures related to Article 19(2) priority objectives are volatile. Therefore, where the separate account is for reporting purposes, if a given year expenditures corresponding to the cost categories which were approved by the NRA exceed CI a given year, Article 4(7) states that *the amount of the separate account line shall be reduced by the difference between those expenditures and CI. Should this result in the amount of the separate account line be negative a given year, this amount shall be sent to zero and, where the separate account line is for reporting purpose, the difference shall be carried forward to the next year(s)*

This is illustrated by the Figure 2 below, showing that for the same sum of expenditure over several years, whatever the expenditures path and their yearly relation with CI, the amount in the separate account line at the end of the period remains the same:

Expenditures path 1					
Year	CI	Expenditure	Placed in separate account	Carried forward to next year	Separate account end of Y
1	100	70	30	0	30
2	100	100	0	0	30
3	100	100	0	0	30

Expenditures path 2					
Year	CI	Expenditure	Placed in separate account	Carried forward to next year	Separate account end of Y
1	100	70	30	0	30
2	100	150	-30	-20	0
3	100	50	50	0	30

Figure 2: Multi-year approach of the separate internal account line for reporting purpose

### **2.2.6. On Article 4(8) – Duration of the separate internal account line**

The period during which CI can be placed on a separate internal account line shall depend on TSO's situation. For instance:

- Where this amount is placed in the separate account line in TSO's account book to cover a predefined investment then the duration of the separate account line should be linked to the expected duration of studies and work on this project. If the project finally does not get approval, congestion income from the separate internal account line may be used to calculate and/or fix network tariffs.
- Where the separate internal account is designated to solve TSO's recurrent difficulties to find new sources of money such as debt or equity, CI shall be put in the separate account as long as such difficulties remain.

At the end of every abovementioned period, the NRA shall consider future requirements associated to objectives set out in Article 19(2) and shall decide to use all or part of the amount of the separate account for tariff calculation. The resulting tariff reductions may be distributed over a period clearly defined beforehand at the proposal of the TSO

### **2.2.7. Conclusion on congestion income allocation**

The money spent for Article 19(2) related costs can come not only from CI but also from debt, equity, grants, tariffs or other transmission-related charges, as recovery of TSOs costs varies across the jurisdictions. Thus **the adequate fulfilment of priority objectives is not linked to the source of the money used to this purpose.**

For the reasons exposed above, using a separate account in TSO's account books is not the sole appropriate tool guaranteeing all adequate cross-zonal expenditures are made. Depending on the accounting, tax and regulatory arrangements in the considered Member State, it might not constitute an appropriate incentive to fulfil Article 19(2) objectives in the future. **The option of using CI to set tariffs is also fully allows to comply with Article 19(2) objectives.**

**Before implementing a separate account line in jurisdictions where it is currently not implemented, efficiency e.g. in terms of corporate tax effect, and consequences on tariff level must carefully be considered.**

**Where accounting and tax rules reduce the efficiency of a separate account, and / or where the short-term impact on network tariff increase is deemed unnecessary high, then the separate account should be for reporting purposes, of income and expenditure related to cross-zonal capacities.**

## Annex 1: Optimum investment level

Interconnection investments provide several benefits such as Socio-Economic Welfare, variation in CO<sub>2</sub> emissions, Renewable Energy Sources integration, variation in losses, security of supply etc. Such indicators are surveyed in ENTSO-E "Guideline for cost benefit analysis of grid development projects" of 27 September 2018. This section presents in a very simplified way, including voluntary short cuts for a quicker understanding, how interconnection investments are decided (for the comprehensive method, please refer to ENTSO-E guideline).

