

CACM Cost Report of 2020



CACM Cost Report of 2020

prepared by all NEMOs and all TSOs according
to Article 80 of COMMISSION REGULATION (EU)
2015/1222 of 24 July 2015
establishing a guideline on capacity allocation
and congestion management

Table of Contents

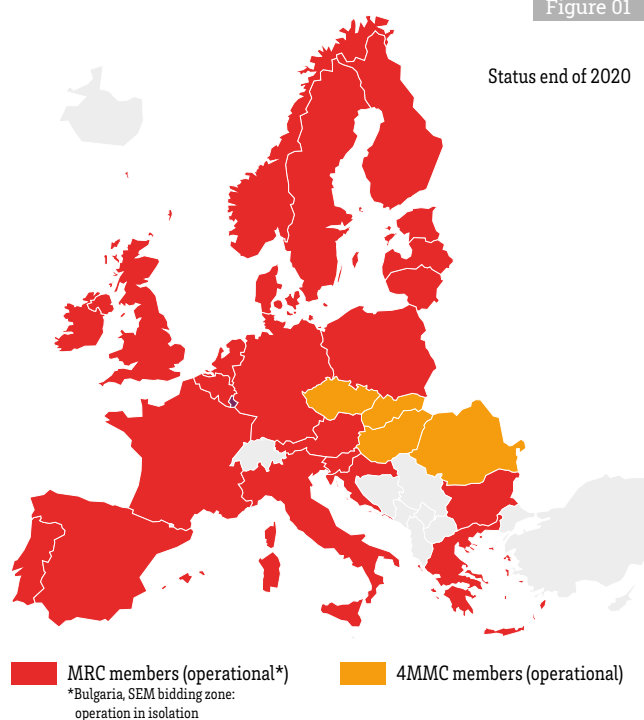
Introduction	6
Summary	9
Chapter A: Pan European costs	11
• 1 Actual SDAC costs of 2020	12
• 2 Actual SIDC costs of 2020	21
• 3 Forecast of SDAC costs for 2021	33
• 4 Forecast of SIDC costs for 2021	38
Chapter B: Regional costs	42
• 1 Regional projects of the Day-Ahead Timeframe	44
• 2 Regional projects of the Intraday Timeframe	55
Chapter C: National costs	57
Glossary	58
ANNEX	61
Imprint	107

Introduction

All Nominated Electricity Market Operators (NEMOs) and all transmission system operators (TSOs) report to the regulatory authorities on the costs of establishing, amending and operating single day-ahead and intraday coupling according to the Article 80 of the Commission Regulation (EU) 2015/1222 of 24 July 2015 – CACM Regulation. Costs directly related to single day-ahead and intraday coupling shall be clearly and separately identified and auditable. The report shall also provide full details of contributions made to NEMO costs by TSOs in accordance with Article 76(2).

Description of the Single Day-ahead Coupling

Figure 01



The aim of **Single Day-ahead Coupling (SDAC)** is to create a single pan European cross zonal day-ahead electricity market. An integrated day-ahead market will increase the overall efficiency of trading by promoting effective competition, increasing liquidity, and enabling a more efficient utilisation of the generation resources across Europe. SDAC allocates scarce cross-border transmission capacity in the most efficient manner by coupling wholesale electricity markets from different regions through a common algorithm, simultaneously considering cross-border transmission constraints and thereby maximising social welfare. SDAC began as a voluntary initiative from NEMOs and TSOs in 2014 with North-Western Europe (NWE) Price Coupling, South West Europe (SWE) coupling and 4M MC. In 2021, it covers most of Europe.

The governance of the SDAC consists of three layers:

- Joint NEMOs and TSOs: governed by the Single Day-Ahead Coupling Operations Agreement (DAOA);
- Only NEMOs: governed by the All NEMO Day-Ahead Operation Agreement (ANDOA);
- Only TSOs: governed by the TSO Cooperation Agreement for Single Day-Ahead Coupling (TCDA).

Therefore, the governance structure is headed by a Joint Steering Committee (JSC) that includes representatives of all the parties involved. The JSC activities are supported by horizontal groups which address the legal, financial and communication aspects of the coupling. Furthermore, there are three joint groups which address the following operational aspects: Market & System Design, Procedures and Operation. In addition, in autumn 2020, the 15 minutes Market Time Unit (MTU) coordination was established as a project under the JSC.

Joint SDAC NEMOs and TSOs governance structure

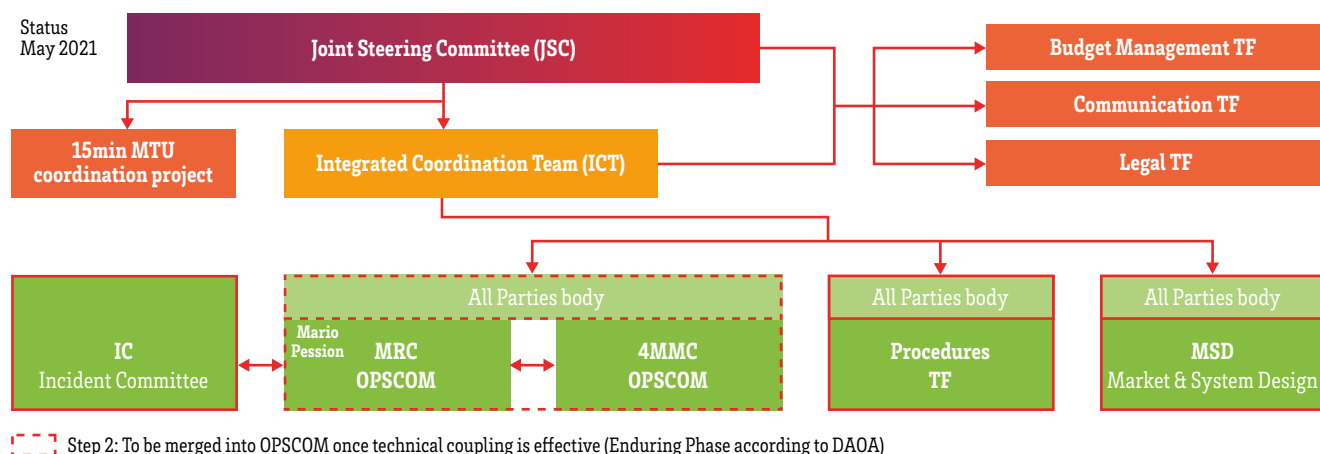
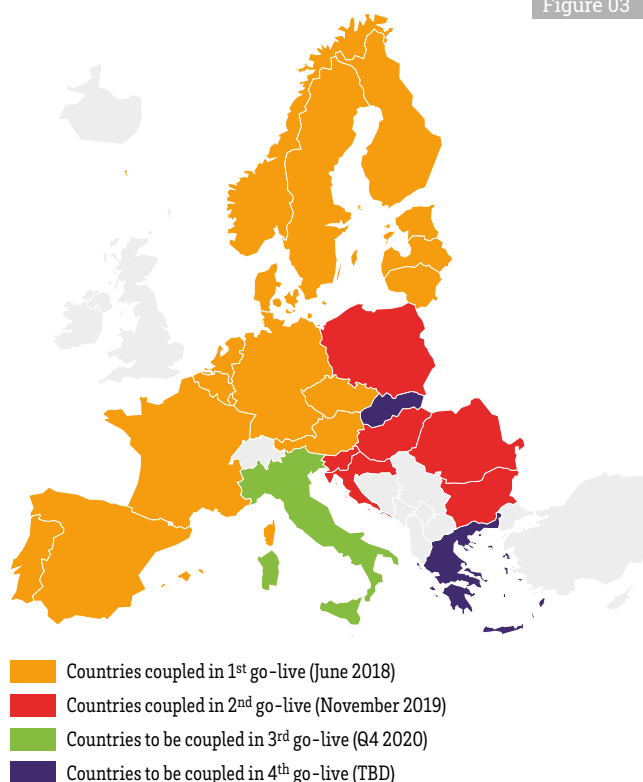


Figure 02

Description of Single Intraday Coupling

Figure 03



Note: Luxembourg is part of the Amprion Delivery Area. Market participants in Luxembourg have access to the SIDC through the Amprion Delivery Area

Single intraday coupling (SIDC) creates a single EU cross-zonal intraday electricity market. In simple terms, buyers and sellers of energy (market participants) are able to work together across Europe to trade electricity continuously on the day the energy is required.

An integrated intraday market makes intraday trading more efficient across Europe by:

- promoting competition
- increasing liquidity (i. e. increasing the ease with which energy can quickly be bought and sold without affecting its price)
- making it easier to share energy generation resources
- making it easier for market participants to allow for unexpected changes in consumption and outages

As renewable intermittent production such as solar energy increases, market participants are becoming more interested in trading in the intraday markets. This is because it has become more challenging for market participants to be in balance (i.e. supplying the correct amount of energy) after the closing of the day-ahead market.

Being able to balance their positions until one hour before delivery time is beneficial for market participants

Joint SIDC NEMOs and TSOs governance structure

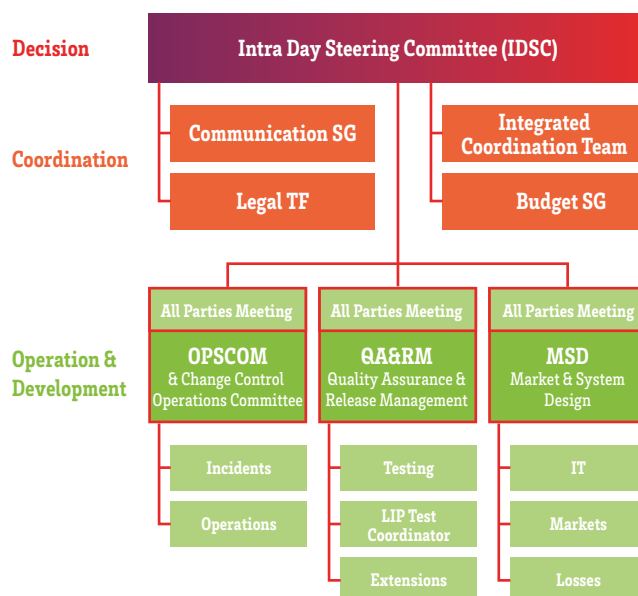


Figure 04

and power systems alike by, among other things, reducing the need for reserves and associated costs while allowing sufficient time to carry out system operation processes for ensuring system security.

SIDC is an initiative between NEMOs and TSOs which enables continuous cross-border trading across Europe. SIDC follows on from the Cross Border Intraday (XBID) Project which delivered, in June 2018, the first go-live of the intraday continuous trading platform. It allows energy networks to integrate and expand across Europe. The SIDC was launched on 12/13 June 2018 across 15 countries. On 19/20 November 2019 SIDC went live across a further seven countries resulting in 22 countries being coupled. As of the end of 2020, over 70 million trades have been completed across these countries.

The governance of SIDC consists of three layers governed by separate agreements.

1. Joint NEMOs and TSOs: governed by the Intraday Operation Agreement (IDOA)
2. Only NEMOs: governed by the ALL NEMO-Intraday Operation Agreement (ANIDOA)
3. Only TSOs: governed by the Transmission Cooperation Agreement (TCID)

In each case, the governance structure follows a similar approach with:

- a steering committee at the top,
- support groups (SG) and task forces (TF),
- three joint groups dealing with operations:
 - › Operations Subcommittee (OPSCOM) and Change Control,
 - › Quality Assurance and Release Management (QA&RM), and
 - › Market and System Design (MSD)

Description of the cost categories included in the report

Table 01

		Establishing and amending costs		Operating costs	
SDAC common costs	All NEMOs and all TSOs cost	1.1	<ul style="list-style-type: none"> • Price coupling solution for day-ahead (Development + Amendment) • Leader Remuneration (WGs) • Legal support • Project Manager Office (PMO) • Costs for meeting arrangement • Secretarial Services • Procedures - Updates, • Operational Report - Changes • Simulation Facility adaptations 	1.2	<ul style="list-style-type: none"> • Operation of the price coupling solution • Legal support • Secretarial Services • Procedures - Updates
	All NEMOs costs	1.3	<ul style="list-style-type: none"> • Maintenance Contracts for SDAC • PMO • Support Tasks • Leader Remuneration (WGs) • NEMO only related Euphemia releases • Part of NEMOs committee costs (CACM related tasks) 	1.4	<ul style="list-style-type: none"> • Maintenance Contracts for SDAC • Leader Remuneration (WGs) • PMO • Support Tasks
	All TSOs costs	1.5	<ul style="list-style-type: none"> • Legal Support • Secretarial Services 	1.6	<ul style="list-style-type: none"> • Secretarial Services
SIDC common costs	All NEMOs and all TSOs costs	2.1	<ul style="list-style-type: none"> • Hosting & Maintenance of SIDC Technical solution and Further development of SIDC technical solution Workgroups (XTG, MSD, QARM, LTC, BMSG, COMSG), • Legal support (LTF) • Project Manager Officer (IDSC, ICT and other WGs) • Travelling and meeting organisation • Procedures - Updates by OTF 	2.2	<ul style="list-style-type: none"> • Hosting & Maintenance of SIDC Technical solution Incident Committee (IC SPOC) • Operational Committee (OPSCOM) • Workgroups (BMSG, OTF, ICT), • Legal support (LTF) • Project Manager Officer (IDSC, ICT and other WGs) • Travelling and meeting organisation • Procedures - Updates (OTF)
	All NEMOs costs	2.3	<ul style="list-style-type: none"> • PMO • Workgroups (PWG, TWG) • Travelling and meeting organisation • Legal support (LWG) • NEMOs committee costs (CACM related tasks) 	2.4	<ul style="list-style-type: none"> • Operation of the price coupling solution Workgroups (PWG, TWG) • PMO
	All TSOs costs	2.5	<ul style="list-style-type: none"> • Costs for project management • Costs related to information and communication channels • External administration costs related to SIDC Solution • Costs for testing 	2.6	<ul style="list-style-type: none"> • Costs for project management • Costs related to information and communication channels • External administration costs related to SIDC Solution • Costs for operational reporting

Summary

Overview of costs since 2017

Table 02

		2017		2018		2019		2020		2021 forecast	
		Establishing and amend-ing (K €)	Operating (K €)	Establishing and amend-ing (K €)	Operating (K €)	Establishing and amend-ing (K €)	Operating (K €)	Establishing and amend-ing (K €)	Operating (K €)	Establishing and amend-ing (K €)	Operating (K €)
SDAC	Joint costs	204	0	902	0	1,368	264	2,028	346	3,948	486
	All NEMOs	1,315	0	1,314	0	1,134	446	1,156	465	491	563
	All TSOs	0	0	22	0	3	0	15	9	53	38
	Total	1,519	0	2,238	0	2,505	710	3,199	820	4,492	1,087
SIDC	Joint costs	2,846	0	4,854	959	3,780	2,135	4,674	2,571	6,249	2,787
	All NEMOs	863	0	679	71	472	235	417	847	639	878
	All TSOs	686	0	768	200	606	374	649	282	881	347
	Total	4,395	0	6,301	1,230	4,858	2,744	5,740	3,700	7,769	4,012
Regional total	Joint costs	703	592	718	317	1,113	645	576	278	1,175	133
	All NEMOs	6	0	1	0	0	117	0	656	0	671
	All TSOs	637	378	535	429	918	101	1,133	503	1,354	396
	Total	1,346	970	1,254	746	2,031	863	1,709	1437	2,529	1,200
Grand Total (common + regional costs)		7,260	970	9,793	1,976	9,394	4,317	10,648	5,957	14,790	6,299
Total cost per year		8,230		11,769		13,711		16,605		21,089	

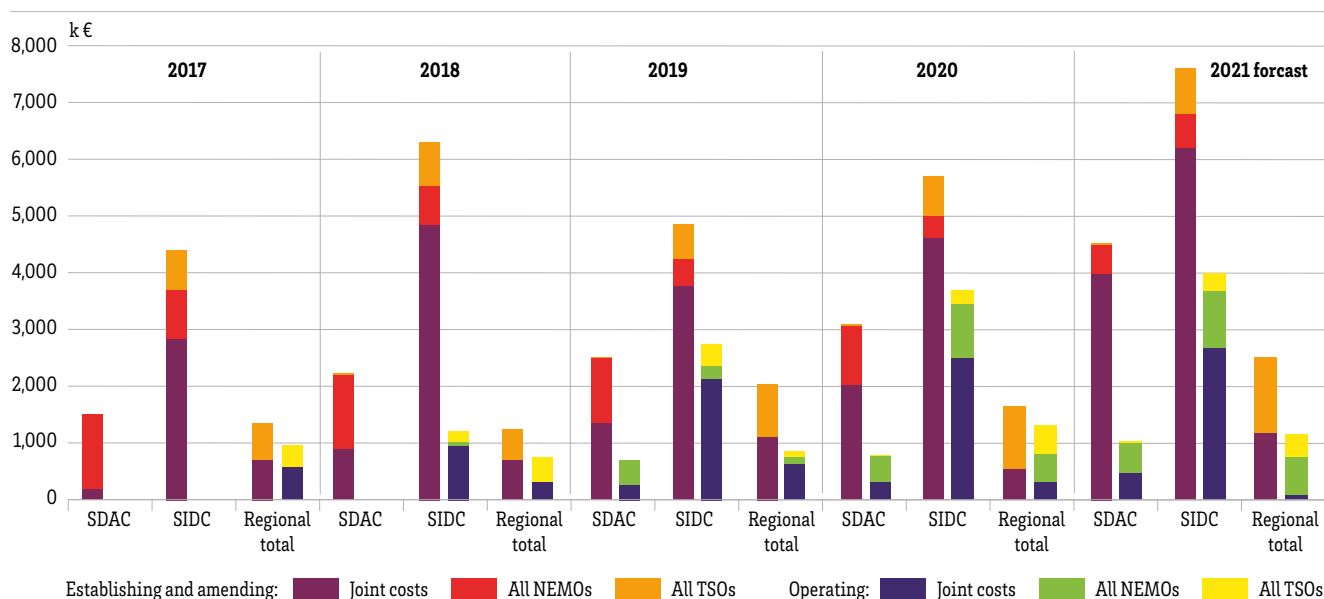


Figure 05

The key points of the evolution of costs in 2020 are the following:

SDAC key achievements in 2020

In 2020, the SDAC operations have been successfully extended to Greece via the IT-GR HVDC link. Further the transmission capacity of the in 2020 commissioned HVDC links Nordlink (DE-NO) and ALLEGro (BE-DE) was included in the single day-ahead coupling. In June 2020, the Nordic multi-NEMO arrangements (MNA) went live followed by the NordNed and Nordlink MNAs in November 2020. In contrast to these extensions, following the EU communication that the United Kingdom is no longer participating in the Union's dedicated platforms, the Great Britain (GB) borders were removed end of 2020 from the implicit single day-ahead market coupling topology.

During 2020 two major Euphemia and PCR matcher and broker (PMB) releases were launched. June's release introduced functionalities to deal with external constraints and parallel available transfer capacity (ATC) lines and an option for improved reproducibility. The December release brought some improvements to the performance, a new product, the scalable complex orders besides various other functionalities.

In addition to the improvements to the Algorithm, improvements to the daily operational processes have been investigated. Parties agreed to adjust the timings of the daily processes, giving additional 10 minutes to the daily Algorithm calculation (implemented June 2021 following regulatory approval). Investigations have been kicked-off to make further improvements to the daily market coupling process to avoid (partial) decoupling. Another stream concentrated on the implementation of requirements from the Algorithm Methodology to the existing SDAC procedures and processes. These came with changes regarding how a request for change to the Algorithm and its go-live windows are managed and required an Algorithm Monitoring procedure to be developed.

A significant part of the SDAC budget is used to research ways to improve the performance of the Algorithm to allow all required change requests to be accommodated. Research was done under the umbrella of the Euphemia Lab programme and shows overall positive results, leading to the industrialisation of promising topics that improve the Algorithm such as the introduction of scalable complex orders. A further option that has been investigated in 2020 and will be continued to be investigated in 2021 is non-uniform pricing. Regarding the 15 min MTU implementation, various studies were conducted by SDAC upon which NRAs finally required that the 15 MTU be implemented in a step-wise manner. To facilitate the coordination of the required IT adjustments and testing across SDAC, a respective project has been set-up under the JSC.

Finally, considering the COVID-19 pandemic, several measures have been introduced to safeguard stable operations. These include a physical separation between members of the respective operational teams and enabling the relevant parties to run the market sessions remotely.

SIDC key achievements in 2020

During the first months of 2020, SIDC piloted an agile approach for development and testing for which preparations began in late 2019. In the course of this pilot, a new system release was developed and tested successfully. This release contained important features for improving the usability of the XBID solution in operations and went live in June 2020. As part of this release, an adaptation was made to the way offered capacities are submitted to the ENTSO-E transparency platform, however, this feature went live some weeks after the initial deployment in June.

After the conclusion of the agile pilot phase, SIDC designed and scoped the next system release to be developed. The testing of this release began in September 2020 and was expected to extend into March 2021. This release (called 3.1) contains further operational usability improvements and will deliver additional reporting indicators as required by the algorithm methodology.

The year 2020 was also characterised by an intensive research and development track. To secure the extension of the interim transit shipping solution, a cost benefit analysis on the enduring shipping options for SIDC was initiated in close cooperation with the NRAs. The first part of the cost benefit analysis was submitted to the NRAs by the end of 2020. In the course of this analysis the interim transit shipping solution was extended until the enduring shipping is decided by the NRAs, thus securing the current scope of the intraday market coupling.

The design work on Intraday Auctions (IDAs) was also initiated in 2020. By the end of the year the high-level design was almost finalised resulting in a series of options for how XBID and PMB/Euphemia will be connected under IDAs.

In addition, research on the cross-product matching functionality was begun in close cooperation with the service provider.

As an important step towards the better market integration of renewables, smaller granularity cross-border products for continuous trading were made available on a number of bidding zone borders from December 2020. Finally, several measures were introduced to safeguard stable operations during the COVID crisis. These include physical separation between members of the respective operational teams and enabling the relevant parties to run the market sessions remotely.