### A1.1. Socio-Economic Welfare

Building a new line connecting two markets or bidding zones increases transfer capacity between those markets. Thus, generators in the low-priced zone are able to export more power to the higher priced area. This is summarized in Figure 3 taken from ENTSO-E CBA guidelines:

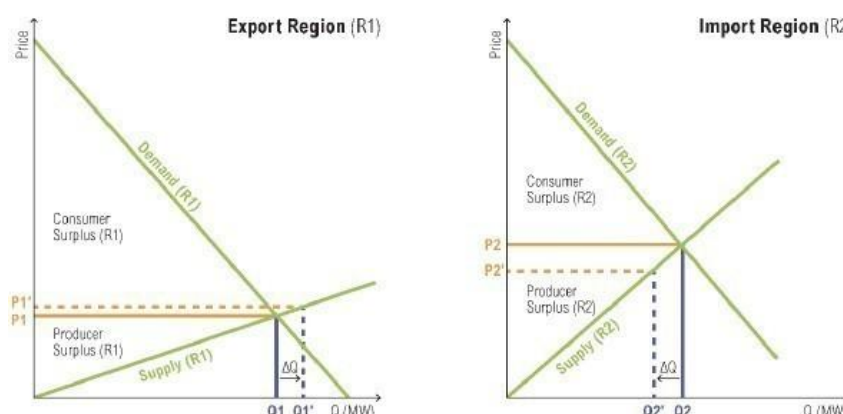


Figure 3: example of a new project increasing Grid Transfer Capacity between an export and an import region (Figure 9 of ENTSO-E CBA guideline)

As shown in Figure 3, with an additional export capacity  $\Delta Q$ , the market-clearing price of R1 will increase from  $P_1$  to  $P_1'$ . The relationship between the export volume  $Q$  and  $P_1$  defines the Net Export Curve (NEC) of R1. Imports are treated as negative exports and Net Import Curve for R2 is built in a similar way.

Figure 4 shows R1's NEC and R2's NIC. Should there exist no link between R1 and R2, the isolated market clearing prices would be respectively  $P_{10}$  and  $P_{20}$ . The total SEW in the reference situation where a capacity of  $Q$  MW exists between R1 and R2 can be re-defined as:

$$SEW = \text{Export Surplus (R1)} + \text{Import Surplus (R2)} + CI$$

$$\text{With } CI = (P_2 - P_1) \times Q.$$

Building a new link which increases the interconnection capacity by  $\Delta Q = Q' - Q$  leads to increasing surplus of exporting area and surplus of importing area, and modifying the Congestion Income, until the interconnection capacity reaches  $Q_{max}$  which gives full price convergence.

The additional surplus generated by the new link can be estimated with:

$$\Delta SEW = R'1 + R'2 + CI' - R1 - R2 - CI$$

See Figure 4 below.

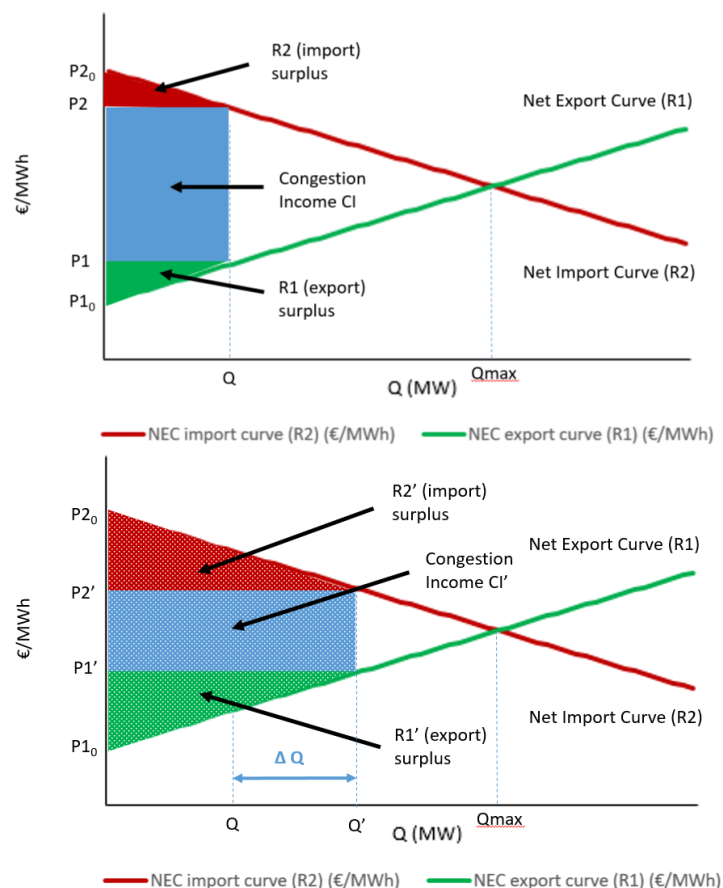


Figure 4: Net Export Curve, Net Import Curve, Socio-Economic Welfare

Figure 5 shows the evolution of SEW and Congestion Income, with fictitious numerical example. When full price convergence is achieved, SEW is maximum while Congestion Income is nil.

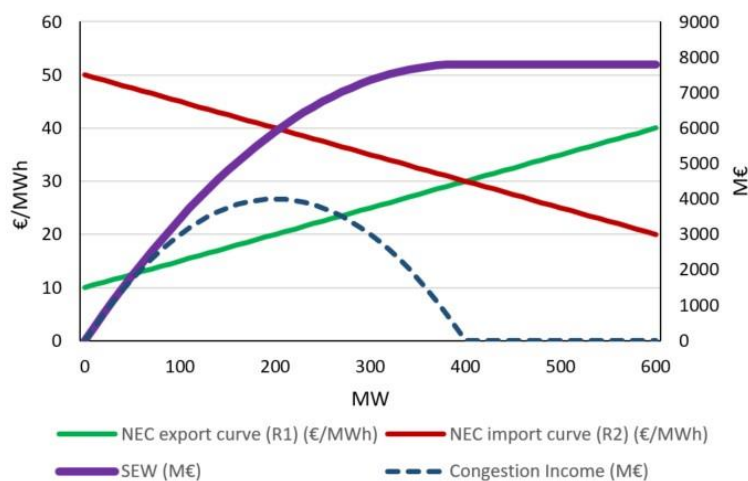


Figure 5: Socio-Economic Welfare and Congestion Income

This analysis must be made under various scenarios that model the uncertainty on the future of demand and generation level and location, power exchange patterns, and transmission assets, as is done in ENTSO-E CBA guideline.

## A1.2. Determining the optimum investment level

In order to decide whether an interconnection line should be built or not, the net difference between all benefits produced and all costs incurred (named “net benefits” here) has to be considered over a considered time horizon, for instance 25 years. A very simplified formula is:

$$\text{Net benefit} = \text{SEW} - \text{investment cost} - \text{operation \& maintenance costs} - \text{losses cost}$$

In practice, net benefits calculated for every year of the time horizon considered are discounted so as to obtain the Net Present Value of the project. As mentioned above, other benefits have to be considered, such as RES integration, security of supply reinforcement among others. For the sake of simplification, they are not considered here.

The optimal level of network investment is the level that maximises net benefits for the community. It means the TSO should invest as long as the marginal increase of SEW is higher than the marginal capital, operation & maintenance and losses cost – i.e. as long as:

$$\frac{\Delta \text{SEW}}{\Delta [\text{investment cost} + \text{operation \& maintenance costs} + \text{losses cost}]} > 1.$$

This is shown in Figure 6: Q1 is the capacity where net benefit is maximum. Beyond this capacity, the marginal SEW provided by the investments is lower than its cost (the figure illustrates that the unit investment cost increases with the capacity, since the less costly investments are generally made first).

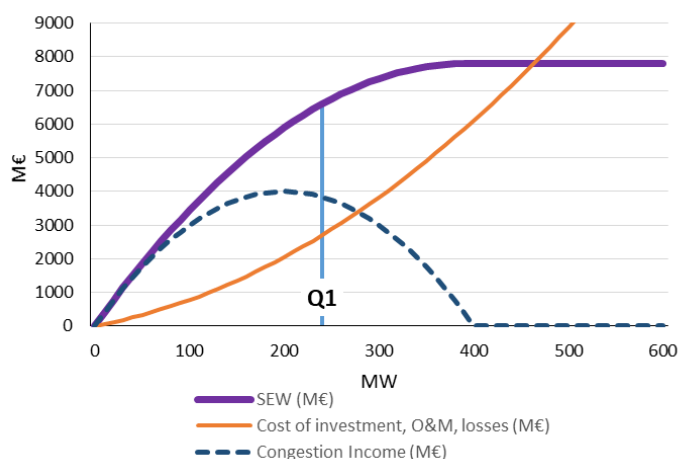


Figure 6: Optimum investment level

**Developing interconnection capacity up to full price convergence, i.e. when the Congestion Income is nil, may provide benefits lower than the cost, which would therefore imply an overinvestment (gold plating).**