Chapter A: Pan European costs

Common costs resulting from the coordinated activities of all NEMOs and all TSOs or all NEMOs only or all TSOs only participating in the single day-ahead and Single intraday coupling

The following table provides an overview of total actual common costs for the SDAC and SIDC in 2020 (without the regional costs):

Table 03

		Establishing and amending costs		Operating costs	
SDAC common costs	All NEMOs and all TSOs costs	1.1	2,028,461 €	1.2	346,135 €
	All NEMOs costs	1.3	1,156,198 €	1.4	465,083 €
	All TSOs costs	1.5	15,149 €	1.6	9,703 €
SIDC common costs	All NEMOs and all TSOs costs	2.1	4,674,341 €	2.2	2,570,886 €
	All NEMOs costs	2.3	416,573 €	2.4	846,813 €
	All TSOs costs	2.5	649,323 €	2.6	281,613 €
Total			8,940,045 €		4,520,233 €

The following table provides an overview of the 2021 forecast of common costs for the SDAC and SIDC (without the regional costs):

Table 04

		Establishing and amending costs		Operating costs	
Day ahead related common costs	All NEMOs and all TSOs costs	3.1	3,947,779 €	3.2	485,578 €
	All NEMOs costs	3.3	490,768 €	3.4	563,334 €
	All TSOs costs	3.5	53,338 €	3.6	38,338 €
Intraday related common costs	All NEMOs and all TSOs costs	4.1	6,249,290 €	4.2	2,787,346 €
	All NEMOs costs	4.3	638,583 €	4.4	877,723 €
	All TSOs costs	4.5	880,730 €	4.6	346,886 €
Total			12,204,876 €		5,099,205 €

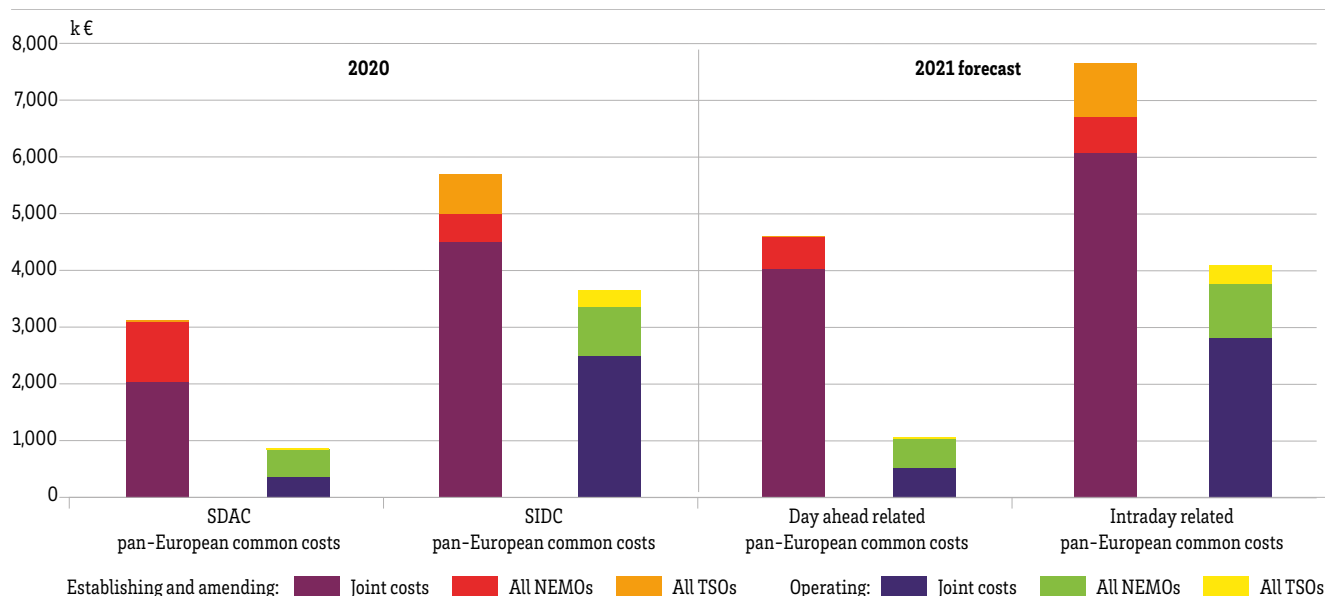


Figure 06

1 Actual SDAC costs of 2020

1.1 The joint all TSOs and all NEMOs costs of establishing and amending the SDAC totalling 2,028,461 € consists of:

Table 05

Item	Category	Temporary activity	2020 costs
1.1.1	ICG	NO	52,162 €
1.1.2	Simulation Facility Contingency	NO	8,383 €
1.1.3	Simulation Facility Architecture Update	NO	30,212 €
1.1.4	Simulation Facility Adaptation Euphemia Releases	NO	27,873 €
1.1.5	MSD NEMOs & TSOs co leader (ES)	NO	163,593 €
1.1.6	MSD PMO	NO	175,836 €
1.1.7	SDAC Technical Solution Euphemia Releases	NO	304,363 €
1.1.8	SDAC Technical Solution Leader Remuneration	NO	224,704 €
1.1.9	SDAC Technical Solution MNA Project	NO	1,041 €
1.1.10	SDAC Technical Solution PMB Releases	NO	145,846 €
1.1.11	SDAC Technical Solution R&D	NO	757,696 €
1.1.12	SDAC Technical Solution ALWG training	NO	116 €
1.1.13	SDAC Technical Solution Support tasks	NO	3,856 €
1.1.14	JSC Secretary (ES)	NO	46,477 €
1.1.15	Travel Expenses JSC Secretary (ES)	NO	158 €
1.1.16	Project Place Users	NO	932 €
1.1.17	Join Me licenses	NO	408 €
1.1.18	Communications TF Coordination (ES)	NO	18,211 €
1.1.19	Procedures TF Coordination (ES)	NO	15,100 €
1.1.20	Legal TF Coordination (ES)	NO	51,494 €
	Total SUM		2,028,461 €

1.2 The joint all TSOs and all NEMOs costs of operating the SDAC totalling 346,135 € consists of:

Table 06

Item	Category	Temporary activity	2020 costs
1.2.1	SF Operational	NO	246,614 €
1.2.2	Procedures TF Coordination (OP)	NO	29,651 €
1.2.3	Communications TF Coordination (OP)	NO	6,070 €
1.2.4	Legal TF Coordination (OP)	NO	17,165 €
1.2.5	JSC Secretary (OP)	NO	46,477 €
1.2.6	Travel Expenses JSC Secretary (OP)	NO	158 €
	Total SUM		346,135 €

- A rate of 925 €/MD was used for internal resources of NEMOs and TSOs
- The Budget Management Task Force (BMTF) is responsible for the budgeting, validating and reviewing of costs associated with the JSC, who provides the final cost approval.
- The cost sharing methodology for the 2020 Joint Actual costs, is based on the capacity allocation and congestion management (CACM) sharing keys implemented in the DAOA, which entered into force 28 March 2019.
- The TF Leaders provided the split of their cost reporting activities, between the establishment and the operational costs and between TSOs only and Joint NEMOs and TSOs SDAC costs.
- The main events for the year per task force were as below.
- Translate the relevant market design needs into amendments of requirements or new requirements for the Algorithm and the IT systems,
- Provide an assessment of feasibility, costs and benefits of changes, design them to the level of functional specifications in line with the strategic guidance provided by JSC and ensure that the design phase follows the planning,
- Support the creation of viable release planning with the focus on the analytical and technical deliverables and market design needs,
- Provide the necessary market, technical and functional knowledge base to other bodies.

As there are multiple tasks under the MSD task force which cover both TSO and NEMO related domains, two representatives have been elected, one as the MSD TSOs co-chair and one as the MSD NEMOs co-chair.

Due to the frequency of meetings (weekly meetings of 2h or 1h) and the documentation for them as well as for all other deliverables required under the MSD TF, the support of the MSD PMO was essential.

Costs for the research and development (R&D) programme have been managed by the MSD TF as they are part of the SDAC Joint NEMOs and TSOs cost categories as it concerns development for both NEMOs and TSOs for the SDAC Algorithm. Further progress on the R&D work was carried out by N-Side during 2020.

1.2.1 Market and System Design TF (Items 1.1.5 and 1.1.6)

The mission, objective & general scope of competence of the MSD TF is the following:

- Ensure a robust process is organised and applied to develop the Algorithm and the DA MCO function assets,

1.2.2 Procedures TF (Items 1.1.19 and 1.2.2)

The main tasks of the Procedures TF consists of the following:

- Draft, update and test relevant multi region coupling (MRC) operational procedures.
- End-to-end testing of 4MMC procedures.
- Draft, update and test relevant SDAC operational procedures in preparation of the enduring phase.
- Responsible for the end-to-end testing of implementation of local and regional changes due to changes in allocation constraints.

The main milestones and activities for the Procedures TF in 2020 were the following:

- New implementations impacting current MRC procedures.
 - › Nordic MNA procedures – 3 June.
 - › ELIA's External constraint – June.
 - › New operational timings (full-decoupling deadline shift to 14:00) – Prepared for June, delayed to 2021 (shadow allocation rules [SARs]).
 - › Capacity deadline firmness alignment with CACM – August.
 - › ALEGrO new interconnector. NordLink and Norned MNA – October.
 - › Coupling of Greek Market to MRC – 15 November
 - › Hard Brexit procedures adaptation – 31 December.
- Maintenance, improvements (Change control procedure adaptation with Algorithm methodology and monitoring), publication (NEMO Committee website, 1st September) and testing of existing MRC operational procedures.
- Joint procedural Testing (36 PCR/MRC Joint Tests in 2020). Organisational tasks, management and reporting.
 - › Nordic MNA Tests – 14/15/16/20/21 April.
 - › ELIA's External constraint and Parallel Lines – 15/16/27 June.
 - › Training test (Full decoupling scenario training with Market participants) – 30 September.
 - › ALEGrO tests – 02/15/19/28/29 October.
 - › New PCR assets (PMB-Euphemia releases) and HENEX market integration – 05/09/10/11 and 17/18/19/23/24 November.
 - › Hard Brexit preparation tests – 14/16 December.

- Analysis, discussion and impact assessment in Market Coupling process, documentation and reporting for extension of algorithm computation from 12 to 17 minutes in 2020 – new Operational timings preparations.
- Analysis and impact assessment of relevant SDAC operational procedures in preparation for the enduring phase.

1.2.3 Communications TF (Items 1.1.18 and 1.2.3)

The Communication TF is chaired by an external service provider, E-Bridge Consulting. The Communication TF focuses on the external communication made by SDAC. The major deliverables of 2020 were the following:

- Preparation and coordination of SDAC material for MESC and Trilateral/Pentalateral Coordination Group meetings
- Maintenance and delivery of SDAC communication plan: draft and publish press releases and communication notes on important events such as go-lives of new bidding zones, changes such as the GB parties' exit from SDAC and incidents.
- Coordination of the preparation and publication of SDAC operational agreements and procedures according to article 20.7 of the Algorithm Methodology
- Initiation of the creation of a slide deck about SDAC for external communication

1.2.4 Legal TF Coordination (Items 1.1.20 and 1.2.4)

The Legal TF is chaired by an external service provider, Bernard Energy. The main tasks of the Legal TF Coordination in 2020 were the following:

- Various legal assessments regarding the impact of Brexit on SDAC
- Various legal assessments regarding non-EEA members and potential extension of SDAC/adherence to DAOA; drafting of a Confidentiality Declaration for the Energy Community.
- Work on impact assessment on DAOA of SDAC joint governance principles (as approved by all NEMOs & all TSOS), preparation of a list of "legal questions" regarding those principles and drafting of several clarifications to these principles.

- Update of the contractual framework following the extension of Central Settlement Entity services
- Preparations and legal assessments regarding the publication of documents and procedures following article 20.7 of the Algorithm Methodology
- Legal preparations regarding the adherence of NGIFA2 to the SDAC
- Participation in discussions and legal assessment CCP-default related issues
- Legal preparations and discussions non-uniform pricing

1.2.5 Simulation Facility

(Items 1.1.2, 1.1.3, 1.1.4 and 1.2.1)

The Simulation Facility is a web-based application in which the Algorithm is embedded, and which allows the simulation of market coupling scenarios based on Historical Data and/or User-defined Data, as well as the reporting on the Simulation Results.

The main costs involving the Simulation Facility which occurred in 2020 were the following:

- CPLEX licenses for N-Side (required for Euphemia use)
- Maintenance and hosting of TRIMANE SDAC Technical Solution
- Euphemia release update and testing
- Change requests and testing for MNA adaptation
- Change requests and testing for inclusion of 4MMC region
- SF taskforce Telcos
- Functional Support Facility Operational (FSFO) activity (support to SF users, Leader role)
- Quarterly remuneration of SDAC Technical Solution NEMOs for Euphemia use

1.2.6 SDAC Technical Solution

(Items 1.1.7, 1.1.8, 1.1.9, 1.1.10, 1.1.11, 1.1.12, and 1.1.13)

The main goal of the SDAC Technical Solution used in the SDAC is to calculate energy allocation prices across the European electricity market to increase the markets transparency and maximise the social welfare by using one single common Algorithm. Within the SDAC project the SDAC Technical Solution is also known as "PCR".

1.2.7 JSC Secretary and ICT PMO –

(Items 1.1.14 and 1.2.5)

- The roles are all performed by an external service provider, E-Bridge Consulting.
- The activities of this role focus on the facilitation of the JSC meetings and the facilitation of the Integrated Coordination Team (ICT) which is responsible for the co-ordination of all deliverables across all TFs.
 - › Preparation and facilitation of JSC meetings and conference calls, including drafting meeting minutes and ensuring timely completion of agreed actions.
 - › Support the co-chairs in day-to-day project management of SDAC.
 - › Preparation and moderation of monthly ICT calls and bi-annually meetings. These meetings were held to co-ordinate dependencies and risks across TFs, agree high-level planning, discuss overall strategy and prepare for JSC meetings. Issues were highlighted to the JSC Co-Chairs and mitigations agreed.
 - › Contract management and taking care of new party adherence.
 - › Single point of contact for request of JSC members.

1.3 The all NEMOs costs of establishing and amending the SDAC in 2020

The all NEMOs costs of establishing and amending the SDAC in 2020 consist of:

- NEMO Committee costs totalling 138,436 €

- NEMOs only costs of establishing and amending the SDAC algorithm and DA MCO Function System totalling 1,017,762 €

as further detailed below.

50% of all costs encountered by the NEMO Committee in its tasks of preparing CACM methodologies and proposals in 2020, totalling 138,436 €.

Table 07

Item	Related Task Force	Temporary activity	2020 costs
1.3.1	NEMO Committee	NO	74,067 €
1.3.2	NEMO Committee - chairman	NO	46,689 €
1.3.3	Reporting and communication Task Force	NO	35,728 €
1.3.4	Technical Task Force	NO	33,144 €
1.3.5	Legal Task Force	NO	26,049 €
1.3.6	NEMO Committee - support	NO	24,156 €
1.3.7	Intraday auction Task Force	YES	14,569 €
1.3.8	Cost Task Force	NO	14,569 €
1.3.9	Exceptional contingency	YES	7,902 €
	Total SUM		276,873 €

In 2020 the NEMO Committee (NC) worked on many activities, partly following up from 2019 ones, partly new and mostly following responsibilities and task given by CACM Regulation, the approved MCO Plan and Algorithm Methodology.

1.3.1 NEMO cooperation

(Items 1.3.1, 1.3.2 and 1.3.6)

The NC addressed some escalations from SDAC and SIDC and streamlined the position of all NEMOs regarding some topics of common interest within the Pentalateral Coordination Group.

1.3.2 NEMO-TSO cooperation

(Items 1.3.1, 1.3.2 and 1.3.6)

The NC and All TSOs continued their cooperation to build a single European internal energy market. Namely all NEMOs and all TSOs worked on the planning to es-

tablish the joint governance for SDAC and SIDC and also addressed some escalations from SDAC and SIDC.

1.3.3 Methodologies (Item 1.3.4)

In January 2020, ACER published Decision 04/2020 on Algorithm methodology and Decision 05/2020 on Intraday products methodology.

In 2020, NEMOs reviewed the Day-Ahead products methodology. Following the corresponding public consultation, all NEMOs submitted a proposal and ACER published its Decision 37/2020 on 22 December 2020.

1.3.4 IDAs (Item 1.3.7)

The NC has contributed to seeking alignment among all NEMOs active in SDAC and SIDC on the Terms of Reference for IDAs.

1.3.5 Communication and Stakeholders involvement (Item 1.3.3)

The NEMO Committee has published on the website quarterly summaries of its meeting minutes as well as public versions of contracts and operational procedures and other contents coming from SDAC and SIDC. As regards, exchanges with stakeholders, the NEMO Committee has attended MESC meetings where several topics have been discussed and tackled (aggregated curves, price limits, publication of contracts).

On 10 March 2020 NC responded to ACER's consultation on its proposed amendments to the all TSOs' proposal for a methodology for a co-optimised allocation process of cross-zonal capacity for the exchange of balancing capacity or sharing of reserves

On 8 April 2020 the NC launched a public consultation pursuant to Art. 12 of Commission Regulation (EU) 1222/2015 (hereinafter CACM Regulation) on products that can be considered in the SDAC.

On 19 June 2020 NC NEMOs' responded to EC's public consultation on amendments to procedural provisions in electricity network codes and guidelines

On 3 August 2020, the NC published the 2019 Cost report prepared in cooperation with ENTSO-E and in compliance with CACM Regulation, Article 80.1.

On 30 September 2020, the NC published on its website the CACM Annual Report 2019, a report on operations, monitoring and development of the SDAC and SIDC prepared in cooperation with ENTSO-E and in compliance with provisions under Algorithm Methodology article x and with CACM Regulation Article 37.6.

On 19 October 2019, the NC started the periodic publication of the Operations Report about Incidents, Request of Changes, Corrective Measures

- A rate of 925 €/MD was used for internal resources of NEMOs
- The external costs were included at costs without any surplus or commercial benefit for the contracting party.

- NEMO Committee costs (Items 1.1.1, 1.1.2 and 1.1.6) consists of costs of the Chairman of the NEMO Committee of the cost of external PMO support (costs of project management services provided by Indra Czech Republic s.r.o.) and the Costs related to other supportive tasks, mainly related to reporting and communication to define, prepare and perform reporting according to the CACM Regulation.
- The external support for PMO services was selected based on a competitive tender finalised at the beginning of 2020.
- The Reporting and Communication TF (Item 1.1.3) was formed in 2019 and is responsible for the NEMO Committee webpage, external communication, preparation of CACM reports and press releases of the NEMO Committee
- The Technical TF (Item 1.1.4) was established as a merger of 3 TFs operating in 2017, namely the Algorithm and product TF, DA Algorithm TF and ID Algorithm TF, in order to deal with all technical methodologies in a centralised approach under the CACM Regulation.
- The Legal TF (Item 1.1.5) is responsible for delivering the contractual framework in accordance with MCO Plan – especially the All NEMO Cooperation Agreement and coordination of work of legal TFs of NEMOs under SDAC and SIDC.
- COST TF (Item 1.1.8) is responsible for the budgeting, validating and reviewing of costs associated with the NEMO Committee and the preparation of a Cost Report according to CACM Regulation.
- IDA TF (Item 1.1.7) was established as an ad-hoc TF in order to prepare the governance framework for the establishment of IDAs.

The detailed disaggregation of the costs is available in relevant Database file.

Respective costs attributable to all NEMOs for establishment and amendment of SDAC algorithm and DA MCO Function System totalling 1 017 762 €.

Table 08

Item	Category	Temporary activity	2020 costs
1.3.10	Maintenance Contracts	NO	704,560 €
1.3.11	PMO – General Support	NO	129,494 €
1.3.12	Support Tasks	NO	83,857 €
1.3.13	Leader Remuneration	NO	48,193 €
1.3.14	Facilities	NO	35,818 €
1.3.15	NEMO only related Euphemia Releases	YES	15,841 €
	Total SUM		1,017,762 €

- A rate of 925 €/MD was used for internal resources of NEMOs
- The external costs were included at costs without any surplus or commercial benefit for the contracting party.
- Maintenance costs (Item 1.3.10) refers to part of the costs related to the maintenance contracts for Algorithm and PMB which is not related to production operational support and therefore refers to basic maintenance (so-called "offline maintenance") and change release management.
- The external service provider in charge of maintenance of the Algorithm-N-SIDE SA was selected based on a competitive tender prior to the entry into force of CACM.
- The external service provider in charge of development and maintenance of the PMB – Unicorn Systems a.s. was selected based on competitive tender prior to CACM's entry into force.
- PMO – General Support costs consist of the costs of the external support related to project management services provided by SIA Partners Belgium until 6 May 2020 and by Indra Czech Republic s.r.o. as of 6 May 2020.
- The external support for PMO services was selected based on a competitive tender.
- Leader Remuneration (Item 1.3.13) refers to remuneration of the PWG and LTF (formerly Governance Working Group) leadership provided by the internal resources of NEMOs.
- Support tasks (Item 1.3.12) refer to minor ad-hoc tasks performed for the benefit of all NEMOs such as their representation in specific joint WGs or TFs or in external forums or update of materials such as presentations and documentation. These tasks are provided either internally by the NEMOs or externally by the PMO.
- Facilities (Item 1.3.14) refer to costs of the document management system provided by Project place International AB) and to the costs of the Incident committee conf call lines – used as the main line for daily operational calls and incident committee calls.

- The Legal WG (LWG) is responsible for delivering the contractual framework of NEMOs within SDAC – especially the All NEMO Day-ahead Cooperation Agreement.
- The Procedural WG (PWG) is responsible for the drafting, improvement and testing of NEMOs procedures for SDAC – the coupling part.
- Costs associated to Euphemia releases refers to the costs of Internal Simulations and Analysis, drafting work and tool automation for the benefit of all NEMOs provided internally by NEMOs resources.

The detailed disaggregation of the costs is available in the relevant Database file.