## A1.3. Conclusion on the optimum investment level

Directly allocating CI to some investments, or checking that interconnection investments match with CI, does not systematically guarantee the objectives of article 19(2) are adequately fulfilled, since allocating CI to a project with a negative net benefits (i.e future expected socio-economic benefits lower than the costs) is inadequate. Remaining price spreads between countries don't always mean that the European electricity system operates less efficiently and that network users pay too much for their electricity. Investments that provide benefits lower than their cost are not efficient and then must not be undertaken.

As a consequence, from an economic perspective it is not possible to establish a direct equivalence between Congestion Income and adequate investment level. **Considering that in any case all CI should mandatorily be spent sooner (points (a) and (b) of art 19 of the CEP) or later (separate internal account) for investing, may result in costs that are economically unjustifiable for the community.**



## **Annex 2: Suitable investment projects and related costs**

### **A2.1. Drivers for investments**

An investment in the meshed transmission grid always has to be assessed in the context of the actual situation, geographically and technically. Generally, an investment decision is made based on an overall evaluation of the expected costs and benefits. The choice of the technical solution is made on the basis of the actual problems to be solved and the benefits to be realized. In this context, costs over the lifetime and the value of the expected benefits are taken into consideration.

In a situation with increased capacities of regulated or market interconnectors, generally investments in internal grid very often need to consider interconnectors capacities. Likewise, internal projects often contribute to additional interconnection capacity.

Generally, the drivers and the expected benefits related to internal investment projects will be many, and different for each project, for instance:

- Security of supply, including replacement / improvement of ageing infrastructure,
- New capacity requirements, as a result of expected new consumption and / or new generation,
- New capacity requirements due to a result of increased exports and imports through new interconnectors – or new internal capacity contributing as well to additional interconnection capacity.

For a concrete project these drivers / benefits are often combined. Contribution of internal projects to cross-zonal capacities should be taken into account for fulfilment of article 19 (2) as exposed in next sections.

### **A2.2. Calculating of cross-zonal impact of an investment on the internal grid?**

It is possible to calculate the impact of an internal project on the capacity of each zone border in MW and its impact on other market factors such as the SEW in €. However, this impact depends on many parameters such as the time horizon considered, the selected European demand / offer scenario, if the investment comes first or later...

Surveying numerous scenarios and combinations constitutes a costly and lengthy process and cannot provide a single indicator or ratio.

An indicator in MW or in € based on the average of several scenarios would be meaningless, except if all possible scenarios were considered with their respective probability, which is obviously not possible.

Considering a limited number of scenarios representing plausible future situations allows determining the investment's cross zonal market impact e.g. in terms of social welfare but does not provide an indisputable single number precisely quantifying the investment's contribution (in MW) to cross-zonal capacity in all future scenarios.

### **A2.3. Splitting of a project's cost according to its cross-zonal relevance?**

An attempt to quantify and split the investment costs according to the different drivers/ causes will always be complex and subject to discussions.

A simple possibility would be to multiply the investment cost by a ratio equal for instance to its contribution to cross-zonal flow in MW divided by the capacity of the project. However, as shown in section A.2.2, such a ratio would be questionable and could be proved meaningless.

Splitting components of the internal project by drivers such as security of supply, new capacity requirements, maintaining or improving cross-zonal capacity is impossible to make. For example, the cost of a cable only allowing for the 2 first drivers would be compared to the cost of a bigger cable providing additional interconnection capacity. This would be completely artificial since the project is

built as a whole, every component contributing indistinctly to each of the drivers and being necessary for each driver.

#### **A2.4. How to choose the specific internal projects Congestion Income is used for**

TSOs and their respective NRA shall jointly decide which investments are concerned. For every concerned project, the reason why it is taken into account should be justified by comprehensive analyses of their technical and economic justification, including their impact on cross-zonal flows.

**Since, as said above, it is not possible to quantify in an indisputable way an investment's contribution to cross-zonal capacity, and since investments are built as a whole with no possibility to split their cost by drivers, the cost of such investments should be taken into account fully for the use of congestion income.**

## Annex 3: Investments accounting, tariff regulation and funding perspectives

### A3.1. Accounting treatment of transmission assets

The following principles are valid for all network investments (interconnectors and investments in the internal grid).

Once an asset is commissioned, it is put in the asset base of the TSO (in the balance sheet) and depreciated. It means that every year of the depreciation period, the amount of the depreciation is written down in the TSO's income statement.

Transmission investments are generally depreciated over approximately 40 years, meaning the annual depreciation represents 1/40 of the investment cost.

### A3.2. Setting TSO's allowed revenue

When setting allowed revenue of a TSO, the NRA considers the TSO's income statement, which includes operational expenses (OPEX) and capital expenditure costs.

- **Operational expenses (OPEX):**

OPEX<sup>1</sup> include efficient cost of labour force, materials purchase, maintenance cost, ancillary services, redispatching, countertrading, losses ...

- **Capital expenditure costs.**

For an asset funded by capital, capital expenditure costs allow TSO to:

- Recover the depreciation,
- Recover the cost of debt,
- Achieve a reasonable profit, i.e. provide a return (remuneration) on the equity<sup>2</sup>.

Note that the investment expenditure itself is not covered by allowed revenue the year the investment is done. Rather, the allowed revenue covers the capital expenditure costs during the depreciation period.

The discounted sum of capital expenditure costs during the depreciation period exactly matches investment cost<sup>3</sup>. Thus, the TSO recovers investment cost over the lifetime of the asset.

The RAB ("Regulated Asset Base") is made of the regulated value of all assets funded by capital in the preceding years. Capital expenditure costs are defined so that they allow the recovery of the RAB depreciation, the cost of debt and the appropriate return on equity.

OPEX + capital expenditure costs, once they are considered efficient by the NRA, basically constitute the allowed revenue of the TSO.

---

<sup>1</sup> What is included in OPEX covered by tariff may vary from a jurisdiction to another. For instance, countertrading and redispatching are in some jurisdictions out of the OPEX ring-fence, they are electric system operation costs (pass-through items in the TSO's financial statement).

<sup>2</sup> The cost of debt and the cost of equity can be included in allowed revenue either via setting a "WACC" rate ("Weighted Average Cost of Capital") applied to the regulatory value of the asset, or by covering the debt cost as pass-through and the cost of equity via a Return of Equity rate (ROE). The regulatory value of the asset can be either the book value or estimated according to standard cost.

<sup>3</sup> For instance, for TSOs using a WACC, the sum of capital charges discounted at WACC rate during the depreciation period exactly matches the investment expenditure.

For an efficient TSO, depreciation and OPEX covered by tariff should match the corresponding accounting expense<sup>4</sup>.

The remuneration of the RAB intends to:

- Cover the cost of debt (i.e. interests paid to lenders), either on a normative way, or exactly matching the corresponding accounting expense, depending on NRA's choice,
- Provide a pre-tax profit to the TSO. This profit is used for:
  - o Paying corporate tax to the State,
  - o Sharing the remaining Net profit (post-tax), between:
    - dividend distribution,
    - "retained earnings" that increase the TSO's equity.

### **A3.3. Setting TSO's tariff**

A TSO's revenue (cash-in flows) is basically made of:

- Tariff revenue,
- Congestion income.

Where CI is "taken into account by the regulatory authorities when approving the methodology for calculating network tariffs or fixing network tariffs, or both", as provided by in art 19(3) of EU Regulation 2019/943, the level of tariff is set considering yearly congestion income that emerges from interconnection management. NRAs take into account both, the CI and the allowed TSO revenue, to calculate the tariffs as the costs consumers have to borne. Mechanisms such as claw-back account or other financial adjustment mechanisms allow to compensate ex-post deviations between forecast and actual congestion income.

### **A3.4. Funding network investments**

As seen above, cash-in flows are made of tariff revenue + congestion income.