1.4 NEMOs only costs of operating the SDAC

The amount of 465 083 € consists of:

Table 09

Item	Category	Temporary activity	2020 costs
1.4.1	Maintenance Contracts	NO	363,460 €
1.4.2	Leader Remuneration	NO	92,049 €
1.4.3	Maintenance Costs	NO	4,876 €
1.4.4	PMO – General Support	NO	4,206 €
1.4.5	Support Tasks	NO	491 €
	Total SUM		465,083 €

- A rate of 925 €/MD was used for the internal resources of NEMOs
- The external costs were included at costs without any surplus or commercial benefit for the contracting party.
- Maintenance costs (Items 1.4.1 and 1.4.3) refers to part of cost related to maintenance contracts for Algorithm and PMB which is directly related to production operational support and therefore refers to operational maintenance (so-called "online maintenance").
- PMO- General Support (Item 1.4.4) costs consist of the costs of the of external support related to project management services provided by SIA Partners Belgium until 6 May 2020 and by Indra Czech Republic s.r.o. as of 6 May 2020.
- The external support for PMO services was selected based on a competitive tender prior to CACM's entry into force.
- Leader Remuneration (Item 1.4.2) refers to the remuneration of the PWG, AWG and LTF (formerly Governance Working Group) leadership provided by the internal resources of NEMOs for the benefit of the operation of SDAC.
- Support tasks (Item 1.4.5) costs refer to the cost of the ACER study performed by NEMOs on a yearly basis.

1.5 The TSO only costs of establishing and amending the SDAC

The amount of 15,149 € consists of:

Table 10

Item	Category	Temporary activity	2020 costs
1.5.1	Legal Support TCDA	NO	1,054 €
1.5.2	TSO JSC Secretary (ES)	NO	9,703 €
	Total SUM		15,149 €

- The TSOs only costs for establishing and amending the SDAC, consist of external legal support to the TCDA Agreement (Bernard Energy) and Secretary costs of the TSO JSC (E-Bridge Consulting)
- The external legal services have been provided based on the direct assignment, as a continuity of the selected service providers, by the SDAC TSOs JSC.
- The TSOs of the BMTF are responsible for the budgeting, validating and reviewing of costs, associated with the SDAC TSOs JSC, who provides the final cost approval.
- The cost sharing methodology for the 2020 Joint Actual costs, is based on the CACM sharing keys implemented in the TSO Cooperation Agreement for TCDA, which entered into force as of 28 March 2019.

1.6 The TSO only costs of operating the SDAC

The amount of 9,703 € consists of:

Table 11

Item	Category	Temporary activity	2020 costs
1.6.1	TSO JSC Secretary (OP)	NO	9,703 €
	Total SUM		9,703 €

- The roles are all performed by an external service provider, E-Bridge Consulting.
- The activities of this role focus on the facilitation TSO-only Steering Committee meetings.
 - › Preparation and facilitation of the TSO JSC meetings and conference calls, including drafting meeting minutes and ensuring the timely completion of agreed actions
 - › Support the co-chair in the day-to-day project management of SDAC
 - › Contract management and taking care of new party adherence
 - › Single point of contact for request of TSOs JSC members

2 Actual SIDC costs of 2020

2.1 The joint all TSOs and all NEMOs costs of establishing and amending the SIDC

SIDC algorithm and ID MCO Function System totalling 4,674,341 € as further detailed below. The costs consist of:

Table 12

Item	Category	Temporary activity	2020 costs
2.1.1	Hosting & Maintenance of SIDC Technical solution	NO	1,661,971 €
2.1.2	Further development of SIDC technical solution	NO	2,060,780 €
2.1.3	XTG	NO	329,560 €
2.1.4	MSD	NO	202,855 €
2.1.5	QARM	NO	128,773 €
2.1.6	IDA	YES	56,461 €
2.1.7	Other expenses	NO	32,545 €
2.1.8	LTC	YES	19,465 €
2.1.9	IDSC	NO	52,583 €
2.1.10	LTF	NO	58,197 €
2.1.11	BMSG	NO	25,390 €
2.1.12	ICT	NO	9,940 €
2.1.13	COMSG	NO	15,665 €
2.1.14	OTF	NO	20,155 €
	Total SUM		4,674,341 €

2020 was another successful year for SIDC based on two major achievements:

- Firstly, it was the first full year of successful SIDC operation in more than 22 countries following the second wave go-live in November 2019. This was achieved by extending the interim transit shipping solution well beyond 2020 and has resulted in a significant increase of the number of orders registered and trades concluded on the platform, while operation has been stable and reliable.
- Secondly, Release 3.0 was deployed by mid 2020 adding important features for the secure operation of SIDC to the system.
- An overview of the activities undertaken in the main groups within the SIDC and organisational structure are provided below.

2.1.1 Intraday Steering Committee (IDSC) (Items 2.1.9 and item 2.2.7) – chaired by Jean Verselle (Artelys) and Stefano Alaimo (GME)

The IDSC is responsible for providing strategic orientations and finding solutions for all unresolved issues. There were several difficult issues which had to be managed carefully. These included, most importantly, the issue of Transit Shipping; after an interim solution was agreed to secure the 2nd wave go-live, several options were identified to design an enduring solution. Continuous exchanges with NRAs were organised; a cost benefit analysis of the selected solutions was undertaken and the first results were delivered to the NRAs by the end of the year. As a result of these activities, the operational transit shipping scheme was extended well beyond 2020, ensuring the coupling of intraday markets across Europe.

The IDSC also decided not to continue with the agile approach for the development of new releases, considering the lessons learnt from the agile pilot used for Release 3.0.

In addition SIDC focussed on the main components of its roadmap:

- Development and start of the tests of the Release 3.1
- Initiation of the activities on European IDAs, focusing on initial design and on the governance principles between SIDC, SDAC and PCR
- Design of the Cross Product Matching (CPM) functionality
- Inclusion of Losses
- Coordination with the Local Implementation Project (LIP 14) aiming at extending the SIDC to Italy

2.1.2 Hosting & Maintenance of the SIDC technical solution and further development of the SIDC technical solution (Deutsche Börse AG [DBAG] costs) (Items 2.1.1 and 2.1.2 and item 2.2.1)

The cost consists of recurring Hosting and Maintenance cost and the cost for new functionality or services put into effect. New functionality might also impact the recurring Hosting & Maintenance cost.

- Recurring Hosting & Maintenance cost: a total sum of 3,184,888 €, of which 1,661,971 € represent the costs of establishing and amending the SIDC and 1,522,917 € represents operating costs
 - › This consists of elements such as:
 - Cost for the hosting of the solution in two data centres
 - Cost for the security services
 - Cost for the provision of the solution's environments (productions, production-like, test environments) and the infrastructure
 - Cost for the provision of the continuous IT support and operation
 - Cost for the availability of the failover mechanism
 - Cost for software licences
 - Cost for corrective and preventive software corrections
 - Cost for adaptive and perfective software enhancements

- › Every added functionality can have an impact on ongoing MHosting & Maintenance costs depending on its scale and complexity
- › The Hosting & Maintenance cost is divided between the Operational and Establishment & Amendment cost according to the formula agreed by the SIDC parties in the IDOA agreement.
- › 3rd party support totalling 65,280 €, which is a specific support from the XBID Service Provider DBAG to each NEMO primarily for solving obstacles during the setup of LTS' connectivity to the SIDC technical solution (hence considered as the costs of establishing and amending the SIDC)
- New functionality or service in totalling 2,060,780 €: CR097: 767k € – With this CR-Release 3.1 the Parties mandate DBAG with the design, implementation and delivery of Release 3.1 (R3.0 OCC Files and R3.1). The following components were developed/tested or upgraded (3rd party software)
 - › First delivery package to Production
 - Release 3.0 OCC Files
 - › Second delivery package to Production
 - Release 3.1
 - FIXIT of JIRAs from previous releases, IMTs
 - Third party software upgrades
 - › ASR018: 455k € – With this ASR018, DBAG conducts an analysis with the purpose of demonstrating the feasibility and impact of including CPM in the XBID Solution
 - › ASR017: 395k € – The additional service request (ASR) was necessary to cover the involvement of DBAG in the activities associated with the planning of XBID Release 3.0 and the analysis of change requests foreseen for XBID Release 3.0, mainly:
 - SM GUI Improvements – additional CR
 - SM Sent Files FTC revamp II – additional CR
 - AM Indicators
 - OCC files submission fixes (CR095 enhancement)
 - Shipping module handover enduring solution improvement
 - Zeroes allowed as def. cap. (extended with option of negative capacity)
 - Common ATC/NTC for Bidding Zone borders
 - Extend Contract Halt function with a selection of direction(s)
 - Capacity Management Module (CMM) Process Execution after System failure
 - CMM GUI Refresh function
 - Order execution timestamp

- › ASR010c: 378k € – With this ASR, DBAG has conducted a proof of concept with the purpose of demonstrating the feasibility and impact of including losses in the XBID Solution. The proof of concept was conducted as an iterative process and based on the 3rd wave grid model with lossy coefficients as defined by NEMOs and TSOs.
- › CR96: 59k € – This CR was necessary to cover the involvement of DBAG in the activities associated with the support of the User Acceptance Test (UAT) phase of the agile pilot scope
- › ASR016: 6k € – The ASR was necessary to cover the involvement of DBAG in the activities associated with the 2nd wave production launch strategy and readiness of the XBID Solution

2.1.3 XBID Testing Group (XTG) (Item 2.1.3) Co-chaired by representatives from EPEX (until September), RTE, TTN and OMIE (as of September)

In 2020 there were three main activities which were performed by XTG. Below you can find those activities and the main elements with the corresponding dates.

- Agile Pilot: the Agile Pilot was the first release handled in a different manner than usual, namely with an Agile approach instead of the waterfall approach. The Agile Pilot, deployed into production on 16 June 2020, consisted of two phases: the functional testing phase and the Go-Live preparation phase.
 - › Functional testing phase, divided in 5 sprints (0-4), started on 13 January 2020 and finished on 3 April 2020
 - › Go-Live Preparation phase: started on 4 April 2020 and finished on 12 May 2020
 - DST Tests: from 8 April 2020 until 4 May 2020
 - Failover Tests: from 10 April 2020 until 7 May 2020
 - Regression Tests: from 20 April 2020 until 12 May 2020
 - Performance Tests: performed on 4 April 2020
 - › R3.0 (OCC files): Under the usual methodology (Waterfall), this was a separate release specifically for the OCC files in the CMM module, which was deployed into production on 8 July 2020. Testing campaign was divided in:
 - R3.0 OCC files functional/regression tests: from 20 May 2020 until 24 June 2020
 - R3.0 OCC files performance tests: on 11 June 2020
 - › R3.1: XTG was begun in 2020 with the preparation of this release and partially executed the UAT I/III/R phase.
 - UAT Phase I/III/R – Functional and Regression tests: started on 3 September 2020 and continued in 2021

2.1.4 MSD (Item 2.1.4) Chaired by representative from E-Bridge (PMO provided by the same representative)

MSD manages the technical aspects of the joint project. This includes the development of Change Requests which have an impact on the IT solution, alignment on the changes specifications with DBAG, technical prioritisation of the changes and review of technical documents, assessment of faults, clarifications of points raised by the testing experts, and assessment and validations of major configuration changes.

Major MSD R&D activity was design work regarding cross-product matching feature starting with high-level design (options, their assessment) completed in October and continuing with more detailed questions regarding the impact on files generated by XBID Solution and their specific attributes, configurations and specific corner cases assessment. Detailed design work shall continue in 2021.

Major Change Requests prepared by MSD and further detailed with DBAG were Algorithm Methodology indicators, amendments of reporting of Offered Capacities to ENTSO-E, improving the enhanced shipper functionality for cases when there is no shipper active in all delivery areas, and introducing the possibility of combined capacity constraints for Poland.

MSD also supported AGILE Pilot activity – both in terms of the preparation of governance and processes as well as in execution (selected members participated in dedicated teams together with XTG members).

Of particular note is the work overseen by the MSD with regards to losses on DC cables. Further clarifications continued as a follow up of Proof of Concept for Losses implementation executed in 2019 – covering clarifications regarding technical specifications of XBID Solution, performance improvement measures and, as of March dealing with a solution to the identified rounding issue. The adjusted concept considering the local rounding solution was developed in July/August and presented to MSD for further consideration.

MSD, in addition, supported QA&RM/TSSG work on enduring shipping cost benefit analysis and triggered works on flow based high-level design.

2.1.5 QA&RM (Item 2.1.5) Chaired by NEMO Project Manager, Indra (PMO provided by the same representative)

- The budgeted cost for QA&RM related activities for 2020 was 119k € (attributed to establishment cost). The real cost was 128k €.
- QA&RM represent several types of activities focused on Quality Assurance and Release Management. In practicality it means:
 - › translation of the business strategic needs in the project planning covering integration with the working level and system provider
 - › establishment and management of the processes which monitor the development of new releases including resolution of the situations causing a deviation from the project plan and planned quality
 - › establishment and management of the processes associated with the geographical extension of SIDC cooperation (preparation for the 3rd wave of go live)
- The main drivers leading of the cost attributed in 2020 were mainly services associated with
 - › Implementation stemming from the implementation of so called "agile pilot" change requests
 - › Implementation of the release 3.0 and 3.1)
 - › Early planning activities for the release 4.0
 - › Early planning activities for IDAs and CPM
 - › Elaboration on the initial study and detailed study related to the enduring shipping solution as well as clarification activities associated with the resolution of the short-term situation
 - › Coordination of the planning and activities associated with the early stage of 3rd wave of SIDC geographical extension
- The budget was exceeded by 8.5 % mainly due to activities related to the enduring shipping solution, which were not foreseen during the planning in 2019 and also due to change of the QA&RM periodicity from weekly biweekly meetings to weekly meeting.

2.1.6 IDA (Item 2.1.6) Chaired by representative from E-Bridge (PMO provided by the same representative in Q1-Q3 2020 and later by INDRA)

IDA SG manages the preparation of technical requirements regarding IDA implementation. This included the: assessment of initial inputs elaborated by NEMO's IDA TF, preparation of a high-level activities plan, high-level assessment of changes required to XBID/Euphemia/PMB to support IDAs and the description and evaluation of various options for the integration of XBID and Euphemia/PMB, including the initial assessment of the steps and data exchanges and their timings when the IDA session is executed.

2.1.7 LIP Testing Coordinator (LTC) (Item 2.1.8) Chaired by representative from E-Bridge (PMO provided by the same representative)

The aim of the LTC is to ensure the local parties' systems will be ready to connect to the XBID solution and work correctly with it. In addition, it supports XTG testing activities, i.e. enables the identification of XBID solution faults which might be difficult to identify in isolated tests performed by XTG.

All activities were related to 3rd Wave LIP testing and preparation. These activities included the configuration of test environment, Integration tests and Run1 and Run2 of the Functional tests with 3rd wave parties in the period September-December.

Work was organised with weekly calls of 3rd wave parties focusing on alignment concerning testing preparations and planning. During an active test phase (usual duration one week), daily stand-up calls were organised to clarify/confirm the activities for the day and summarise the results of the previous test day.

2.1.8 LTF (Items 2.1.10 and 2.2.9) Co-chaired by representatives of the NEMOs (through Modo-Law) and TSOs (through BEA)

The LTF concentrated on diverse tasks in a number of fields, among others regarding the following:

- IDOA: assessment of different legal questions related to the cooperation agreement between TSOs and NEMOs
 - › Exit EXAA: assessment of different options and a preparation exit plan
 - › Preparation of draft second amendment; update CCP and Algorithm Monitoring Procedure; questions related to changes to procedures
 - › Publication of contracts: support with preparation of public versions of contracts
 - › Accession Slovak Parties
 - › Brexit: assessment of impact on IDOA, assessment of different questions
 - › Joint governance SIDC-SDAC: preparation of adaptations to IDOA to implement joint governance principles & exchanges between co-convenors
- Transit Shipping – enduring solution: coordination of/management provision of input to legal assessment
- Contract with DBAG:
 - › Assessment of different legal questions regarding downtimes, market halts, hosting and maintenance services
- PMO/LTF Co-convenor tasks (follow-up mails, input to ID SC, participation to IDSC, participation ICT telco budget reporting, organisation LTF telco; etc.)

The input from the LTF and/or LTF Conveners was provided through written analysis and/or via direct participation during the crucial meetings and negotiations.

2.1.9 BMSG (Items 2.1.11 and 2.2.5) Chaired by representative of OTE. PMO provided by Ernst and Young

The BMSG managed financial reporting and validation monthly. The resettlement of the cost among all SIDC parties takes place quarterly. In 2020 the costs were split using the:

- Sharing Key for Establishing and Amending Cost
- Operational cost sharing key

All cost sharing key were calculated according to the CACM sharing key and in compliance with the IDOA, amongst the IDOA signatories.

The budget for the 2021 and financial roadmap for 2022–2023 was developed and approved according to the IDOA process.

2.1.10 ICT (Items 2.1.12 and 2.2.10) PMO provided by Ernst and Young

The ICT are responsible for co-ordination of the integrated plan across all work streams. Regular meetings were held to update the status of milestones in the plan and co-ordinate dependencies and risks. Issues were highlighted to the IDSC Co-Chairs and mitigations agreed.

Furthermore the ICT members pre-align on the IDSC agenda for the next IDSC meeting, which is provided to IDSC members.

2.1.11 Communications Subgroup (Items 2.1.13 and 2.2.11) Chaired by TSO Project Manager, APG. PMO provided by Ernst and Young

Regular reports to stakeholders were prepared for the Trilateral Coordination Group Meeting as well as for the MESC meetings. For the latter this included the SIDC analysis of the EFET paper on the future development of the Intraday market and the discussion with stakeholders on the results of the analysis.

In addition two press releases were issued. The first one in response to the COVID crisis was prepared in cooperation with SDAC. The second one informed market participants on the rollout of 15min and 30min products across the many borders of the cooperation and on the revised implementation timeline for the integration of Italy into SIDC.

2.2 The joint all TSOs and all NEMOs costs of operating the SIDC

SIDC algorithm and ID MCO Function System operation totalling 2,570,886 € as further detailed below.
The costs consist of:

Table 13

Item	Category	Temporary activity	2020 costs
2.2.1	Hosting & Maintenance of SIDC Technical solution	NO	1,522,917 €
2.2.2	IC SPOC	NO	590,824 €
2.2.3	OPSCOM	NO	277,357 €
2.2.4	MPLS	NO	59,760 €
2.2.5	BMSG	NO	25,419 €
2.2.6	Other expenses	NO	28,543 €
2.2.7	IDSC	NO	17,706 €
2.2.8	OTF	NO	20,155 €
2.2.9	LTF	NO	19,399 €
2.2.10	ICT	NO	3,492 €
2.2.11	COMSG	NO	5,313 €
	Total SUM		2,570,886 €

The explanation of majority of cost elements of SIDC operating costs is provided in chapter related to joint NEMOs and TSOs costs of establishing and amending the SIDC.

2.2.1 Incident Committee single point of contact (IC SPOC) (Item 2.2.2) performer by some operational NEMOs based on a rotational scheme

The importance of the IC SPOC is to ensure the necessary coordination of all parties during a critical incident. With the involvement of so many parties in a joint project such as SIDC, it is crucial to have a dedicated individual to ensure the necessary actions are taken and ensure the co-operation of vital parties. There are high costs associated with this as NEMOs providing this service must employ individuals 24/7 for the 14 days on duty as well as the following 14 days on backup. These individuals performing the IC SPOC role must also be high-level, well-trained operators, capable of handling such a wide-scale incident.

2.2.2 Operational Committee (OPSCOM) (Item 2.2.3) Chaired by NEMO representative on rotational basis, PMO provided by Ernst and Young

The key role of OPSCOM is to ensure the continued stable operation of the SIDC system. This is achieved by the standardised operating procedures created, which are continually improved and executed by OPSCOM members internally. Another vital task of OPSCOM is the management production incidents, which members investigate and review to find solutions to be tested and deployed. OPSCOM works to develop operational change requests and enhancements to be implemented in production. In addition, it is under OPSCOM's purview to organise, test and coordinate system maintenances, new version releases and go-lives.

2.2.3 Costs of MPLS (Item 2.2.4)

refers to the costs of connection of the central SIDC system into the MPLS network of NEMOs (provided by COLT) and TSOs (provided by Orange).

2.3 The all NEMOs costs of establishing and amending the SIDC

NEMO Committee costs totalling 138,436 €, NEMOs only costs of establishing and amending the SIDC totalling 278,137 € as further detailed below. The costs consist of:

50% of all costs encountered by NEMO Committee in its tasks of preparation of CACM methodologies and proposals in 2020 totalling 138,436 €

Table 14

Item	Category	Temporary activity	2020 costs
2.3.1	NEMO Committee	NO	74,067 €
2.3.2	NEMO Committee - chairman	NO	46,689 €
2.3.3	R&C TF	NO	35,728 €
2.3.4	Technical TF	NO	33,144 €
2.3.5	Legal TF	NO	26,049 €
2.3.6	NEMO Committee - support	NO	24,156 €
2.3.7	IDA TF	YES	14,569 €
2.3.8	Cost TF	NO	14,569 €
2.3.9	Exceptional contingency	YES	7,902 €
	Total SUM		276,873 €

The detailed information related to the NEMO Committee is available under the NEMOs only cost of establishing and amending the SDAC.

Respective costs attributable to all NEMOs for the establishment and amendment of SIDC totalling 278 137 €.

Table 15

Item	Category	Temporary activity	2020 costs
2.3.10	Project Management (PM)	NO	139,697 €
2.3.11	Technical WG (TWG)	NO	55,581 €
2.3.12	Expenses	YES	66,633 €
2.3.13	Legal WG (LWG)	NO	14,249 €
2.3.14	Procedures WG (PWG)	NO	2,977 €
	Total SUM		278,137 €

- A rate of 925 €/MD was used for the internal resources of NEMOs
- The external cost were included at costs without any surplus or commercial benefit for the contracting party.
- The resources for the NEMOs only part of the SIDC project were secured through external providers support by Indra Czech Republic s.r.o. for Cost TF, PM, PWG and TWG and by MODO Advocatén for LWG.
- The external support for PMO services was selected based on a competitive tender.
- The external support for LWG services was selected based on a direct assignment prior to CACM's entry into force.
- Project Management is responsible for the project management of NEMOs only bodies under the SIDC project.