Cash-out flows (in the cash-flow statement) are made of OPEX, debt interest, corporate tax, dividends, and investment expenditures. When the sum of those exceeds cash-in flows, TSOs must resort to alternative financing sources to gather the necessary funds:

- Debt,
- Possibly grants,
- As said in section A.3.2, retained earnings increase TSO's equity. Therefore they reduce the need for additional debt,
- If the debt level of the TSO becomes unsustainable, then he can asks its shareholders to proceed with equity increase or find new shareholders to gather additional equity. This is a more complex procedure than borrowing debt, and the cost of equity is higher than the cost of debt, so it is generally a last resort possibility

Above considerations are summarized in Figure 7:

---

<sup>4</sup> The NRA can set productivity objectives, generally on OPEX (sometimes on investment expenditures as well). The TSO can be more or less efficient than the objective set by NRAs, which impacts its profit. However, this is out of the scope of this paper: here we consider that actual spending matches allowed revenue.

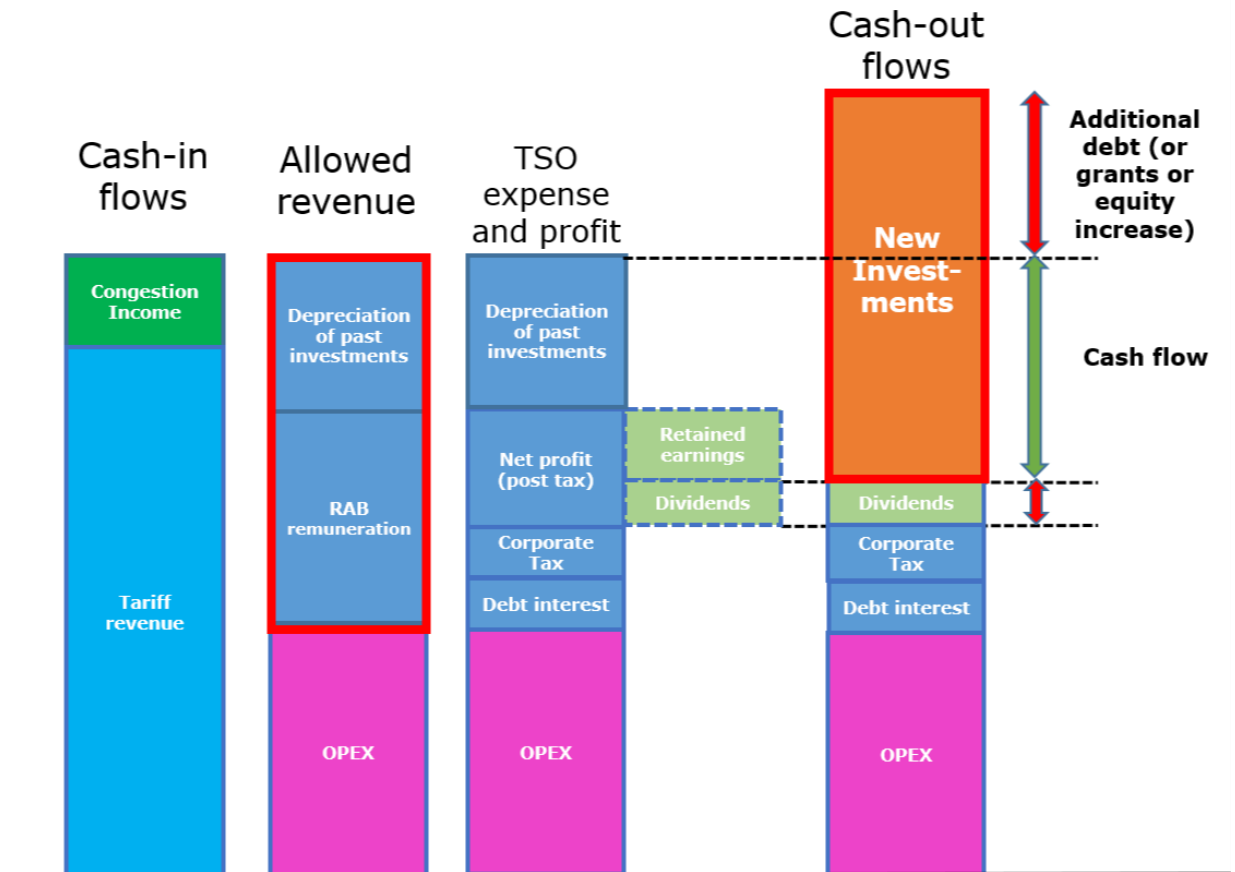


Figure 7: cash-in flows, allowed revenue, cash-out-flow

## Annex 4: Single Interconnector Companies

An important distinction must be made between TSO types. While all interconnectors must contribute a net social welfare benefit to European consumers and fulfil the priority objectives of Article 19(2), their cost and revenue bases can differ. It is important to recognise these differences.

Broadly, interconnectors fall into two categories:

1. TSOs whose asset base incorporate interconnectors into network RAB value; and
2. TSOs, or other legal entities, that only own and operate interconnectors. For this explanatory note, the latter category is referred to as “Single Interconnector Companies”.

Single Interconnector Companies are reliant on CI to recover their construction and operational costs. They do not typically receive income from network tariffs as they do not own and operate network assets other than those related specifically to the interconnector itself.

The differences between Network TSOs & Single Interconnector Companies is shown in the table below:

	Network TSOs	Single Interconnector Companies	
		With Exemption <sup>5</sup>	Without Exemption
Network Users	National network users and interconnector customers	Interconnector customers	Interconnector customers
Income <sup>6</sup>	Tariffs & Congestion Income	Congestion Income	Congestion Income
Socialisation of benefits, costs and risks	Yes	No	Partially, depending on the regulatory model

The regulatory deal for each interconnector is independent and applies only to that one interconnector. This includes all interconnectors in Great Britain (GB), and elsewhere in Europe such as Baltic Cable.

### A4.1. Appropriate returns and consumer benefit

Interconnectors must deliver net social welfare – the benefits to European consumers outweighing the cost of capacity. The difference between TSO types is in cost and revenue base.