- The TWG is responsible for the review of technical and functional specification of the SIDC MCO Function System.
- Expenses relate mostly to the costs of the Public Message Interface (PMI) and traveling/meeting place expenses.
- The LWG is responsible for the delivery of the contractual framework required by NEMOs to establish and operate the SIDC.
- The PWG is responsible for establishing the NEMOs only procedures of SIDC and NEMOs activities (drafting and review) related to joint NEMOs and TSOs procedures.

2.3.1 For PMO activities (NEMO ID SC and NEMO OPSCOM) (Items 2.3.10 and 2.4.4)

PM/PMO represent several types of activities supporting NEMOs in the following project bodies: NEMO SIDC steering committee, joint SIDC steering committee with TSOs, JSC with DBAG, NEMO and joint operational committee, SIDC cost management group, SIDC budget management subgroup, SIDC Integration and Coordination Task Force and Integration and Coordination Task Force with NEMO Committee.

With regard to scope it focuses on daily activities related to the communication, agendas, minutes, reporting, preparation of the inputs for decision making processes, etc. and on delivery-oriented activities as negotiation with service providers, contracts and amendment to contracts, strategic planning etc.

The main drivers associated with cost attributed in 2020 were mainly services associated with:

- Negotiation and implementation of the agile pilot Release and Release 3.1
- Negotiation of ASR on the cross product matching
- Initial preparation for the 3rd wave of the go live (the same assumption as for Release 2.0 applies)
- Accession of new parties to ANIDOA
- CACM reporting for 2019
- Review process of Amendment 6 to MSA
- NEMO IDSC alignment on IDA related topics (solution and Terms of Reference)
- Activities associated with the publication of ANIDOA and IDOA
- Regular integration with NEMO Committee, tasks stemming from the integration
- Clarification and implementation of the change within the scope of REMIT reporting

2.3.2 NEMO Central Admin (Item 2.4.1)

The importance of the NEMO Central Admin is to ensure the necessary actions can be triggered on behalf of NEMOs during a critical incident or planned maintenance. With the involvement of so many parties in a joint project such as SIDC it is crucial to have a dedicated individual to ensure the necessary actions are taken and ensure the cooperation of vital parties. There are high costs associated with this as the NEMOs providing this service must employ individuals 24/7 for the 14 days on duty as well as the following 14 days on backup. These individuals performing the NEMO Central Admin role must also be high level, well trained operators, capable of handling an action with such a wide scale impact.

2.3.3 TWG, PWG (Items 2.3.11, 2.3.14, 2.4.3 and 2.4.6)

List of activities from January 2020 till December 2020:

- Update of specifications in relation to Losses – Functional Description SOB, XML Report Structure, AMQP Public Message Interface – Trading, Rounding
- PMI Log Analysis tool – 2nd round re-test, connectivity test and go-live preparation
- ACER meeting on SIDC REMIT Reporting – feedback on discussion and timeline
- ACER reports for H1/2019 cross-check
- H1 and H2 2019 ACER Report – WEIGHTED_AVERAGE_PRICE calculation issue clarification
- ACER reports for H2/2019, H1/2020 – data processing, cross-check and submission
- Orderbook performance improvements – analysis of the DBAG's proposal

- SLA Performance report for November 2019 till September 2020 review, managerial summary and growth estimation
- SLA KPI – Maximum Time Difference in Receiving Public Order Books Delta Report analysis and feedback
- Amendment 5 validation – Attachment 4B – Maintenance, Exhibit 20 and Appendix 20A
- Y2019 NEMO Committee Annual report, SIDC part – validation of the templates, raw data processing, clarification and processed data provision
- R3.1 Light performance test preparation – scenarios, dataset
- Technical solution for monitoring accesses to PMI Log files – analysis, requirements definition
- SIDC stakeholder reports – data availability check for the indicators (NEMOs part)
- Intrusion Detection System monthly reports for December 2019 till November 2020 – analysis, clarification, corrective measures proposal
- DDoS attacks to DBAG affecting XBID availability – analysis, request for corrective measures
- Support and organisation of the recurring training of operators
- Amendments and enhancement of procedures according to findings from operations
- Preparation of operator's certification

2.4 The all NEMOs costs of operating the SIDC

The amount of 846,813 € consists of:

Table 16

Item	Category	Temporary activity	2020 costs
2.4.1	Central Administrator	NO	732,000 €
2.4.2	Expenses	YES	17,935 €
2.4.3	Technical WG (TWG)	NO	56,576 €
2.4.4	Project Management (PM)	NO	23,766 €
2.4.5	Legal WG (LWG)	NO	4,750 €
2.4.6	Procedures WG (PWG)	NO	11,786 €
	Total SUM		846,813 €

- The rate for the Central Administrator role was set up to 2000 €/24 hours
- A rate of 925 €/MD was used for the internal resources of NEMOs
- The external costs were included at cost without any surplus or commercial benefit for the contracting party.
- The Central Administrator role rotates among NEMOs who volunteered to perform this role.
- The resources for the NEMOs only part of the SIDC project were secured through external providers support by Indra Czech Republic s.r.o. for Cost TF, PM, PWG and TWG and by MODO Advocaten for LWG.
- The external support for PMO services was selected based on a competitive tender.
- The external support for LWG services was selected based on a direct assignment prior to CACM's entry into force.
- The Central Administrator is responsible for the operation of the central system (XBID Solution) and for the performance of all procedures in 24/7 regime.

- PM is responsible for the project management of NEMOs only bodies under the SIDC project.
- The TWG is responsible for the review of the technical and functional specification of the SIDC MCO Function System.
- Expenses relate mostly to the costs of PMI and traveling/meeting place expenses.
- The LWG is responsible for the delivery of the contractual framework required by NEMOs to establish and operate the SIDC.
- The PWG is responsible for establishing the NEMOs only procedures of SIDC and NEMOs activities (drafting and review) related to joint NEMOs and TSOs procedures.

2.5 The all TSOs costs of establishing and amending the SIDC

All TSOs PMO and WG support totalling 649,323 € as further detailed below. The costs consist of:

Table 17

Item	Category	Temporary activity	2020 costs
2.5.1	Costs for project management	No	294,873 €
2.5.2	Costs related to information and communication channels	No	66,677 €
2.5.3	External administration costs related to SIDC Solution	No	7,353 €
2.5.4	Cost for testing	No	280,420 €
2.5.5	Contingency	Yes	0 €
	Total SUM		649,323 €

The following activities were undertaken under these categories:

2.5.1 Costs for project management (Item 2.5.1)

Under this category, 90% of the costs of the following external and internal service providers are summarised:

- Artelys for the role of the TSO chair
- BEA for the legal support
- E-Bridge for PMO support
- APG for the role of the TSO project manager

The following activities were undertaken:

- Attendance of IDSC (and facilitation in the case of the TSO chair), MESCC, TCG/PCG and JET meetings, DBAG JSC, 1-1 with XTG, MSD conveners, etc. including preparations/follow-ups

- Support in risk and issue management of the joint NEMO and TSO SIDC. In 2020, amongst others, the following important deliverables were in the focus of the TSO project management team:

- › Monitoring and continuous evaluation of the Agile Pilot. Following this pilot, it was agreed to continue with the waterfall approach and implement several improvements from the agile pilot
- › Transit shipping: various alignment calls with NRAs and EC across the year, agreement and communication re. TSO cost contribution to transit shipping
- › Development of IDA integration options including various TSO-only calls to align TSO position and way forward
- › Losses: evaluation of local solution to rounding issue
- › External reporting of SIDC and instalment of reporting subgroup lead by TSOs
- › R3.0 testing configuration activities (CMM, SM), R3.0 UAT testing
- › Preparation and LIP testing for 3rd wave go-live

- Managing of SEPS adherence to SIDC (contractual part, cost resettlement)
- Preparation for running of and follow-up for TSO SC
- Budgeting, reporting, and managing the quarterly resettlement of TSO-only common costs, input for 2019 NRA reporting
- Finalisation and signature of the Testers Agreement with Sogeti and SYSQA, and 1st amendment of the SLA for Central Admin with JAO.
- Managing the exit of GB parties from TCID TSO co-operation
- Preparation of TCID version for publication according to Algorithm Methodology and /Algorithm Monitoring Methodology
- Review on how to strengthen TSO participation and decision-making during IC calls
- CRO95 – interface between CMM and ENTSO-E's Transparency Platform: change request implemented, tested and border per border go-live so that offered capacity and changes are now published within 15 minutes (ACER requirement). Related service agreement with JAO signed. Enduring technical solution elaborated.
- Proof of concept for the automation of TSO-only tests of the XBID solution
- Identification and appointment of one new TSO XTG co-convenor

2.5.2 Costs related to information and communication channels (Item 2.5.2)

Under this category 50 % of the costs for providing and maintaining the ECP/MPLS communication channel are summarised. The following service providers contribute to these activities:

- Application support provider: Unicorn
- Primary hosting provider: Amprion
- Secondary hosting provider: Coreso
- General administrator and change control administrator: JAO

2.5.3 External administration costs related to SIDC Solution (Item 2.5.3)

The external service provider, JAO, serves as central administrator. This cost category summarises JAO's costs for configuring the CMM and SM part of the LIP and XTG testing environments.

2.5.4 Cost for testing (Item 2.5.4)

Costs of SYSQA who are testing new releases of the XBID solution on behalf of all TSOs and worked on the automation of the TSO-only test cases incl. a proof of concept.

2.5.5 Contingency (Item 2.5.5)

No contingency was utilised.

2.6 The all TSOs costs of operating the SIDC

All TSOs PMO and WG support totalling 281,613 € as further detailed below. The costs consist of:

Table 18

Item	Category	Temporary activity	2020 costs
2.6.1	Costs for project management	No	32,764 €
2.6.2	Costs related to information and communication channels	No	66,677 €
2.6.3	External administration costs related to SIDC Solution	No	155,664 €
2.6.4	External costs related to reporting to EMFIP	No	9,858 €
2.6.5	Costs for operational reporting	Yes	16,650 €
2.6.6	Contingency	Yes	0 €
	Total SUM		281,613 €

The following activities were undertaken under these categories:

2.6.1 Costs for project management (Item 2.6.1)

Under this category, the remaining 10% of the costs for project management activities are summarised. See chapter 2.5 for details.

2.6.2 Costs related to information and communication channels (Item 2.6.2)

Under this category 50% of the costs for providing and maintaining the ECP/MPLS communication channel are summarised. See chapter 2.5 for details.

2.6.3 External administration costs related to SIDC Solution (Item 2.6.3)

The external service provider, JAO, serves as central administrator. This cost category summarises JAO's costs for

- Configuring the CMM and SM part of operational environments
- Fee for 24/7 general availability and the on-call service fee

2.6.4 External costs related to reporting to EMFIP (Item 2.6.4)

Fee for providing an ECP bridge between XBID ECP and the ENTSO-E Transparency Platform ECP to automatically report TSO transparency data (for example available capacity) from the XBID Solution to the ENTSO-E Transparency Platform.

2.6.5 Costs for operational reporting (Item 2.6.5)

Costs of ČEPS for preparing monthly operational indicators.

2.6.6 Contingency (Item 2.6.6)

No contingency was utilised.

3 Forecast of SDAC costs for 2021

3.1 The joint all TSOs and all NEMOs forecast of establishing and amending the SDAC

The amount of 3,947,779 € consists of:

Table 19

Item	Category	Temporary activity	2020 costs
3.1.1	ICG	NO	40,000 €
3.1.2	Simulation Facility Knowledge Sharing	NO	10,000 €
3.1.3	Simulation Facility CR Contingency	NO	30,000 €
3.1.4	Simulation Facility Adaptation 4MMC	NO	3,000 €
3.1.5	Simulation Facility Architecture Update	NO	55,613 €
3.1.6	Simulation Facility Interface updates	NO	45,000 €
3.1.7	Simulation Facility Adaption for Euphemia releases	NO	45,000 €
3.1.8	MSD TF budget for support of TF members	NO	14,800 €
3.1.9	SDAC Technical Solution R&D	NO	641,000 €
3.1.10	Non-uniform Pricing Developments	NO	90,000 €
3.1.11	MSD NEMOs & TSOs co leader (ES)	NO	212,750 €
3.1.12	MSD PMO + organisational aspects	NO	191,400 €
3.1.13	MSD TF general contingency	NO	80,000 €
3.1.14	15 min MTU PCR R&D + Diagnosis	NO	120,000 €
3.1.15	15min MTU PMO TF	NO	235,100 €
3.1.16	Procedures TF Coordination (ES)	NO	16,052 €
3.1.17	JSC Secretary (ES)	NO	50,000 €
3.1.18	Travel Expenses JSC Secretary (ES)	NO	1,500 €
3.1.19	Travel and Meeting Arrangements (ES)	NO	15,000 €
3.1.20	Communications TF Coordination (ES)	NO	20,250 €
3.1.21	Legal TF Leader (ES)	NO	52,500 €
3.1.22	SDAC Technical Solution Euphemia Releases	NO	362,125 €
3.1.23	SDAC Technical Solution Leader Remuneration	NO	199,800 €
3.1.24	SDAC Technical Solution PMB Releases	NO	489,799 €
3.1.25	SDAC Technical Solution ALWG Training	NO	11,100 €
3.1.26	Functional Model Working Group (FMWG)	NO	25,000 €
3.1.27	SDAC Technical Solution Support Tasks	NO	60,125 €
3.1.28	Maintenance Contracts	NO	660,019 €
3.1.29	Project Place Users	NO	1,926 €
3.1.30	Join Me	NO	408 €
3.1.31	Central Settlement Entity Fees (ES)	NO	68,513 €
3.1.32	Contingency	NO	100,000 €
	Total SUM		3,947,779 €

- The budget of 2021 establishing and amending costs was calculated, based on the Joint NEMOs and TSOs SDAC costs in 2020.
- The total of the 2021 budget was increased by 569 422 € for the Joint SDAC establishment costs, compared to the 2020 actuals, which was mainly caused by the introduction of the Maintenance Contracts costs, which were previously fully financed by the SDAC NEMOs.
- As of 2021, the Central Settlement Entity fees will be treated as Joint NEMOs and TSO costs. This cost was previously fully borne by the SDAC TSO parties.

3.2 The joint all TSOs and all NEMOs forecast of operating the SDAC

The amount of 485,578 € consists of:

Table 20

Item	Category	Temporary activity	Costs of 2021
3.2.1	Legal TF Leader (OP)	NO	17,500 €
3.2.2	SF Operational	NO	240,750 €
3.2.3	JSC Secretary (OP)	NO	50,000 €
3.2.4	Travel Expenses JSC Secretary (OP)	NO	1,500 €
3.2.5	Travel and Meeting Arrangements (OP)	NO	15,000 €
3.2.6	Communications TF Coordination (OP)	NO	6,750 €
3.2.7	Creation of SDAC Marketing Slides	NO	7,400 €
3.2.8	Procedures TF (OP)	NO	27,009 €
3.2.9	SDAC Technical Solution Leader Remuneration (OP)	NO	1,156 €
3.2.10	Central Settlement Entity Fees (OP)	NO	68,513 €
3.2.11	Contingency	NO	50,000 €
	Total SUM		485,578 €

- The total of the 2021 budget was increased by 115 716 € for the Joint NEMOs and TSOs operating costs, compared to the 2020 actuals.
- To align the costs in the best way to the appropriate groups, the TF Leaders, provided the split of their cost reporting activities between the establishment and the operational costs.
- The costs of operation of MRC and 4 MMC shall be considered as joint all TSOs and all NEMOs costs of operating the SDAC only once the enduring solution is reached and the two regions are merged.
- As of 2021, the Central Settlement Entity fees will be treated as a Joint NEMOs and TSO costs. This cost was previously fully borne by the SDAC TSO parties.

3.3 The all NEMOs forecast of establishing and amending the SDAC

All NEMO Committee costs totalling 198,229 € and all NEMOs PMO and WG support totalling 292,539 € as further detailed below. The costs consist of:

50% of all costs forecasted for 2021 for the All NEMO Committee in its tasks of preparation of CACM methodologies and proposals totalling 198,229 €.

Table 21

Item	Category	Temporary activity	Costs of 2021
3.3.1	Chairman	NO	34,888 €
3.3.2	PMO and administrative costs	NO	127,859 €
3.3.3	Legal Task Force	NO	41,800 €
3.3.4	Cost Task Force	NO	23,430 €
3.3.5	Reporting and communication Task Force	NO	57,530 €
3.3.6	Technical Task Force	NO	70,950 €
3.3.7	Exceptional contingency	YES	40,000 €
	Total SUM		396,457 €

Compared to actuals of 2020:

- There is an expected increase related to the Reporting and Communication Task Force based on the additional communication and reporting requirements (more reporting expected in 2021).
- There is an expected decrease related to the Chairman of NC due to the significantly lower amount of physical meetings in 2021 and the increase of overall effectiveness.
- The increase of the LTF budget is related to the implementation of new governance structure and the increase of the Technical Task Force budget related to several key functionalities (related to 15min products) that needs to be prepared in 2021.
- The budget no longer includes a amount for the Intraday Auction Task Force as the design is further discussed under the SIDC project.
- The exceptional contingency of 40k € is included to cover unexpected tasks in 2021, however its usage must be first approved by the NEMO Committee and in a standard situation it is not expected to be used.

Respective costs attributable to all NEMOs for the establishment and amendment of the SDAC algorithm and MCO Function System for 2021 totalling 292,539 €

Table 22

Item	Category	Temporary activity	Costs of 2021
3.3.8	PMO – General Support	NO	75,665 €
3.3.9	Leader Remuneration Fee	NO	68,654 €
3.3.10	Facilities	NO	18,720 €
3.3.11	Support tasks	YES	129,501 €
	Total SUM		292,539 €

- The forecast is roughly 700k € lower compared to the actuals of 2020, based on the reclassification of "online maintenance costs."
- In line with the SIDC approach and the involvement of TSOs in operation, the so called "online maintenance" was categorised for 2021 as joint NEMOs and TSOs costs of operating the SIDC.
- Support tasks now include all internal contribution of NEMOs resources in NEMOs only working groups.

3.4 The all NEMOs forecast of operating the SDAC

The amount of 563,334 € consists of:

Table 23

Item	Category	Temporary activity	Costs of 2021
3.4.1	Online Maintenance	NO	418,877 €
3.4.2	Leader Remuneration	NO	102,219 €
3.4.3	PMB release	NO	20,000 €
3.4.4	PMO – General Support	NO	16,919 €
3.4.5	Support tasks	YES	5,319 €
	Total SUM		563,334 €

- The forecasted costs of 2021 represents a slight increase (of 100k €) compared to the actuals of 2020 due to the nature of the operational costs (an increase mostly of maintenance costs).

3.5 The all TSOs forecast of establishing and amending the SDAC

The amount of 53,338 € consists of:

Table 24

Item	Category	Temporary activity	Costs of 2021
3.5.1	Legal Support TCDA	No	15,000 €
3.5.2	TSO JSC Secretary (ES)	No	10,500 €
3.5.3	Central Settlement Entity Fees (ES)	No	22,838 €
3.5.4	Travel and Meeting Arrangements (OP)	No	5,000 €
	Total SUM		53,338 €

3.6 The all TSOs forecast of operating the SDAC

The amount of 38,338 € consists of:

Table 25

Item	Category	Temporary activity	Costs of 2021
3.6.1	TSO JSC Secretary (OP)	No	10,500 €
3.6.2	Central Settlement Entity Fees (OP)	No	22,838 €
3.6.3	Travel and Meeting Arrangements (ES)	No	5,000 €
	Total SUM		38,338 €

- The budget for 2021 was calculated, based on the TSOs only 2020 SDAC actuals costs.
- The budget for cost element TSO JSC Secretary has been split equally between categorization establishing and amending the SDAC and operating the SDAC.

4 Forecast of SIDC costs for 2021

4.1 The joint all TSOs and all NEMOs costs of establishing and amending the SIDC

Costs related to establishing and amending the SIDC in 2021 totalling 6,249,290 €. The costs consist of:

Table 26

Item	Category	Temporary activity	Costs of 2021
4.1.1	Aggregated Project Management costs	NO	1,130,358 €
4.1.2	Technical support tools (ProjectPlace, ReQTest)	NO	26,092 €
4.1.3	DBAG costs - related to future Local implementation projects	YES	250,187 €
4.1.4	DBAG costs - development + Change requests	NO	2,628,000 €
4.1.5	DBAG costs - hosting/maintenance ongoing	NO	1,595,000 €
4.1.6	DBAG costs - hosting/maintenance increase with Change requests	NO	54,000 €
4.1.7	Intraday Auctions implementation	YES	565,000 €
	Total SUM		6,249,290 €

In 2021 the Joint all TSOs' and all NEMOs' budget for Establishing and Amending the SIDC is 6,249m€. This is an increase of around 1,500m€ compared with the actual out turn in 2020 of 4,674m€ (which was an underspend against budget due to the later delivery of R3.1). The 2021

cost drivers include an increase for the development of the SIDC Solution due to a shift in implementation of Release 3.1 and increased budget for IDA implementation (an increase by more than 100 %) and an increase in the Hosting & Maintenance costs for Change Requests.

4.2 The joint all TSOs and all NEMOs forecast of operating the SIDC

Costs related to operation of SIDC in 2021 totalling 2,787,346 €. The costs consist of:

Table 27

Item	Category	Temporary activity	Costs of 2021
4.2.1	Aggregated Project Management Costs	NO	448,824 €
4.2.2	MPLS costs prefinanced by NEMOs respectively TSOs and defined as joint costs	NO	61,764 €
4.2.3	Technical support tools (ProjectPlace, ReQTest)	NO	26,092 €
4.2.4	DBAG costs - hosting/maintenance ongoing	NO	1,487,740 €
4.2.5	DBAG costs - hosting/maintenance increase with Change Requests	NO	126,919 €
4.2.6	IC SPOC	NO	586,008 €
4.2.7	DBAG costs - hosting/maintenance contingency	YES	50,000 €
	Total SUM		2,787,346 €

In 2021, the Joint all TSOs' and all NEMOs' budget for Operating the SIDC is 2,787m€. This is a slight increase over the actuals of 2,571m€. The increase is a corresponding increase in Hosting & Maintenance.

4.3 The all NEMOs forecast of establishing and amending the SIDC

50% of all costs forecasted for 2021 for the All NEMO Committee in its tasks of preparation of CACM methodologies and proposals totalling 198,229 €. The costs consist of:

Table 28

Item	Category	Temporary activity	Costs of 2021
4.3.1	Chairman	NO	34,888 €
4.3.2	PMO and administrative costs	NO	127,859 €
4.3.3	Legal Task Force	NO	41,800 €
4.3.4	Cost Task Force	NO	23,430 €
4.3.5	Reporting and communication Task Force	NO	57,530 €
4.3.6	Technical Task Force	NO	70,950 €
4.3.7	Exceptional contingency	YES	40,000 €
	Total SUM		396,457 €

Respective costs attributable to all NEMOs for the establishment and amendment of SIDC totalling 242,126 € related to:

Table 29

Item	Category	Temporary activity	Costs of 2021
4.3.8	NEMOs organisation	NO	222,126 €
4.3.9	Other costs and contingency	YES	20,000 €
	Total SUM		242,126 €

For the NEMOs organisation budget for 2020 is expected to be nearly 170k€ lower compared to 2020 due to the reduced workload expected from PMO services.

4.4 The all NEMOs forecast of operating the SIDC

The costs consist of:

Table 30

Item	Category	Temporary activity	Costs of 2021
4.4.1	Central Admin (NEMOs rotation)	NO	730,000 €
4.4.2	NEMOs organization	NO	121,723 €
4.4.3	Other costs and contingency	YES	26,000 €
	Total SUM		877,723 €

The main task of NEMO Central Admin is predicted to be charged in the same amount as for 2020. For the NEMOs organisation, there is a decrease compared to year 2020 due to the reduction of PMO-expected workload.

4.5 The all TSOs forecast of establishing and amending the SIDC consist of:

Table 31

Item	Category	Temporary activity	Costs of 2021
4.5.1	Costs for project management	No	351,000 €
4.5.2	Costs related to information and communication channels	No	79,290 €
4.5.3	External administration costs related to SIDC Solution	No	10,440 €
4.5.4	Costs for external testing support	No	400,000 €
4.5.5	Contingency	Yes	40,000 €
	Total SUM		880,730 €

- For item 4.5.1, the budget estimate for 2021 was made in Aug 2020 and the actuals for the 1st HY 2020 were used as input. On top, a 10 % contingency was added. Compared to the 2020 budget, there is a 10 % decrease in budget.
- For item 4.5.2, the budget is approximately the same as for 2020.
- For item 4.5.3, these are variable costs for configuring the testing environments. The estimate is based on actuals for variable costs reported by JAO between July 2019 and June 2020. For the variable costs, a 10 % contingency has been added. Compared to 2020, the budget is higher and better reflects the actual costs.
- For item 4.5.4, the budget in 2021 doubled compared to 2020. This is explained by moving more and more testing activities from individual TSOs to the external provider, i.e. individual TSO costs for testing are reduced in the same amount. Furthermore, an additional budget has been reserved for the automation of testing.
- Item 4.5.5, contingency, was added for the event in which tenders need to be run or in case new agreements are required increasing costs.

4.6 The all TSOs forecast of operating the SIDC consist of:

Table 32

Item	Category	Temporary activity	Costs of 2021
4.6.1	Costs for project management	No	39,000 €
4.6.2	Costs related to information and communication channels	No	79,290 €
4.6.3	External administration costs related to SIDC Solution	No	162,396 €
4.6.4	External costs related to reporting to EMFIP	No	22,000 €
4.6.5	Costs for operational reporting	Yes	4,200 €
4.6.6	Contingency	Yes	40,000 €
	Total SUM		346,886 €

- For item 4.6.1, see item 4.5.1, chapter 4.5 for details.
- For item 4.6.2 see item 4.5.2, chapter 4.5 for details.
- Item 4.6.3: These are variable costs for configuring the operational environment and fixed monthly instalments for general availability and on-call services provided by JAO. The estimate was made based on the known fixed monthly instalments (12.0833 €/m) and actuals for variable costs reported by JAO between July 2019 and June 2020. For the variable costs, a 10 % contingency has been added.
- Item 4.6.4 summarises the costs of the JAO who will create an "ECP bridge" between the XBID ECP and ENTSO-E Transparency Platform ECP. The ECP bridge is required to automatically report TSO transparency data (for example available capacity) from the XBID Solution to the ENTSO-E Transparency Platform. The estimate is based on an annual fee agreed with JAO.
- Item 4.6.5 summarises the costs of ČEPS for preparing monthly operational indicators for Q1 2021.
- For item 4.6.6 see explanation for item 4.5.5, chapter 4.5.

Chapter B: Regional costs

Regional costs resulting from the coordinated activities of all NEMOs or TSOs cooperating in a certain region

The following projects where NEMOs or TSOs cooperated in a certain region in line with CACM Article 80 (2)(b) were recognised in 2017:

Table 33

1	Day-ahead regional projects	2	Intraday regional projects
1.1	CWE project	2.1	LIP 14 – XBID + CRIDA project, including GR-BG border for Intra Day
1.2	CORE FB MC project	2.2	LIP 17 project
1.3	Nordic project		
1.4	Italian Borders Working Table project including GR-BG border project		
1.5	MRC project		
1.6	4M MC project		
1.7	Nordic MNA project		
1.8	Baltic MNA project		
1.9	DE-AT-PL-4M MC Project (Interim Coupling)		

Overview of total actual common regional costs in 2020

Table 34

		Establishing and amending costs		Operating costs	
Day ahead related common costs	All NEMOs and all TSOs costs	1.1	558,715 €	1.2	277,723 €
	All NEMOs costs	1.3	–	1.4	656,116 €
	All TSOs costs	1.5	1,133,422 €	1.6	503,168 €
Intraday related common costs	All NEMOs and all TSOs costs	2.1	17,682 €	2.2	–
	All NEMOs costs	2.3	–	2.4	–
	All TSOs costs	2.5	–	2.6	–
Total			1,692,137 €		1,437,007 €

The following table provides an overview of the forecast of common regional costs for 2021

Table 35

		Establishing and amending costs		Operating costs	
Day ahead related common costs	All NEMOs and all TSOs costs	3.1	1,153,025 €	3.2	133,405 €
	All NEMOs costs	3.3	–	3.4	670,776 €
	All TSOs costs	3.5	1,354,044 €	3.6	396,444 €
Intraday related common costs	All NEMOs and all TSOs costs	4.1	22,000 €	4.2	–
	All NEMOs costs	4.3	–	4.4	–
	All TSOs costs	4.5	–	4.6	–
Total			2,507,069 €		1,200,625 €

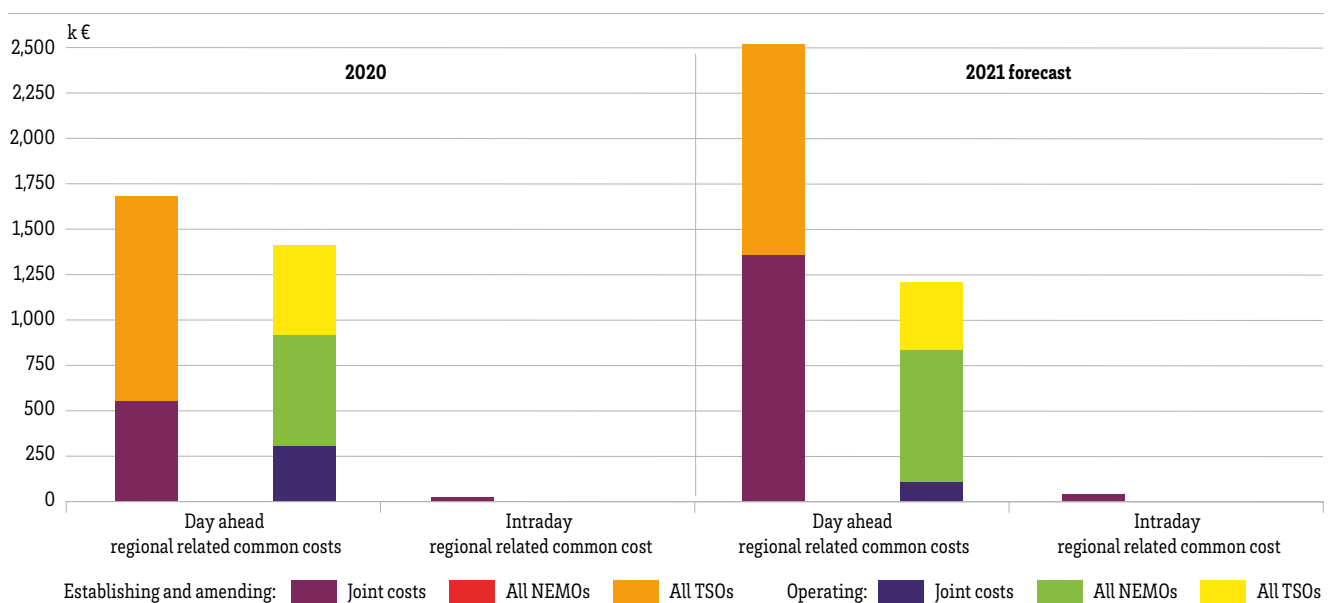


Figure 07

1 Regional projects of the Day-Ahead Timeframe

1.1 Costs of CWE project (DA) – including CWE MNA projects

The CWE market coupling project ensures the market coupling in the CWE region with a Flow Based Capacity Calculation Flow, which means that the result of the market coupling must be found within the provided constraints of a Flow-Based domain. The CWE project is developing a Multiple NEMO configuration in the CWE region, allowing designated or pass ported European NEMOs to enter into competition, as foreseen by the CACM Guideline. This Multiple NEMO configuration in CWE went live as of July 2019.

The default CACM sharing key applies for the CWE project.

1.1.1 Actual costs for 2020

The following table provides an overview of the total actual regional common costs in 2020:

Table 36		
Regional costs	2020 establishing and amending costs	2020 operating costs
NEMOs costs	–	169,531 €
TSOs costs	–	38,510 €
NEMOs and TSOs costs	181,200 €	59,427 €

The **NEMOs** only costs of operational costs totalling 169,531 € consist of:

Table 37		
Details	Temporary activity	2020 costs
CIP costs	YES	169,531 €
Total SUM		169,531 €

CIP: CWE NEMOs interface platform, enabling other Parties to communicate with CWE NEMOs. The CIP contains an ecp endpoint allowing CIP to connect to ECP.

The **TSOs** only costs of operational costs totalling 38,015 € consist of:

Table 38		
Details	Temporary activity	2020 costs
MPLS costs	YES	38,510 €
Total SUM		38,510 €

Multi-Protocol Label Switching (MPLS). MPLS is a technology whose concept is based on the transmission of IP data via ATM (Asynchronous Transfer Mode). With MPLS, complex meshed virtual connections (VC) for individual virtual private networks (VPN) can be bypassed and thousands of VPNs built on existing technology.

The joint **TSOs and NEMOs** costs of establishing and amending totalling 181 200 € consist of:

Table 39		
Details	Temporary activity	2020 costs
Joint PMO	YES	181,200 €
Total SUM		181,200 €

- A rate of 925 €/MD was used for CWE internal resources

The joint **NEMOs and TSOs** operational costs totalling 59,427 € consist of:

Table 40		
Details	Temporary activity	2020 costs
CWE OPSCOM	YES	17,228 €
JLG	YES	4,972 €
JSC PMO	YES	13,008 €
SC WG	YES	3,584 €
BME	YES	18,834 €
Q&A Site	YES	1,800 €
Total SUM		59,427 €

- A rate of 925 €/MD was used for CWE internal resources

- CWE OPSCOM is responsible for the operation of the CWE Market Coupling. In particular but not limited to the update of CWE procedures and organisation of testing activities.
- The Joint Legal Group (JLG) provides support to the Joint CWE project.
- The Stakeholder Coordination WG (SC WG) is responsible for communication with external stakeholders (CWE NRAs, Market parties)
- The signature of the Budget Management Entity service level agreement for CWE MNA between JAO SA and the CWE Regional parties entered into force as of 1 January 2020.
- The Budget Management Entity shall provide services for the process of sharing, budgeting, monitoring, providing resettlement calculations and reporting towards CWE Regional NEMOs and TSOs.

1.1.2 Forecasts for 2021

The following table provides an overview of the forecast of regional common costs for 2021:

Table 40

Regional costs	2021 establishing and amending costs	2021 operating costs
NEMOs costs	–	169,800 €
TSOs costs	–	40,139 €
NEMOs and TSOs costs	280,000 €	67,960 €

The budgeted **NEMOs** only costs of operating totalling 169,800 € consist of:

Table 41

Details	Temporary activity	Budget 2021
CIP costs	YES	169,800 €
Total SUM		169,800 €

The budgeted **TSOs** only costs of operating totalling 40,139 € consist of:

Table 42

Details	Temporary activity	Budget 2021
MPLS costs	YES	40,139 €
Total SUM		40,139 €

The budgeted joint **TSOs and NEMOs** costs of operating totalling 67,960 € consist of:

Table 43

Details	Temporary activity	Budget 2021
JSC PMO	YES	13,760 €
SC WG	YES	4,625 €
CWE OPSCOM	YES	20,000 €
Joint Legal Group	YES	2,775 €
BME	YES	25,000 €
Questions & Answers site	YES	1,800 €
Total SUM		67,960 €

The budgeted joint **TSOs and NEMOs** costs of establishing and amending consist of:

Table 44

Details	Temporary activity	Budget 2021
Joint PMO	YES	180,000 €
Target Governance	YES	100,000 €
Total SUM		280,000 €

1.2 Costs of CORE FB MC project (DA)

The Core Flow-Based Market Coupling project promotes the development and implementation of a Flow-Based day-ahead market coupling across the whole Core capacity calculation region (Core CCR) in the framework of the SDAC. The Core CCR consists of the bidding zone borders between the following EU Member States' bidding zones: Austria, Belgium, Croatia, the Czech Republic, France, Germany, Hungary, Luxembourg, the Netherlands, Poland, Romania, Slovakia and Slovenia.

A specific regional sharing key approved by the competent national authorities of each Member States in the region on the 20 May 2015 applies in the Core Flow-based market coupling project.

The joint **TSOs and NEMOs** costs¹ of establishing and amending and costs of operating consist of:

Table 45

Details	Temporary activity	2020 costs
PMO	YES	280,784 €
Convenorships	YES	86,151 €
Operational costs of simulations	YES	10,536 €
Total SUM		377,471 €

- The external support for PMO services as of January 2018 was selected based on a competitive tender finalised at the mid of 2017.
- A rate of 925 €/MD was used for the JWG, Algorithm & Flow-based validation (A&FBV) TF, Testing TF and STF Legal convenorship provided by a NEMO.
- A rate of 925 €/MD was used for the external run market operators who are running the simulations.
- JWG is the central working body where parties are designing and implementing all required assets for project go-live. JWG is also responsible for the coordination of work on all other specific WGs and the delivery of all deliverables for JSC approval.
- The STF Legal is responsible for establishing the contractual framework for the CORE FB MC Project, and providing legal support to the governance bodies upon request.

1.2.1 Forecasts for 2021

The joint **TSOs and NEMOs** costs¹ of establishing and amending and costs of operating Core FB MC totalling 873 025 € as further detailed below.

Table 46

Details	Temporary activity	2021 costs
PMO	YES	383,070 €
Cost of flow based user Group & Market Training	YES	182,927 €
Convenorships	YES	132,654 €
Specific common deliverables	YES	20,813 €
PCR algorithm/ PMB modification costs	YES	26,936 €
Operational costs of simulations	YES	126,625 €
Total SUM		873,025 €

- The external support for PMO services as of January 2018 was selected based on a competitive tender finalized at the beginning of 2017
- The cost of Flow Based User Group & Market Training is budgeted for workshops with stakeholders and market participants
- A rate of 925 €/MD is used for the convenorships provided by NEMOs
- The specific common deliverables relate to specific deliverables to be prepared by JWG (e.g. Validation report)
- PCR/PMB modification costs are budgeted for simulations to be run for SDAC approval
- A rate of 925 €/MD is used for the external run market operators who are running the simulations

¹ Project is in development phase so only Joint TSOs and NEMOs costs of establishing and amending costs occur until go live. After the go-live permanent costs (operational cost) will occur.

1.3 Nordic project (DA)

This Chapter is focused on the Nordic Flow Based project, which does not include any costs for operating costs. Costs of operations and other projects are captured in Chapter 1.7 Nordic MNA and operations.

1.3.1 Actual costs for 2020

Following table provides overview of total actual regional common costs in 2020:

Regional costs	2020 establishing and amending costs	2020 operating costs
NEMOs costs	–	–
TSOs costs	369,272 €	–
NEMOs and TSOs costs	–	–

The TSOs costs of establishing and amending and costs of operating consist of:

Details	Temporary activity	2020 costs
PMO costs	YES	356,722 €
Other administrative costs	YES	2,500 €
System development costs	YES	10,000 €
Total SUM		369,272 €

- The PMO costs in the above table encompass the cost of the PMO services required to facilitate the execution of all tasks to complete the objectives of the Nordic Flow based project.
- The other administrative costs cover the Project Place licenses for the Nordic Flow based project.
- System Development costs cover the initial payment of change requests made to the vendor of the Nordic CCC system for augmenting the interface for data publication.
- Note: A specific regional sharing key applies for the establishing and amending phase until Go-Live of this project.

The NEMOs and TSOs costs of establishing and amending and costs of operating consist of:

Details	Temporary activity	2020 costs
PMO costs	YES	–
Other administrative costs	YES	–
System development costs	YES	–
Total SUM		–

- No joint NEMO and TSO costs in 2020.

1.3.2 Forecasts for 2021

The following table provides an overview of the forecast of regional common costs for 2021:

Regional costs	2021 establishing and amending costs	2021 operating costs
NEMOs costs	–	–
TSOs costs	727,612 €	–
NEMOs and TSOs costs	–	–

The TSOs costs of establishing and amending and costs of operating consist of:

Details	Temporary activity	2021 costs
PMO costs	YES	181,200 €
Other administrative costs	YES	2,500 €
System development costs	YES	543,912 €
Total SUM		727,612 €

- The PMO cost in the above table encompasses the cost of the PMO services required to facilitate the execution of all tasks to complete the objectives of the Nordic Flow based project.
- The other administrative costs cover the Project Place licenses for the Nordic Flow based project.
- The system development costs cover the development and implementation of the Flow Based Market Information Tool hosted at JAO incl. Nordic CCR data

deliveries and the requirement specification and design phases of the full Market Coupling process with integrations from the Nordic CCC tool to the NEMOs systems.

- Note: A specific regional sharing key applies for the establishing and amending phase until Go-Live of this project.

1.4 Italian Borders Working Table (IBWT) project for Day-Ahead Market, including GR-BG border for Day-Ahead Market coupling

The main objective of the Italian Borders Working Table project is to coordinate operations amongst the involved parties.

The involved parties are: Austrian Power Grid AG, Croatian Transmission System Operator Ltd., ELES, d.o.o., sistemski operator prenosnega elektroenergetičkega omrežja, Independent Power Transmission Operator S.A., RTE Réseau de Transport d'Electricité, Swissgrid AG, TERNA - Rete Elettrica Nazionale S.p.A., BSP Energy Exchange LLC, Croatian Power Exchange Ltd., EPEX SPOT SE, EXAA Abwicklungsstelle für Energieprodukte AG, Gestore dei Mercati Energetici S.p.A. and HEnEx (Hellenic Energy Exchange S.A.).

A specific regional sharing key applies for this project.

1.4.1 Actual costs for 2020

Following table provides overview of total actual regional common costs in 2020:

Regional costs	2020 establishing and amending costs	2020 operating costs
NEMOs costs	–	–
TSOs costs	–	–
NEMOs and TSOs costs	14,453 €	–

The joint **TSOs and NEMOs** costs of establishing and amending and costs of operating consist of:

Details	Temporary activity	2020 costs
IPT Convener	YES	14,453 €
Total SUM		14,453 €

- The common costs stated above were covered by parties requesting the change. As the IBWT project is working on the GR-BG border, MNA implementation on AT-IT and FR-IT borders and finalised the implementation on GR-IT border, HEnEx, IPTO, APG, RTE, EPEX, NordPool, EXAA, IBEX and ESO were the parties covering the costs with the usage of the equal sharing key

1.4.2 Forecasts for 2021

The following table provides an overview of the forecast of regional common costs for 2021:

Regional costs	2021 establishing and amending costs	2021 operating costs
NEMOs costs	–	–
TSOs costs	–	–
NEMOs and TSOs costs	30,000 €	–

The budgeted joint **TSOs and NEMOs** costs of establishing and amending and costs of operating consist of:

Details	Temporary activity	Budget 2021
IPT and TWG Convener	YES	30,000 €
Total SUM		30,000 €

- Common costs stated above will be covered by parties requesting the change

1.5 MRC project for Day-Ahead Market

The MRC project (Multi Regional Coupling) is the day ahead market coupling through a common algorithm (PCR) between Belgium, Denmark, Estonia, Finland, France, Germany, Austria, United Kingdom (excluded as of 31 December 2020), Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Italy, Ireland, Slovenia, Croatia, Greece, Poland, Sweden, Portugal and Spain. A specific regional sharing key approved by the competent national authorities of each Member State in the region applies for this project.

1.5.1 Actual costs for 2020

Following table provides overview of total actual regional common costs in 2020:

Regional costs	2020 establishing and amending costs	2020 operating costs
NEMOs costs	–	486,585 €
TSOs costs	–	202,900 €
NEMOs and TSOs costs	–	62,852 €

The Joint **NEMOs and TSOs** costs of operating the MRC consist of:

Details	Temporary activity	2020 costs
Secretarial OPSCOM	YES*	56,550 €
Procedures TF Coordination (MRC)	YES*	6,302 €
Total SUM		62,852 €

* The costs are considered temporary as the activity will be performed at SDAC level after Interim Coupling Project go-live.