As the Single Interconnector Company’s “network” only consists of one interconnector, it could be argued that the obligation to invest and maintain interconnection capacity according to Article 19(2) (b) is limited to its “network”, which is the interconnector. It can even be read as investments in the “original investment” – the interconnector at hand. This reflects the “commercial nature” of the business. The Single Interconnector Company has invested in new interconnection capacity in the past, with the prospect of earning congestion revenues CI to recover those costs with a rate of return in the future.

Existing and future interconnection is at risk if a methodology is developed that impeded the ability to recover initial investment costs and an appropriate return through CI. If developers are unable to recover

<sup>5</sup> Exemption from Article 19(2) as provided for by Article 63 of 2019/943 Regulation, or previous regulation in force at the time the exemption was granted.

<sup>6</sup> Income related to Congestion income might be considered as pass-through item in TSO’s financial statements for those Member States where CI is not considered within the TSO Allowed revenue

their construction and operational costs, they will not invest and the consumer benefit which would otherwise have been realised is lost.

Use of Revenues regime established by Ofgem in consultation with GB's Single Interconnector Companies can ensure compliance with Article 19 of Regulation 2019/943. Ofgem regulates interconnectors through licence conditions.

#### **A4.2. Case Study – Cap and Floor in Great Britain**

Cap and Floor is a regulatory regime developed for GB interconnectors which is applied to the development, construction and operation of new projects on a strictly individual basis.

The regulatory deal for each interconnector is entirely independent and applies to that one link, not to any historical investments by the interconnector owner nor to any additional interconnector. Each project is individually assessed by the NRA Ofgem on their GB social-economic welfare. Only projects with a positive result proceed into the Cap and Floor regime.

Cap and Floor levels are set on the basis of all the costs associated with developing, constructing and operating an interconnector. The costs are assessed by Ofgem on the level at which they were economically and efficiently incurred. Both the Cap and Floor are further subject to regulatory incentives for the interconnector to maximise technical availability of its assets annually and over the course of each revenue period.

Once Ofgem has determined the efficient level of cost for a project it applies an allowed level of returns to produce the Cap and Floor levels. The Cap allows for a return at the cost of equity, derived by Ofgem from comparator companies. The Floor allows for a return at the cost of debt. The Cap and Floor then allows for remuneration of OPEX and capital expenditure costs.