Secretarial OPSCOM

This role is performed by an external service provider, E-Bridge Consulting. The activities of this role focus on the facilitation of the OPSCOM meetings is:

- Preparation and facilitation of OPSCOM meetings and conference calls, including drafting meeting minutes and follow-up reports

The **NEMOs** only costs of operating the MRC consist of:

Details	Temporary activity	2020 costs
Coordinator/ Hot Backup Remuneration	NO	452,010 €
Incident committee conference call lines	NO	26,655 €
MRC results monitoring/ market indicators analysis	YES	2,139 €
Technical support from WGs	YES	5,781 €
Total SUM		486,585 €

Coordinator/Hot Backup

Refers to daily operational role of NEMO responsible for operation of SDAC

- The role is performed internally by NEMOs with an agreed rate.
- It covers day when the NEMO is performing the co-ordinator role + day when it performs role of backup coordinator
- Backup coordinator is assigned for situations when coordinator won't be able to fulfil its role.

The **TSOs** only costs of operating the MRC consist of:

Details	Temporary activity	2020 costs
Central Settlement Entity Fees	YES	194,437 €
Travel and Meeting Arrangements	YES	8,465 €
Total SUM		202,902 €

Central Settlement Entity

- As a Central Settlement Entity, JAO provided services for the process of sharing, budgeting, monitoring and settling costs, with the capacity of "commissionaire".
- TSOs only costs also consist of the PMO services of the BMTF, travel and meetings' organizational expenses and the general PMO services (JAO, E-Bridge consulting) for the SDAC Joint Steering Committee (JSC).

- The TSOs of the BMTF members are responsible for budgeting, validating and reviewing of costs, associated with the SDAC JSC, who provides the final cost approval.

1.5.2 Forecasts for 2021

The following table provides an overview of the forecast of common costs for 2021:

Table 60		
Regional costs	2021 establishing and amending costs	2021 operating costs
NEMOs costs	–	500,976 €
TSOs costs	–	–
NEMOs and TSOs costs	–	65,445 €

The budgeted joint **TSOs and NEMOs** costs of operating the MRC consist of:

Table 61		
Details	Temporary activity	Budget 2021
Secretarial OPSCOM	NO	55,000 €
Procedures TF Coordination (MRC)	NO	10,445 €
Total SUM		65,445 €

The budgeted NEMOs- only costs of operating the MRC consist of:

Table 62		
Details	Temporary activity	Budget 2021
Coordinator/ Hot Backup Remuneration	NO	450,775 €
Facilities	NO	25,920 €
Support Tasks	YES	24,281 €
Total SUM		500,976 €

No costs have been budgeted for the TSO only costs of operating the MRC.

1.6 4MMC – regional market coupling for DA (CZ-SK-HU-RO)

4MMC is a day-ahead NTC market coupling between Czech Republic, Slovakia, Hungary and Romania launched in 2014, the project operates based on a PCR solution and uses centralised TSO system “so called” the mTMF² TSO module which enables the efficient management of pre- and post-coupling processes.

A Specific regional sharing key approved by the competent national authorities of each Member States in the region applies for this project.

1.6.1 Actual costs for 2020

Following table provides overview of total regional common costs in 2020:

Table 63

Regional costs	2020 establishing and amending costs	2020 operating costs
NEMOs costs*	–	–
TSOs costs	–	26,550 €**
NEMOs and TSOs costs*	–	–

* According to the agreed cost sharing approach all costs are recognised as national costs – there are no joint NEMO and TSO costs and no NEMO only costs of 4M MC.

** As these regional activities are not performed on CCR level as defined by the decision of ACER 06/2016, the provisions of article 78 CACM do not apply for such solutions.

The **TSOs** costs of establishing and amending and costs of operating consist of:

Table 64

Details	Temporary activity	2020 costs
Administrative and hosting fees	YES	26,550 €
Total SUM		26,550 €

- Daily operation of the mTMF TSO module

1.6.2 Forecasts for 2021

The following table provides an overview of the forecast of regional common costs for 2021:

Table 65

Regional costs	2021 establishing and amending costs	2021 operating costs
NEMOs costs*	–	–
TSOs costs**	–	11,800 €***
NEMOs and TSOs costs*	–	–

* According to agreed cost sharing approach, all costs are recognised as national costs – there are no joint NEMO and TSO costs and no NEMO only costs of 4M MC.

** As these regional activities are not performed on the CCR level as defined by decision of ACER 06/2016, the provisions of article 78 CACM do not apply for such solutions.

The budgeted **TSOs** costs of establishing and amending and costs of operating consist of:***

Table 66

Details	Temporary activity	2020 costs
Administrative and hosting fees	YES	11,800 €
Total SUM		11,800 €

- Daily operation of the mTMF TSO module until the go-live of the DE-AT-PL-4MMC Coupling

*** Budgeted costs of operation the mTMF TSO module will be paid by the TSOs on monthly basis until the go-live of the DE-AT-PL-4MMC Coupling. After the go-live no 4MMC TSO operation costs will be applicable.

2 Modified TSO Management Function – centralised IT solution used within 4MMC to perform and support various pre- and post-coupling processes.

1.7 Nordic MNA

This project concerns the regional costs for amending and establishing the Nordic day-ahead solutions to become MNA compatible and distinguishes two periods:

- 1st January 2020 – 31th July 2020 = Nordic DAOA operational cost (before MNA go-live) and MNA establishment cost
- 1st August 2020 – 31th December 2020 = MNA establishment cost after go-live and MNA operational costs

1.7.1 Actual costs for 2020

Following table provides overview of total actual regional common regional costs in 2020:

Regional costs	2020 establishing and amending costs	2020 operating costs
NEMOs costs	–	–
TSOs costs	764,150 €	235,208 €
NEMOs and TSOs costs	–	65,444 €

The **TSOs** costs of establishing and amending and costs of operating consist of:

Details	Temporary activity	2020 costs
PMO costs	YES	268,950 €
Other administrative costs	YES	15,377 €
System development costs	YES	479,823 €
Total SUM		764,150 €

- The PMO cost in the above table encompass the cost of PMO services needed to facilitate the execution of all tasks to complete the objectives of the Nordic MNA project.
- The other administrative costs cover the Project Place licenses for the Nordic MNA project.
- The system development costs encompass the development costs of an IT solution for data exchange of the results of the single day-ahead coupling.

The **TSOs** costs of operating consist of:

Details	Temporary activity	2020 costs
Operational	No	232,314 €
Administrative	No	2,894 €
Total SUM		235,208 €

- The operational costs in the above table encompass:
 - › The cost of verifying the market coupling flow results during the market coupling session, and distributing the congestion income generated in the single day-ahead coupling to the Nordic TSOs incurred before the Nordic MNA go-live.
 - › The costs of operating the joint Nordic IT systems after the Nordic MNA go-live.
- The administrative fees include the Project Place licences for the Nordic day-ahead project incurred before the Nordic MNA go-live.

The **NEMOs and TSOs** costs of operating consist of:

Details	Temporary activity	2020 costs
PMO costs	NO	50,969 €
Other administrative costs	NO	14,475 €
System development costs	NO	–
Total SUM		65,444 €

- The PMO cost in the above table encompass the cost of PMO services needed to facilitate execution of all tasks to operate the Nordic DA market (Nordic JSC, Nordic OPSCOM, and Nordic Budget Management TF).
- The other administrative costs cover the Project Place licenses for the Nordic DA operations.
- The System costs encompass the costs related to operating and hosting the IT solution for data exchange of the results of the single day-ahead coupling.

1.7.2 Forecasts for 2021

The following table provides an overview of the forecast of regional common regional costs for 2021:

Table 71		
Regional costs	2021 establishing and amending costs	2021 operating costs
NEMOs costs	–	–
TSOs costs	200,000 €	200,000 €
NEMOs and TSOs costs	–	90,000 €

The **NEMOs and TSOs** costs of establishing and amending and costs of operating consist of:

Table 72		
Details	Temporary activity	2021 costs
PMO costs	YES	75,000 €
Other administrative costs	YES	15,000 €
System development costs	YES	–
Total SUM		90,000 €

- The PMO cost in the above table encompass the cost of PMO services needed to facilitate execution of all tasks to operate the Nordic DA market (Nordic JSC, Nordic OPSCOM, and Nordic Budget Management TF).
- The other administrative costs cover the Project Place licenses for the Nordic DA operations.

1.8 Baltic MNA

This project concerns the regional costs for amending and establishing the Baltic day-ahead and intraday solutions to become MNA compatible. Baltic MNA proposal. Currently, Baltic TSOs and engaged NEMOs are expecting to finish all necessary documentation by the end of the year 2021 and when additional NEMOs express their readiness to become operational in the Baltic bidding zones, aim for completion of the project and secure the Go-Live of the Baltic MNA solution.

The involved parties of Baltic MNA project are: Estonian, Latvian and Lithuanian TSOs and from NEMOs side Nord Pool and EPEX.

A Specific regional sharing key is used for the project. The Sharing key is based on the Baltic NRAs' guidance ("All Baltic NRAs position on Baltic TSOs' proposal for financial arrangements of the Baltic arrangements of more than one NEMO in one bidding zone") of 19th April 2019.

There are no regional costs in 2020 nor budgeted costs in 2021 for this project as project parties are awaiting for a second NEMO to become operational in the area.

1.9 DE-AT-PL-4M MC Project (Interim Coupling)

The project DE-AT-PL-4M MC Project ('Interim Coupling') aims to couple the 4M MC and Poland and the MRC by introducing NTC-based implicit allocation on six borders (PL-DE, PL-CZ, PL-SK, CZ-DE, CZ-AT, HU-AT) and implement SDAC. The project intends to be a stepwise transition on the aforementioned borders from current NTC-based explicit allocation towards the flow-based implicit allocation which is to be implemented in the framework of the Core Flow-Based Market Coupling Project as target solution required by regulation.

A Specific regional sharing key is used for the project. This Sharing key was approved by the competent national authorities of each Member States in the region, on 4 June 2020.

1.9.1 Actual costs for 2020

There were no actual costs incurred in 2020.

1.9.2 Forecasts for 2021

There are no budgeted common regional costs for 2021.

The **TSOs** costs of establishing and amending budgeted for 2021 consist of:

Table 73

Details	Temporary activity	Budget 2021
Joint TSO system development costs	YES	426,432 €
Total SUM		426,432 €

The joint TSO system development costs encompass the development costs of a centralized IT solution for pre- and post-coupling processes for TSOs.

The **TSO-only** operational costs for 2021 consist of the following:

Table 74

Details	Temporary activity	Budget 2021
Joint TSO system development fee	YES	144,505 €
Total SUM		144,505 €

The operational costs related to the operation of the joint TSO system shall be paid by the TSOs as a monthly fee, starting from the go-live of the project which is currently foreseen in June 2021.

2 Regional projects of the Intraday Timeframe

2.1 LIP 14 – XBID + CRIDA, including GR–BG border for Intra Day

LIP 14 project covers the following borders: AT-IT, IT-FR, IT-SI and IT-GR

The involved parties are:

TSOs: Terna – Rete Elettrica Nazionale S.p.A., Austrian Power Grid AG, RTE Réseau de Transport d'Electricité, ELES, Ltd., Electricity Transmission System Operator and, Independent Power Transmission Operator S.A.

NEMOs: BSP Energy Exchange LLC, EPEX Spot SE, EXAA Abwicklungsstelle für Energieprodukte AG, Gestore dei Mercati Energetici S.p.A., Hellenic Energy Exchange S.A. and European Market Coupling Operator AS, IBEX.

The expected go-live of the AT-IT, IT-FR, IT-SI and IT internal borders is included in the roadmap of the Cross-Border Intraday Project (SIDC) and planned for Q3 2021. The second go-live under LIP 14 umbrella is under preparation. It will focus on the IT-GR and GR-BG borders and is foreseen in Q1 2022.

The cost sharing key applied in LIP 14 is based on shares equal to the number of parties. EPEX Spot SE signed the LIP 14 Cooperation agreement on 1 November 2021 and, effective from this date, the sharing key was updated accordingly. Therefore, on invoices for shared PMO cost, 11 shares were specified, and this number was increased to 12, starting with the invoice for November 2020. Nevertheless, the total actual costs for 2020 is shared equally by all LIP 14 parties (12 shares) as EPEX with its signature of Cooperation agreement also paid their share of the historical cost.

The actual 2020 costs consist purely of a PMO support cost, with one exception of a one-off expense of Join.Me conferencing tool annual license. There are no special deliverables prepared by PMO other than the documents supporting the meetings of LIP 14 working groups (agenda, MoM, ...).

2.1.1 Actual costs for 2020

Table 75

Details	Temporary activity	2020 costs
Costs for project management	YES	17,478 €
Administration	YES	203 €
Total SUM		17,682 €

- According to the agreed sharing approach there are no NEMO-only nor TSO-only costs. The cost is shared equally by all LIP 14 parties.
- Cost for project management consists of costs for external support related to project management services provided by Indra Czech Republic s.r.o. as of 25 June 2020.
- Administration refers to the annual cost of Join.Me conferencing tool, used as a primary tool for organisation of the meetings of the LIP 14 working groups.

2.2.2 Forecasts for 2021

Table 76

Details	Temporary activity	2021 costs
Costs for project management	YES	22,000 €
Total SUM		22,000 €

2.2 LIP 17

The LIP 17 project aims to couple intraday electricity markets under SIDC covering borders between Slovakia – the Czech Republic, Slovakia – Hungary and Slovakia – Poland and was established on 7 July 2020. The currently expected go-live of the project is Q4 2022.

The involved parties are:

TSOs: ČEPS, SEPS, MAVIR, PSE

NEMOs: OTE, OKTE, HUPX, TGE, EMCO, EPEX

The cost sharing key of LIP 17 is based on CACM principles; however, upon agreement among the parties, the Slovak parties (OKTE and SEPS) agreed to pay the cost for 2020 as the initiators of LIP 17. The cost was for the provision of PMO services.

Governance structure:

LIP 17 Steering Committee: Acts as the governing body of LIP17 with all LIP17 parties being represented. Approves the project plan, scope of the project, involvement and procurement of external service providers, decides on escalated issues from the LIP17 Working Group.

LIP 17 Working Group: Manages the daily tasks of the project, including the preparation of architectural, testing and legal documents, the project roadmap and provides them for approval to the LIP17 Steering Committee.

2.2.1 Actual costs for 2020

No regional costs for 2020.

2.2.2 Forecasts for 2021

The cost forecast for 2021 is 40 800 € and costs will be shared among the parties based on the attached CACM-based cost sharing key.



Chapter C: National costs

National costs resulting from activities of the NEMOs or NEMOs and TSOs in that Member State.

NEMOs and TSOs reserve the right to submit directly to the relevant regulatory authority national costs resulting from activities of the NEMOs in that Member State that are classified as sensitive commercial information.

Glossary

4M MC	4M Market Coupling between Czech Republic, Slovakia, Hungary, Romania?	CPLEX	IBM High-performance mathematical programming solver for linear programming, mixed-integer programming and quadratic programming
50Hertz	50Hertz Transmission GmbH	CPM	Cross Product Matching
ACER	Agency for the Cooperation of Energy Regulators	CWE	Central Western Europe
AL	Albania	CZ	Czech Republic
ALWG	Algorithm Working Group	DAOA	Day-Ahead Operational Agreement
ANCA	All NEMO Cooperation Agreement	DBAG	Deutsche Börse AG
ANIDOA	All Nemos Intra-Day Operational Agreement	DC	Direct Current
ANDOA	All NEMOs Day-Ahead operational agreement	DE	Germany
APG	Austrian Power Grid AG	DK	Denmark
AS	XBID Accession Stream	EE	Estonia
ASR	Additional Service Request	ECP	Energy Communication Platform. This is a private communication network. The platform provides message delivery capabilities comprising message routing and ensures the reliable delivery of messages between ECP communication endpoints.
AST	AS Augstsprieguma tikls	Elia	Elia System Operator SA
AT	Austria	ESO	Electroenergien Sistemen Operator EAD
ATC	Available Transmission Capacity	EMS	Akcionarsko društvo Elektromreža Srbije
BA	Bosnia and Herzegovina	ES	Spain
BE	Belgium	EU	European Union
BG	Bulgaria	FB	Flow based
BMSG	Budget Management Support Group	FI	Finland
BMTF	Budget Management Task Force	FMWG	Functional Model Working Group
CA	Cooperation Agreement	FR	France
CACM	Capacity Allocation and Congestion Management	FSFO	Functional Support Facility Operational
CCP	Central Counterparty	GB	Great Britain
CCR	Capacity Calculation Region	GCT	Gate Closure Time
CGES	Crnogorski elektroprenosni sistem AD	GOT	Gate Opening Time
CH	Switzerland	GOWG	Governance WG
CEE	Central Eastern Europe	GR	Greece
CIP	CWE NEMOs Interface Platform	HOPS	Croatian Transmission System Operator Ltd.
CMM	Capacity Management Module		
COMSG	Communication Support Group		

HR	Croatia	MCO	Market Coupling Operator
HU	Hungary	ME	Montenegro
HVDC	High Voltage Direct Current	MESC	Market Stakeholder Committee
IAT	Integration Acceptance Test	MEPSO	Macedonian Transmission System Operator AD
IC	Incident Committee	MK	Macedonia
ICG	Implementation Coordination Group	MNA	Multiple NEMOs Arrangements
ICT	Integrated Co-ordination Team	MPLS	Multi-Protocol Label Switching. MPLS is a technology whose concept is based on the transmission of IP data via ATM (Asynchronous Transfer Mode). With MPLS, complex meshed virtual connections (VC) for individual virtual private networks (VPN) can be bypassed and thousands of VPNs built on existing technology.
IDA	Intraday Auction	MRC	Multi Regional Coupling
IDOA	Intraday Operational Agreement	MSD	Market and System Design
IDSC	Intraday Steering Committee	MTU	Market Time Unit
IFA	Interconnexion France-Angleterre	NC	NEMO Committee
IE	Ireland	NEMO	Nominated Electricity Market Operator or Power Exchange
INCA	interim NEMO cooperation Agreement	NL	Netherlands
IPTO	Independent Power Transmission Operator S.A.	NO	Norway
I-SEM	Integrated Single Electricity Market	NOS	BiH Nezavisni operator sustava u Bosni i Hercegovini
IT	Italy	NRA	National Regulatory Authority
JAQ	Joint Allocation Office	NTC	Net Transmission Capacity
JLG	Joint Legal Group	NWE	North Western Europe
JSC	Joint Steering Committee	OPSCOM	Operational Committee
JWG	Joint Working Group	OST	OST sh.a – Albanian Transmission System Operator
KOSTT	Kosovo Electricity Transmission System and Market Operator	OTF	Operational Task Force
LIP	Local Implementation Project	PCR	Price Coupling of Regions
LTA	Long Term Allocation	PL	Poland
LTC	LIP Testing Coordinator	PMB	PCR Matcher and Broker IT system
LTF	Legal Task Force	PMI	Public Message Interface
LU	Luxembourg	PMI LAT	Public Message Interface Log Analysis tool
LWG	Legal Working Group	PMO	Project Management Officer
MC	Market Coupling		
MAVIR	Magyar Villamosenergia-ipari Átviteli Rendszerirányító Zártkörűen Működő Részvénytársaság		

PSE	Polskie Sieci Elektroenergetyczne	SLA	Service Level Agreement
PT	Portugal	SLA KPI	Service Level Agreement Key Performance Indicator
PUN	National Single Price	SM	Shipping Module
PWG	Procedural WG	SOB	Shared Order Book
QA&RM	Quality Assurance & Release Management	SONI	System Operator for Northern Ireland Ltd
R&D	Research and Development	SWE	South Western Europe
RCB	Release Control Board	TCDA	TSO Cooperation Operational Agreement
REE	Red Eléctrica de España S.A.U.	TCG	Trilateral Coordination Group
REN	Rede Eléctrica Nacional, S.A.	TCID	TSO Co-operation Agreement for Single Intraday Coupling
RfO	Request for Offer	TCOA	TSO Co-operation Agreement for Day-ahead Coupling
RO	Romania	Terna	Terna - Rete Elettrica Nazionale SpA
RS	Serbia	TF	Task Force
RTE	Réseau de Transport d'Electricité	TSO	Transmission System Operator
SARs	Shadow Allocation Rules	TWG	Technical WG
SDAC	Single Day Ahead Coupling	UAT	User Acceptance Tests
SE	Sweden	UK	United Kingdom
SEM	Single Electricity Market (covering the Republic of Ireland and Northern Ireland)	WG	Working Group
SF	Simulation Facility	XBID	Cross-Border Intraday, a technical solution supporting SIDC implementation
SG	Support Group	XK	Kosovo
SI	Slovenia	XML	Extensible Markup Language (file type)
SIDC	Single Intraday Coupling	XTG	XBID Testing Group
SEE	South-East Europe		
SEPS	Slovenská elektrizačná prenosová sústava, a.s.		
SK	Slovakia		

The terms used in this document have the meaning of the definitions included in Article 2 of the CACM regulation.

ANNEX

Sharing keys

1.1 The detailed disaggregation of the Joint NEMOs and TSOs common costs for establishing and amending the SDAC is available in the following table

Table 77

Member State	TSO/ NEMO	Final Consumption of 2018 of SDAC Operational MS - Used for the costs of 2020	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2020	Shares MS Used for the costs of 2020	Shares within MS as used for the costs of 2020	Shares per Party used for the costs of 2020
Austria	APG		0		50.00 %	1.098 %
Austria	EPEX		21,093		37.92 %	0.833 %
Austria	EXAA		1,176		6.44 %	0.141 %
Austria	NP EMCO		273		5.64 %	0.124 %
Austria		65,474	22,542	2.20 %	100.00 %	2.197 %
Belgium	ELIA		0		50.00 %	1.228 %
Belgium	EPEX		14,343		44.27 %	1.088 %
Belgium	NP EMCO		266		5.73 %	0.141 %
Belgium		84,384	14,609	2.46 %	100.00 %	2.456 %
Bulgaria	ESO		0		50.00 %	0.626 %
Bulgaria	IBEX		8,391		50.00 %	0.626 %
Bulgaria		31,304	8,391	1.25 %	100.00 %	1.252 %
Croatia	HOPS		0		50.00 %	0.434 %
Croatia	Cropex		3,598		50.00 %	0.434 %
Croatia		16,625	3,598	0.87 %	100.00 %	0.868 %
Czech Republic	ČEPS		0		50.00 %	1.017 %
Czech Republic	OTE		19,922		50.00 %	1.017 %
Czech Republic		59,745	19,922	2.03 %	100.00 %	2.034 %
Denmark	ELSO		0		50.00 %	0.780 %
Denmark	NP EMCO		25,984		38.89 %	0.607 %
Denmark	EPEX		0		5.56 %	0.087 %
Denmark	Nasdaq		0		5.56 %	0.087 %
Denmark		32,033	25,984	1.56 %	100.00 %	1.561 %
Estonia	Elering		0		50.00 %	0.367 %
Estonia	NP EMCO		6,309		41.67 %	0.306 %
Estonia	EPEX		0		8.33 %	0.061 %
Estonia		7,985	6,309	0.73 %	100.00 %	0.734 %

Table 77

Member State	TSO/ NEMO	Final Consumption of 2018 of SDAC Operational MS - Used for the costs of 2020	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2020	Shares MS Used for the costs of 2020	Shares within MS as used for the costs of 2020	Shares per Party used for the costs of 2020
Finland	Fingrid		0		50.00 %	1.577 %
Finland	NP EMCO		56,901		38.89 %	1.227 %
Finland	EPEX		0		5.56 %	0.175 %
Finland	Nasdaq		0		5.56 %	0.175 %
Finland		84,021	56,901	3.15 %	100.00 %	3.155 %
France	RTE		0		50.00 %	5.628 %
France	EPEX		89,721		16.67 %	1.876 %
France	NP EMCO		570		16.67 %	1.876 %
France	Nasdaq		0		16.67 %	1.876 %
France		447,811	90,291	11.26 %	100.00 %	11.255 %
Germany	50Hertz		0		21.96 %	3.276 %
Germany	Amprion		0		32.07 %	4.784 %
Germany	Tennet DE		0		28.44 %	4.242 %
Germany	Transnet		0		17.53 %	2.615 %
Germany	EPEX		208,495		0.00 %	0.000 %
Germany	NP EMCO		397		0.00 %	0.000 %
Germany	EXAA		4,473		0.00 %	0.000 %
Germany	Nasdaq		0		0.00 %	0.000 %
Germany		525,349	213,365	14.92 %	100.00 %	14.917 %
Greece	ADMIE		0		50.00 %	1.206 %
Greece	Henex		53,325		50.00 %	1.206 %
Greece		51,096	53,325	2.41 %	100.00 %	2.412 %
Hungary	Mavir		0		50.00 %	0.813 %
Hungary	HUPX		19,232		50.00 %	0.813 %
Hungary		40,595	19,232	1.63 %	100.00 %	1.626 %
Ireland	EirGrid (TSO)		0		50.00 %	0.776 %
Ireland	EirGrid (NEMO)		31,390		50.00 %	0.776 %
Ireland	EMCO		0		0.00 %	0.000 %
Ireland		27,273	31,390	1.55 %	100.00 %	1.552 %
Italy	Terna		0		50.00 %	5.157 %
Italy	GME		213,264		50.00 %	5.157 %
Italy		303,443	213,264	10.31 %	100.00 %	10.314 %

Table 77

Member State	TSO/ NEMO	Final Consumption of 2018 of SDAC Operational MS - Used for the costs of 2020	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2020	Shares MS Used for the costs of 2020	Shares within MS as used for the costs of 2020	Shares per Party used for the costs of 2020
Latvia	AST		0		50.00 %	0.356 %
Latvia	NP EMCO		6,650		41.67 %	0.297 %
Latvia	EPEX		0		8.33 %	0.059 %
Latvia		6,662	6,650	0.71 %	100.00 %	0.712 %
Lithuania	Litgrid		0		50.00 %	0.450 %
Lithuania	NP EMCO		12,171		41.67 %	0.375 %
Lithuania	EPEX		0		8.33 %	0.075 %
Lithuania		11,283	12,171	0.90 %	100.00 %	0.900 %
Luxembourg	CREOS		0		100.00 %	0.596 %
Luxembourg	EPEX		0		0.00 %	0.000 %
Luxembourg	NP EMCO		0		0.00 %	0.000 %
Luxembourg	Nasdaq		0		0.00 %	0.000 %
Luxembourg		6,424	0	0.60 %	100.00 %	0.596 %
Netherlands	Tennet BV		0		50.00 %	1.674 %
Netherlands	EPEX		30,595		50.00 %	1.674 %
Netherlands	NP EMCO		619		0.00 %	0.000 %
Netherlands		114,036	31,214	3.35 %	100.00 %	3.348 %
Poland	PSE		0		50.00 %	1.846 %
Poland	TGE		5,333		38.89 %	1.435 %
Poland	EPEX		0		5.56 %	0.205 %
Poland	NP EMCO		0		5.56 %	0.205 %
Poland		151,398	5,333	3.69 %	100.00 %	3.691 %
Portugal	REN		0		50.00 %	1.192 %
Portugal	OMIE		54,330		50.00 %	1.192 %
Portugal		48,897	54,330	2.38 %	100.00 %	2.384 %
Romania	Transelec- trica		0		50.00 %	0.929 %
Romania	OPCOM		21,771		50.00 %	0.929 %
Romania		49,778	21,771	1.86 %	100.00 %	1.858 %
Slovakia	SEPS		0		50.00 %	0.555 %
Slovakia	OKTE		5,352		50.00 %	0.555 %
Slovakia		26,872	5,352	1.11 %	100.00 %	1.109 %
Slovenia	ELES		0		50.00 %	0.444 %
Slovenia	BSP		8,284		50.00 %	0.444 %
Slovenia		13,813	8,284	0.89 %	100.00 %	0.888 %

Table 77

Member State	TSO/ NEMO	Final Consumption of 2018 of SDAC Operational MS - Used for the costs of 2020	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2020	Shares MS Used for the costs of 2020	Shares within MS as used for the costs of 2020	Shares per Party used for the costs of 2020
Spain	REE		0		50.00 %	4.264 %
Spain	OMIE		177,936		50.00 %	4.264 %
Spain		245,769	177,936	8.53 %	100.00 %	8.529 %
Sweden	Affärsverket svenska kraftnät		0		50.00 %	2.717 %
Sweden	NP EMCO		135,611		38.89 %	2.113 %
Sweden	EPEX		0		5.56 %	0.302 %
Sweden	Nasdaq		0		5.56 %	0.302 %
Sweden		130,571	135,611	5.43 %	100.00 %	5.434 %
UK (including Northern Ireland whose con- sumption is 9TWh)	National Grid		0		16.17 %	1.457 %
UK (including Northern Ireland whose con- sumption is 9TWh)	Britned		0		16.17 %	1.457 %
UK (including Northern Ireland whose con- sumption is 9TWh)	Nemo Link		0		16.17 %	1.457 %
UK (including Northern Ireland whose con- sumption is 9TWh)	Eleclink		0		0.00 %	0.000 %
UK (including Northern Ireland whose con- sumption is 9TWh)	EPEX		44,063		16.42 %	1.479 %
UK (including Northern Ireland whose con- sumption is 9TWh)	NP EMCO		79,179		32.10 %	2.891 %
UK (including Northern Ireland whose con- sumption is 9TWh)	SONI (TSO)		0		2.96 %	0.267 %
UK (including Northern Ireland whose con- sumption is 9TWh)	SONI (NEMO)		7,791		0.00 %	0.000 %
UK (including Northern Ireland whose con- sumption is 9TWh)		306,584	131,033	9.01 %	100.00 %	9.007 %
Norway	Statnett		0		50.00 %	2.605 %
Norway	EPEX		0		0.00 %	0.000 %
Norway	NP EMCO		128,987		50.00 %	2.605 %
Norway		125,125	128,987	5.21 %	100.00 %	5.210 %

1.2 The detailed disaggregation of the Joint NEMOs and TSOs common costs for operating the SDAC is available in the following table

Table 78

Member State	Parties	Final Consumption of 2018 of SDAC Operational MS - Used for the costs of 2020	Traded volume (TV) 2019 DA (GWh) - Used for the costs of 2020	Shares MS Used for the costs of 01.01.2020 until 15.12.2020	Shares MS Used for the costs of 16.12.2020 until 31.12.2020	Share within MS as used for the costs of 01.01.2020 until 15.12.2020	Share within MS as used for the costs of 16.12.2020 until 31.12.2020	Share per party as used for the costs of 01.2020 until 15.12.2020	Share per party as used for the costs of 16.12.2020 until 31.12.2020
Austria	APG		0			50.00%	50.00%	1.14%	1.11%
Austria	EPEX		21,093			37.92%	37.92%	0.86%	0.84%
Austria	EXAA		1,176			6.44%	6.44%	0.15%	0.14%
Austria	NP EMCO		273			5.64%	5.64%	0.13%	0.13%
Austria		65,474	22,542	2.27%	2.22%	100.00%	100.00%	2.27%	2.22%
Belgium	ELIA		0			50.00%	50.00%	1.27%	1.24%
Belgium	EPEX		14,343			44.27%	44.27%	1.12%	1.10%
Belgium	NP EMCO		266			5.73%	5.73%	0.15%	0.14%
Belgium		84,384	14,609	2.54%	2.48%	100.00%	100.00%	2.54%	2.48%
Bulgaria	ESO		0			0.00%	0.00%	0.00%	0.00%
Bulgaria	IBEX		8,391			100.00%	100.00%	1.31%	1.27%
Bulgaria		31,304	8,391	1.31%	1.27%	100.00%	100.00%	1.31%	1.27%
Croatia	HOPS		0			50.00%	50.00%	0.46%	0.44%
Croatia	Cropex		3,598			50.00%	50.00%	0.46%	0.44%
Croatia		16,625	3,598	0.91%	0.89%	100.00%	100.00%	0.91%	0.89%
Czech Republic	ČEPS		0			50.00%	50.00%	1.05%	1.03%
Czech Republic	OTE		19,922			50.00%	50.00%	1.05%	1.03%
Czech Republic		59,745	19,922	2.11%	2.05%	100.00%	100.00%	2.11%	2.05%
Denmark	ELSO		0			50.00%	50.00%	0.81%	0.79%
Denmark	NP EMCO		25,984			41.67%	41.67%	0.68%	0.66%
Denmark	EPEX		0			8.33%	8.33%	0.14%	0.13%
Denmark	Nasdaq		0			0.00%	0.00%	0.00%	0.00%
Denmark		32,033	25,984	1.63%	1.58%	100.00%	100.00%	1.63%	1.58%
Estonia	Elering		0			50.00%	50.00%	0.39%	0.38%
Estonia	NP EMCO		6,309			50.00%	50.00%	0.39%	0.38%
Estonia	EPEX		0			0.00%	0.00%	0.00%	0.00%
Estonia		7,985	6,309	0.78%	0.75%	100.00%	100.00%	0.78%	0.75%
Finland	Fingrid		0			50.00%	50.00%	1.63%	1.59%
Finland	NP EMCO		56,901			41.67%	41.67%	1.36%	1.32%
Finland	EPEX		0			8.33%	8.33%	0.27%	0.26%
Finland	Nasdaq		0			0.00%	0.00%	0.00%	0.00%
Finland		84,021	56,901	3.26%	3.18%	100.00%	100.00%	3.26%	3.18%

Table 78

Member State	Parties	Final Consumption of 2018 of SDAC Operational MS - Used for the costs of 2020	Traded volume (TV) 2019 DA (GWh) - Used for the costs of 2020	Shares MS Used for the costs of 01.01.2020 until 15.12.2020	Shares MS Used for the costs of 16.12.2020 until 31.12.2020	Share within MS as used for the costs of 01.01.2020 until 15.12.2020	Share within MS as used for the costs of 16.12.2020 until 31.12.2020	Share per party as used for the costs of 01.2020 until 15.12.2020	Share per party as used for the costs of 16.12.2020 until 31.12.2020
France	RTE		0			50.00%	50.00%	5.76%	5.65%
France	EPEX		89,721			50.00%	50.00%	5.76%	5.65%
France	NP EMCO		570			0.00%	0.00%	0.00%	0.00%
France	Nasdaq		0			0.00%	0.00%	0.00%	0.00%
France		447,811	90,291	11.53%	11.29%	100.00%	100.00%	11.53%	11.29%
Germany	50Hertz		0			21.96%	21.96%	3.36%	3.28%
Germany	Amprion		0			32.07%	32.07%	4.91%	4.80%
Germany	Tennet DE		0			28.44%	28.44%	4.35%	4.25%
Germany	Transnet		0			17.53%	17.53%	2.68%	2.62%
Germany	EPEX		208,495			0.00%	0.00%	0.00%	0.00%
Germany	NP EMCO		397			0.00%	0.00%	0.00%	0.00%
Germany	EXAA		4,473			0.00%	0.00%	0.00%	0.00%
Germany	Nasdaq		0			0.00%	0.00%	0.00%	0.00%
Germany		525,349	213,365	15.30%	14.96%	100.00%	100.00%	15.30%	14.96%
Greece	ADMIE		,				50.00%		1.22%
Greece	Henex		53,325				50.00%		1.22%
Greece		51,096	53,325		2.43%		100.00%		2.43%
Hungary	Mavir		0			50.00%	50.00%	0.85%	0.82%
Hungary	HUPX		19,232			50.00%	50.00%	0.85%	0.82%
Hungary		40,595	19,232	1.69%	1.65%	100.00%	100.00%	1.69%	1.65%
Ireland	EirGrid (TSO)		0			50.00%	50.00%	0.81%	0.79%
Ireland	EirGrid (NEMO)		31,390			50.00%	50.00%	0.81%	0.79%
Ireland	NP EMCO		0			0.00%	0.00%	0.00%	0.00%
Ireland		27,273	31,390	1.62%	1.57%	100.00%	100.00%	1.62%	1.57%
Italy	Terna		0			50.00%	50.00%	5.30%	5.17%
Italy	GME		213,264			50.00%	50.00%	5.30%	5.17%
Italy		303,443	213,264	10.61%	10.35%	100.00%	100.00%	10.61%	10.35%
Latvia	AST		0			50.00%	50.00%	0.38%	0.37%
Latvia	NP EMCO		6,650			50.00%	50.00%	0.38%	0.37%
Latvia	EPEX		0			0.00%	0.00%	0.00%	0.00%
Latvia		6,662	6,650	0.76%	0.73%	100.00%	100.00%	0.76%	0.73%

Table 78

Member State	Parties	Final Consumption of 2018 of SDAC Operational MS - Used for the costs of 2020	Traded volume (TV) 2019 DA (GWh) - Used for the costs of 2020	Shares MS Used for the costs of 01.01.2020 until 15.12.2020	Shares MS Used for the costs of 16.12.2020 until 31.12.2020	Share within MS as used for the costs of 01.01.2020 until 15.12.2020	Share within MS as used for the costs of 16.12.2020 until 31.12.2020	Share per party as used for the costs of 01.2020 until 15.12.2020	Share per party as used for the costs of 16.12.2020 until 31.12.2020
Lithuania	Litgrid		0			50.00%	50.00%	0.48%	0.46%
Lithuania	NP EMCO		12,171			50.00%	50.00%	0.48%	0.46%
Lithuania	EPEX		0			0.00%	0.00%	0.00%	0.00%
Lithuania		11,283	12,171	0.95%	0.92%	100.00%	100.00%	0.95%	0.92%
Luxembourg	CREOS								
Luxembourg	EPEX								
Luxembourg	NP EMCO								
Luxembourg	Nasdaq								
Luxembourg									
Netherlands	Tennet BV		0			50.00%	50.00%	1.73%	1.69%
Netherlands	EPEX		30,595			50.00%	50.00%	1.73%	1.69%
Netherlands	NP EMCO		619			0.00%	0.00%	0.00%	0.00%
Netherlands		114,036	31,214	3.45%	3.37%	100.00%	100.00%	3.45%	3.37%
Poland	PSE		0			50.00%	50.00%	1.90%	1.86%
Poland	TGE		5,333			38.89%	38.89%	1.48%	1.44%
Poland	EPEX		0			5.56%	5.56%	0.21%	0.21%
Poland	NP EMCO		0			5.56%	5.56%	0.21%	0.21%
Poland		151,398	5,333	3.79%	3.72%	100.00%	100.00%	3.79%	3.72%
Portugal	REN		0			50.00%	50.00%	1.24%	1.20%
Portugal	OMIE		54,330			50.00%	50.00%	1.24%	1.20%
Portugal		48,897	54,330	2.47%	2.40%	100.00%	100.00%	2.47%	2.40%
Romania	Transelectrica		0			50.00%	50.00%	0.96%	0.94%
Romania	OPCOM		21,771			50.00%	50.00%	0.96%	0.94%
Romania		49,778	21,771	1.93%	1.88%	100.00%	100.00%	1.93%	1.88%
Slovakia	SEPS		0			50.00%	50.00%	0.58%	0.56%
Slovakia	OKTE		5,352			50.00%	50.00%	0.58%	0.56%
Slovakia		26,872	5,352	1.16%	1.13%	100.00%	100.00%	1.16%	1.13%
Slovenia	ELES		0			50.00%	50.00%	0.47%	0.45%
Slovenia	BSP		8,284			50.00%	50.00%	0.47%	0.45%
Slovenia		13,813	8,284	0.94%	0.91%	100.00%	100.00%	0.94%	0.91%
Spain	REE		0			50.00%	50.00%	4.39%	4.28%
Spain	OMIE		177,936			50.00%	50.00%	4.39%	4.28%
Spain		245,769	177,936	8.77%	8.56%	100.00%	100.00%	8.78%	8.56%

Table 78

Member State	Parties	Final Consumption of 2018 of SDAC Operational MS - Used for the costs of 2020	Traded volume (TV) 2019 DA (GWh) - Used for the costs of 2020	Shares MS Used for the costs of 01.01.2020 until 15.12.2020	Shares MS Used for the costs of 16.12.2020 until 31.12.2020	Share within MS as used for the costs of 01.01.2020 until 15.12.2020	Share within MS as used for the costs of 16.12.2020 until 31.12.2020	Share per party as used for the costs of 01.2020 until 15.12.2020	Share per party as used for the costs of 16.12.2020 until 31.12.2020
Sweden	Affärsverket svenska kraftnät		0			50.00%	50.00%	2.80%	2.73%
Sweden	NP EMCO		135,611			41.67%	41.67%	2.34%	2.27%
Sweden	EPEX		0			8.33%	8.33%	0.47%	0.45%
Sweden	Nasdaq		0			0.00%	0.00%	0.00%	0.00%
Sweden		130,571	135,611	5.61%	5.46%	100.00%	100.00%	5.61%	5.46%
UK (including Northern Ireland whose consumption is 9TWh)	National Grid		0			16.17%	16.17%	1.50%	1.46%
UK (including Northern Ireland whose consumption is 9TWh)	Britnéd		0			16.17%	16.17%	1.50%	1.46%
UK (including Northern Ireland whose consumption is 9TWh)	Nemo Link		0			16.17%	16.17%	1.50%	1.46%
UK (including Northern Ireland whose consumption is 9TWh)	Eleclink		0			0.00%	0.00%	0.00%	0.00%
UK (including Northern Ireland whose consumption is 9TWh)	EPEX		44,063			16.42%	16.42%	1.52%	1.48%
UK (including Northern Ireland whose consumption is 9TWh)	NP EMCO		79,179			32.10%	32.10%	2.97%	2.90%
UK (including Northern Ireland whose consumption is 9TWh)	SONI (TSO)		0			2.96%	2.96%	0.27%	0.27%
UK (including Northern Ireland whose consumption is 9TWh)	SONI (NEMO)		7,791			0.00%	0.00%	0.00%	0.00%
UK (including Northern Ireland whose consumption is 9TWh)		306,584	131,033	9.25%	9.04%	100.00%	100.00%	9.25%	9.04%
Norway	Statnett		0			50.00%	50.00%	2.69%	2.62%
Norway	EPEX		0			0.00%	0.00%	0.00%	0.00%
Norway	NP EMCO		128,987			50.00%	50.00%	2.69%	2.62%
Norway		125,125	128,987	5.38%	5.23%	100.00%	100.00%	5.38%	5.23%

1.3 The following sharing key was used for the sharing of all NEMOs costs of establishing and amending the SDAC in 2020

Table 79

Member State	Final consumption in 2018 according to Report nrg_cb_e (09.04.20) in GWh	Traded volume 2019 DA (GWh) to be used for sharing of SDAC costs in 2020	MS share to be used for sharing of SDAC costs in 2020	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2020	CACM Share -SDAC to be used for sharing of SDAC costs in 2020
Austria	65,473	21,093	2.1968%	EPEX	75.8400%	1.6660%
		1,176		EXAA	12.8800%	0.2829%
		273		NP EMCO	11.2800%	0.2478%
Belgium	84,384	14,343	2.4564%	EPEX	88.5449%	2.1750%
		266		NP EMCO	11.4551%	0.2814%
Bulgaria	31,304	8,391	1.2521%	IBEX	100.0000%	1.2521%
Croatia	16,625	3,598	0.8677%	CROPEX	100.0000%	0.8677%
Czech Republic	59,745	19,922	2.0342%	OTE	100.0000%	2.0342%
Denmark	32,032	25,984	1.5608%	NP EMCO	77.7800%	1.2140%
				EPEX	11.1100%	0.1734%
				NASDAQ	11.1100%	0.1734%
Estonia	7,985	6,309	0.7338%	NP EMCO	83.3300%	0.6115%
				EPEX	16.6700%	0.1223%
Finland	84,021	56,901	3.1548%	NP EMCO	77.7800%	2.4538%
				EPEX	11.1100%	0.3505%
				NASDAQ	11.1100%	0.3505%
France	447,810	89,721	11.2550%	EPEX	33.3333%	3.7517%
				NASDAQ	33.3333%	3.7517%
		570		NP EMCO	33.3333%	3.7517%
Germany	525,349	208,495	14.9170%	EPEX	25.0000%	3.7292%
		397		NP EMCO	25.0000%	3.7292%
				NASDAQ	25.0000%	3.7292%
		4,473		EXAA	25.0000%	3.7292%
Greece	51,096	53,325	2.4125%	HENEX	100.0000%	2.4125%
Hungary	40,595	19,232	1.6257%	HUPX	100.0000%	1.6257%
Ireland	27,272	31,390	1.5524%	EirGRID	100.0000%	1.5524%
Italy	303,442	213,264	10.3142%	GME	100.0000%	10.3142%
Latvia	6,662	6,650	0.7121%	NP EMCO	83.3300%	0.5934%
				EPEX	16.6700%	0.1187%
Lithuania	11,283	12,171	0.9001%	NP EMCO	83.3300%	0.7500%
				EPEX	16.6700%	0.1500%