Revenue from CI is evaluated by the regulator over five-year assessment periods. Each is considered in isolation, no carry-overs between assessment periods, and as cumulative over the five years of the period.

Ofgem currently regulates this through licence conditions per Article 16(6) of Regulation 714/2009. With the exception of those interconnectors with an exemption to the Regulation 714/2009, interconnector licensees must prepare an annual report to Ofgem on its actual use of congestion income and other revenues. The annual statement on the use of revenues must report on the allocation to 'Guaranteeing the actual availability of the allocated capacity' and to 'Maintaining or increasing interconnection capacities through network investments' (e.g. compliance with Article 16(6) (a) & (b) of 714/2009).

These are the equivalent of the priority objectives of the Regulation 2019/943, Article 19(2) (a) & (b). This has allowed for recovery of capital and operational costs for all regulated interconnectors. This applies as well to Cap and Floor – although the assessment periods are in five-year increments, interconnectors must report annually on their CI.

The regulatory precedent set in GB should be extended to the implementation of Article 19 of the Regulation 2019/943. The existing framework for Cap and Floor and other regulated interconnectors in GB is compliant with and should be extended to the Methodology of Regulation 2019/943.

## **Annex 5: Article 19 of Regulation 2019/943**

### **Congestion income**

1. Congestion-management procedures associated with a pre-specified timeframe may generate revenue only in the event of congestion which arises for that timeframe, except in the case of new interconnectors which benefit from an exemption under Article 63 of this Regulation, Article 17 of Regulation (EC) No 714/2009 or Article 7 of Regulation (EC) No 1228/2003. The procedure for the distribution of those revenues shall be subject to review by the regulatory authorities and shall neither distort the allocation process in favour of any party requesting capacity or energy nor provide a disincentive to reduce congestion.
2. The following objectives shall have priority with the respect to the allocation of any revenues resulting from the allocation of cross-zonal capacity:
  - (a) guaranteeing the actual availability of the allocated capacity including firmness compensation; or
  - (b) maintaining or increasing cross-zonal capacities through optimisation of the usage of existing interconnectors by means of coordinated remedial actions, where applicable, or covering costs resulting from network investments that are relevant to reduce interconnector congestion.
3. Where the priority objectives set out in paragraph 2 have been adequately fulfilled, the revenues may be used as income to be taken into account by the regulatory authorities when approving the methodology for calculating network tariffs or fixing network tariffs, or both. The residual revenues shall be placed on a separate internal account line until such a time as it can be spent for the purposes set out in paragraph 2.
4. The use of revenues in accordance with point (a) or (b) of paragraph 2 shall be subject to a methodology proposed by the transmission system operators after consulting regulatory authorities and relevant stakeholders and after approval by ACER. The transmission system operators shall submit the proposed methodology to ACER by 5 July 2020 and ACER shall decide on the proposed methodology within six months of receiving it.

ACER may request transmission system operators to amend or update the methodology referred to in the first subparagraph. ACER shall decide on the amended or updated methodology not later than six months after its submission.

The methodology shall set out at least the conditions under which the revenues can be used for the purposes referred to in paragraph 2, the conditions under which those revenues may be placed on a separate internal account line for future use for those purposes, and for how long those revenues may be placed on such an account line.
5. Transmission system operators shall clearly establish, in advance, how any congestion income will be used, and shall report to the regulatory authorities on the actual use of that income. By 1 March each year, the regulatory authorities shall inform ACER and shall publish a report setting out:
  - (a) the amount of revenue collected for the 12-month period ending on 31 December of the previous year;
  - (b) how that revenue was used pursuant to paragraph 2, including the specific projects the income has been used for, and the amount placed on a separate account line;
  - (c) the amount that was used when calculating network tariffs; and
  - (d) verification that the amount referred to in point (c) complies with this Regulation and the methodology developed pursuant to paragraphs 3 and 4.

Where some of the congestion revenues are used when calculating network tariffs, the report shall set out how the transmission system operators fulfilled the priority objectives set out in paragraph 2 where applicable.