Table 79

Member State	Final consumption in 2018 according to Report nrg_cb_e (09.04.20) in GWh	Traded volume 2019 DA (GWh) to be used for sharing of SDAC costs in 2020	MS share to be used for sharing of SDAC costs in 2020	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2020	CACM Share -SDAC to be used for sharing of SDAC costs in 2020
Luxembourg	6,423		0.5962 %	EPEX	33.3333 %	0.1987 %
				NASDAQ	33.3333 %	0.1987 %
				NP EMCO	33.3333 %	0.1987 %
Netherlands	114,036	30,595	3.3484 %	EPEX	100.0000 %	3.3484 %
		619		NP EMCO	0.0000 %	0.0000 %
Poland	151,398	5,333	3.6911 %	TGE	77.7800 %	2.8709 %
				EPEX	11.1100 %	0.4101 %
				NP EMCO	11.1100 %	0.4101 %
Portugal	48,897	54,330	2.3836 %	OMIE	100.0000 %	2.3836 %
Romania	49,777	21,771	1.8584 %	OPCOM	100.0000 %	1.8584 %
Slovakia	26,872	5,352	1.1095 %	OKTE	100.0000 %	1.1095 %
Slovenia	13,812	8,284	0.8876 %	BSP	100.0000 %	0.8876 %
Spain	245,769	177,936	8.5287 %	OMIE	100.0000 %	8.5287 %
Sweden	130,571	135,611	5.4338 %	NP EMCO	77.7800 %	4.2264 %
				EPEX	11.1100 %	0.6037 %
				NASDAQ	11.1100 %	0.6037 %
UK (NI whose consumption is 9.000 GWh)	306,584	44,063	8.7424 %	EPEX	40.5022 %	3.5409 %
		79,179		NP EMCO	59.4978 %	5.2015 %
Northern Ireland (calculated as part of 9 TWh of UK)		7,791	0.2644 %	SONI	100.0000 %	0.2644 %
Norway	125,125	0	5.2103 %	EPEX	0.0000 %	0.0000 %
		128,987		NP EMCO	100.0000 %	5.2103 %

1.4 The following sharing key was used for the sharing of all NEMOs costs of operating the SDAC in 2020

Table 80

Member State	Final consumption in 2018 according to Report nrg_cb_e (09.04.20) in GWh	Traded volume 2019 DA (GWh) to be used for sharing of SDAC costs in 2020	MS share to be used for sharing of SDAC costs in 2020	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2020	CACM Share -SDAC to be used for sharing of SDAC costs in 2020
Austria	65,473	21,093	2.2752%	EPEX	75.8400%	1.7255%
		1,176		EXAA	12.8800%	0.2930%
		273		EMCO	11.2800%	0.2566%
Belgium	84,384	14,343	2.5372%	EPEX	88.5449%	2.2466%
		266		EMCO	11.4551%	0.2906%
Bulgaria	31,304	8,391	1.3073%	IBEX	100.0000%	1.3073%
Croatia	16,625	3,598	0.9139%	CROPEX	100.0000%	0.9139%
Czech Republic	59,745	19,922	2.1086%	OTE	100.0000%	2.1086%
Denmark	32,032	25,984	1.6281%	EMCO	83.3333%	1.3567%
				EPEX	16.6667%	0.2713%
Estonia	7,985	6,309	0.7783%	EMCO	83.3300%	0.6485%
				EPEX	16.6700%	0.1297%
Finland	84,021	56,901	3.2635%	EMCO	83.3333%	2.7196%
				EPEX	16.6667%	0.5439%
France	447,810	85,697	11.4628%	EPEX	99.3689%	11.3905%
		570		EMCO	0.6311%	0.0723%
Germany	525,349	208,495	15.3077%	EPEX	33.3333%	5.1026%
		397		EMCO	33.3333%	5.1026%
		4,473		EXAA	33.3333%	5.1026%
				NASDAQ	0.0000%	0.0000%
Hungary	40,595	19,232	1.6919%	HUPX	100.0000%	1.6919%
Ireland	27,272	31,390	1.6213%	EirGRID	100.0000%	1.6213%
Italy	303,442	213,264	10.6154%	GME	100.0000%	10.6154%
Latvia	6,662	6,650	0.7562%	EMCO	83.3300%	0.6302%
				EPEX	16.6700%	0.1261%
Lithuania	11,283	12,171	0.9497%	EMCO	83.3300%	0.7914%
				EPEX	16.6700%	0.1583%
Netherlands	114,036	30,595	3.4522%	EPEX	100.0000%	3.4522%
		619		EMCO	0.0000%	0.0000%

Table 80

Member State	Final consumption in 2018 according to Report nrg_cb_e (09.04.20) in GWh	Traded volume 2019 DA (GWh) to be used for sharing of SDAC costs in 2020	MS share to be used for sharing of SDAC costs in 2020	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2020	CACM Share -SDAC to be used for sharing of SDAC costs in 2020
Poland	151,398	5,333	3.7927%	TGE	77.7800%	2.9500%
				EPEX	11.1100%	0.4214%
		0		EMCO	11.1100%	0.4214%
Portugal	48,897	54,330	2.4765%	OMIE	100.0000%	2.4765%
Romania	49,777	21,771	1.9300%	OPCOM	100.0000%	1.9300%
Slovakia	26,872	5,352	1.1609%	OKTE	100.0000%	1.1609%
Slovenia	13,812	8,284	0.9357%	BSP	100.0000%	0.9357%
Spain	245,769	177,936	8.7832%	OMIE	100.0000%	8.7832%
Sweden	130,571	135,611	5.6136%	EMCO	83.3333%	4.6780%
		0		EPEX	16.6667%	0.9356%
UK (NI whose consumption is 9.000 GWh)	306,584	44,063	8.9829%	EPEX	40.5022%	3.6383%
		79,179		EMCO	59.4978%	5.3446%
Northern Ireland (calculated as part of 9 TWh of UK)		7,791	0.2717%	SONI	100.0000%	0.2717%
Norway	125,125		5.3835%	EPEX	0.0000%	0.0000%
		128,987		EMCO	100.0000%	5.3835%

1.5 The following sharing key was used for the sharing of all TSOs costs of establishing and amending the SDAC in 2020

Table 81

Member State	TSOs	Final Consumption of 2018 of SDAC Operational MS	Traded volume (TV) 2019 DA (GWh) to be used for sharing of SDAC costs in 2020	Shares MS as used for the costs of 2020	Share within MS as used for the costs of 2020	Shares per TSO for the costs of 2020
Austria	APG		0		100.00%	2.197 %
Austria	EPEX		21,093		0.00%	0.000 %
Austria	EXAA		1,176		0.00%	0.000 %
Austria	NP EMCO		273		0.00%	0.000 %
Austria		65,474	22,542	2.20 %	100.00%	2.197 %
Belgium	ELIA		0		100.00%	2.456 %
Belgium	EPEX		14,343		0.00%	0.000 %
Belgium	NP EMCO		266		0.00%	0.000 %
Belgium		84,384	14,609	2.46 %	100.00%	2.456 %
Bulgaria	ESO		0		100.00%	1.252 %
Bulgaria	IBEX		8,391		0.00%	0.000 %
Bulgaria		31,304	8,391	1.25 %	100.00%	1.252 %
Croatia	HOPS		0		100.00%	0.868 %
Croatia	Cropex		3,598		0.00%	0.000 %
Croatia		16,625	3,598	0.87 %	100.00%	0.868 %
Czech Republic	ČEPS		0		100.00%	2.034 %
Czech Republic	OTE		19,922		0.00%	0.000 %
Czech Republic		59,745	19,922	2.03 %	100.00%	2.034 %
Denmark	ELSO		0		100.00%	1.561 %
Denmark	NP EMCO		25,984		0.00%	0.000 %
Denmark	EPEX		0		0.00%	0.000 %
Denmark	Nasdaq		0		0.00%	0.000 %
Denmark		32,033	25,984	1.56 %	100.00%	1.561 %
Estonia	Elering		0		100.00%	0.734 %
Estonia	NP EMCO		6,309		0.00%	0.000 %
Estonia	EPEX		0		0.00%	0.000 %
Estonia		7,985	6,309	0.73 %	100.00%	0.734 %
Finland	Fingrid		0		100.00%	3.155 %
Finland	NP EMCO		56,901		0.00%	0.000 %
Finland	EPEX		0		0.00%	0.000 %
Finland	Nasdaq		0		0.00%	0.000 %
Finland		84,021	56,901	3.15 %	100.00%	3.155 %

Table 81

Member State	TSOs	Final Consumption of 2018 of SDAC Operational MS	Traded volume (TV) 2019 DA (GWh) to be used for sharing of SDAC costs in 2020	Shares MS as used for the costs of 2020	Share within MS as used for the costs of 2020	Shares per TSO for the costs of 2020
France	RTE		0		100.00%	11.255 %
France	EPEX		89,721		0.00%	0.000 %
France	NP EMCO		570		0.00%	0.000 %
France		447,811	90,291	11.26 %	100.00%	11.255 %
Germany	50Hertz		0		21.96%	3.276 %
Germany	Amprion		0		32.07%	4.784 %
Germany	Tennet DE		0		28.44%	4.242 %
Germany	Transnet		0		17.53%	2.615 %
Germany	EPEX		208,495		0.00%	0.000 %
Germany	NP EMCO		397		0.00%	0.000 %
Germany	EXAA		4,473		0.00%	0.000 %
Germany	Nasdaq		0		0.00%	0.000 %
Germany		525,349	213,365	14.92 %	100.00%	14.917 %
Greece	ADMIE		0		100.00%	2.412 %
Greece	Henex		53,325		0.00%	0.000 %
Greece		51,096	53,325	2.41 %	100.00%	2.412 %
Hungary	Mavir		0		100.00%	1.626 %
Hungary	HUPX		19,232		0.00%	0.000 %
Hungary		40,595	19,232	1.63 %	100.00%	1.626 %
Ireland	EirGrid (TSO)		0		100.00%	1.552 %
Ireland	EirGrid (NEMO)			31,390	0.00%	0.000 %
Ireland	NP EMCO		0		0.00%	0.000 %
Ireland		27,273	31,390	1.55 %	100.00%	1.552 %
Italy	Terna		0		100.00%	10.314 %
Italy	GME		213,264		0.00%	0.000 %
Italy		303,443	213,264	10.31 %	100.00%	10.314 %
Latvia	AST		0		100.00%	0.712 %
Latvia	NP EMCO		6,650		0.00%	0.000 %
Latvia	EPEX		0		0.00%	0.000 %
Latvia		6,662	6,650	0.71 %	100.00%	0.712 %
Lithuania	Litgrid		0		100.00%	0.900 %
Lithuania	NP EMCO		12,171		0.00%	0.000 %
Lithuania	EPEX		0		0.00%	0.000 %
Lithuania		11,283	12,171	0.90 %	100.00%	0.900 %

Table 81

Member State	TSOs	Final Consumption of 2018 of SDAC Operational MS	Traded volume (TV) 2019 DA (GWh) to be used for sharing of SDAC costs in 2020	Shares MS as used for the costs of 2020	Share within MS as used for the costs of 2020	Shares per TSO for the costs of 2020
Luxembourg	CREOS		0		100.00%	0.596 %
Luxembourg	EPEX		0		0.00%	0.000 %
Luxembourg	NP EMCO		0		0.00%	0.000 %
Luxembourg	Nasdaq		0		0.00%	0.000 %
Luxembourg		6,424	0	0.60 %	100.00%	0.596 %
Netherlands	Tennet BV		0		100.00%	3.348 %
Netherlands	EPEX		30,595		0.00%	0.000 %
Netherlands	NP EMCO		619		0.00%	0.000 %
Netherlands		114,036	31,214	3.35 %	100.00%	3.348 %
Poland	PSE		0		100.00%	3.691 %
Poland	TGE		5,333		0.00%	0.000 %
Poland	EPEX		0		0.00%	0.000 %
Poland	NP EMCO		0		0.00%	0.000 %
Poland		151,398	5,333	3.69 %	100.00%	3.691 %
Portugal	REN		0		100.00%	2.384 %
Portugal	OMIE		54,330		0.00%	0.000 %
Portugal		48,897	54,330	2.38 %	100.00%	2.384 %
Romania	Transelectrica		0		100.00%	1.858 %
Romania	OPCOM		21,771		0.00%	0.000 %
Romania		49,778	21,771	1.86 %	100.00%	1.858 %
Slovakia	SEPS		0		100.00%	1.109 %
Slovakia	OKTE		5,352		0.00%	0.000 %
Slovakia		26,872	5,352	1.11 %	100.00%	1.109 %
Slovenia	ELES		0		100.00%	0.888 %
Slovenia	BSP		8,284		0.00%	0.000 %
Slovenia		13,813	8,284	0.89 %	100.00%	0.888 %
Spain	REE		0		100.00%	8.529 %
Spain	OMIE		177,936		0.00%	0.000 %
Spain		245,769	177,936	8.53 %	100.00%	8.529 %
Sweden	Affärsverket svenska kraftnät		0		100.00%	5.434 %
Sweden	NP EMCO		135,611		0.00%	0.000 %
Sweden	EPEX		0		0.00%	0.000 %
Sweden	Nasdaq		0		0.00%	0.000 %
Sweden		130,571	135,611	5.43 %	100.00%	5.434 %

Table 81

Member State	TSOs	Final Consumption of 2018 of SDAC Operational MS	Traded volume (TV) 2019 DA (GWh) to be used for sharing of SDAC costs in 2020	Shares MS as used for the costs of 2020	Share within MS as used for the costs of 2020	Shares per TSO for the costs of 2020
UK (including Northern Ireland whose consumption is 9TWh)	National Grid		0		32.35 %	2.913 %
UK (including Northern Ireland whose consumption is 9TWh)	Britned		0		32.35 %	2.913 %
UK (including Northern Ireland whose consumption is 9TWh)	Nemo Link		0		32.35 %	2.913 %
UK (including Northern Ireland whose consumption is 9TWh)	Eleclink		0		0.00 %	0.000 %
UK (including Northern Ireland whose consumption is 9TWh)	EPEX		44,063		0.00 %	0.000 %
UK (including Northern Ireland whose consumption is 9TWh)	NP EMCO		79,179		0.00 %	0.000 %
UK (including Northern Ireland whose consumption is 9TWh)	SONI (TSO)		0		2.96 %	0.267 %
UK (including Northern Ireland whose consumption is 9TWh)	SONI (NEMO)		7,791		0.00 %	0.000 %
UK (including Northern Ireland whose consumption is 9TWh)		306,584	131,033	9.01 %	100.00 %	9.007 %
Norway	Statnett		0		100.00 %	5.210 %
Norway	EPEX		0		0.00 %	0.000 %
Norway	NP EMCO		128,987		0.00 %	0.000 %
Norway		125,125	128,987	5.21 %	100.00 %	5.210 %

1.6 The following sharing key was used for the sharing of all TSOs costs of operating the SDAC in 2020

Table 82

Member State	Parties	Final Consumption of 2018 of SDAC Operational MS	Traded volume (TV) 2019 DA (GWh) to be used for sharing of SDAC costs in 2020	Shares MS as used for the costs of 01.01.2020 until 15.12.2020	Shares MS as used for the costs of 16.12.2020 until 31.12.2020	Share within MS as used for the costs of 01.01.2020 until 15.12.2020	Share within MS as used for the costs of 16.12.2020 until 31.12.2020	Shares per TSO for the costs of 1.1.2020 until 15.12.2020	Shares per TSO for the costs of 16.12.2020 until 31.12.2020
Austria	APG		0			100.00%	100.00%	2.31%	2.25%
Austria	EPEX		21,093			0.00%	0.00%	0.00%	0.00%
Austria	EXAA		1,176			0.00%	0.00%	0.00%	0.00%
Austria	NP EMCO		273			0.00%	0.00%	0.00%	0.00%
Austria		65,474	22,542	2.31%	2.25%	100.00%	100.00%	2.31%	2.25%
Belgium	ELIA		0			100.00%	100.00%	2.58%	2.52%
Belgium	EPEX		14,343			0.00%	0.00%	0.00%	0.00%
Belgium	NP EMCO		266			0.00%	0.00%	0.00%	0.00%
Belgium		84,384	14,609	2.58%	2.52%	100.00%	100.00%	2.58%	2.52%
Bulgaria	ESO								
Bulgaria	IBEX								
Bulgaria									
Croatia	HOPS		0			100.00%	100.00%	0.94%	0.91%
Croatia	Cropex		3,598			0.00%	0.00%	0.00%	0.00%
Croatia		16,625	3,598	0.94%	0.91%	100.00%	100.00%	0.94%	0.91%
Czech Republic	ČEPS		0			100.00%	100.00%	2.14%	2.09%
Czech Republic	OTE		19,922			0.00%	0.00%	0.00%	0.00%
Czech Republic		59,745	19,922	2.14%	2.09%	100.00%	100.00%	2.14%	2.09%
Denmark	ELSO		0			100.00%	100.00%	1.66%	1.61%
Denmark	NP EMCO		25,984			0.00%	0.00%	0.00%	0.00%
Denmark	EPEX		0			0.00%	0.00%	0.00%	0.00%
Denmark	Nasdaq		0			0.00%	0.00%	0.00%	0.00%
Denmark		32,033	25,984	1.66%	1.61%	100.00%	100.00%	1.66%	1.61%
Estonia	Elering		0			100.00%	100.00%	0.80%	0.77%
Estonia	NP EMCO		6,309			0.00%	0.00%	0.00%	0.00%
Estonia	EPEX		0			0.00%	0.00%	0.00%	0.00%
Estonia		7,985	6,309	0.80%	0.77%	100.00%	100.00%	0.80%	0.77%
Finland	Fingrid		0			100.00%	100.00%	3.31%	3.22%
Finland	NP EMCO		56,901			0.00%	0.00%	0.00%	0.00%
Finland	EPEX		0			0.00%	0.00%	0.00%	0.00%
Finland	Nasdaq		0			0.00%	0.00%	0.00%	0.00%
Finland		84,021	56,901	3.31%	3.22%	100.00%	100.00%	3.31%	3.22%

Table 82

Member State	Parties	Final Consumption of 2018 of SDAC Operational MS	Traded volume (TV) 2019 DA (GWh) to be used for sharing of SDAC costs in 2020	Shares MS as used for the costs of 01.01.2020 until 15.12.2020	Shares MS as used for the costs of 16.12.2020 until 31.12.2020	Share within MS as used for the costs of 01.01.2020 until 15.12.2020	Share within MS as used for the costs of 16.12.2020 until 31.12.2020	Shares per TSO for the costs of 1.1.2020 until 15.12.2020	Shares per TSO for the costs of 16.12.2020 until 31.12.2020
France	RTE		0			100.00%	100.00%	11.66%	11.42%
France	EPEX		89,721			0.00%	0.00%	0.00%	0.00%
France	NP EMCO		570			0.00%	0.00%	0.00%	0.00%
France		447,811	90,291	11.66%	11.42%	100.00%	100.00%	11.66%	11.42%
Germany	50Hertz		0			21.96%	21.96%	3.40%	3.32%
Germany	Amprion		0			32.07%	32.07%	4.96%	4.85%
Germany	Tennet DE		0			28.44%	28.44%	4.40%	4.30%
Germany	Transnet		0			17.53%	17.53%	2.71%	2.65%
Germany	EPEX		208,495			0.00%	0.00%	0.00%	0.00%
Germany	NP EMCO		397			0.00%	0.00%	0.00%	0.00%
Germany	EXAA		4,473			0.00%	0.00%	0.00%	0.00%
Germany	Nasdaq		0			0.00%	0.00%	0.00%	0.00%
Germany		525,349	213,365	15.46%	15.11%	100.00%	100.00%	15.46%	15.11%
Greece	ADMIE						100.00%		2.47%
Greece	Henex						0.00%		0.00%
Greece					2.47%		100.00%		2.47%
Hungary	Mavir		0			100.00%	100.00%	1.72%	1.68%
Hungary	HUPX		19,232			0.00%	0.00%	0.00%	0.00%
Hungary		40,595	19,232	1.72%	1.68%	100.00%	100.00%	1.72%	1.68%
Ireland	EirGrid (TSO)		0			100.00%	100.00%	1.65%	1.60%
Ireland	EirGrid (NEMO)		31,390			0.00%	0.00%	0.00%	0.00%
Ireland	NP EMCO		0			0.00%	0.00%	0.00%	0.00%
Ireland		27,273	31,390	1.65%	1.60%	100.00%	100.00%	1.65%	1.60%
Italy	Terna		0			100.00%	100.00%	10.72%	10.45%
Italy	GME		213,264			0.00%	0.00%	0.00%	0.00%
Italy		303,443	213,264	10.72%	10.45%	100.00%	100.00%	10.72%	10.45%
Latvia	AST		0			100.00%	100.00%	0.78%	0.75%
Latvia	NP EMCO		6,650			0.00%	0.00%	0.00%	0.00%
Latvia	EPEX		0			0.00%	0.00%	0.00%	0.00%
Latvia		6,662	6,650	0.78%	0.75%	100.00%	100.00%	0.78%	0.75%
Lithuania	Litgrid		0			100.00%	100.00%	0.97%	0.94%
Lithuania	NP EMCO		12,171			0.00%	0.00%	0.00%	0.00%
Lithuania	EPEX		0			0.00%	0.00%	0.00%	0.00%
Lithuania		11,283	12,171	0.97%	0.94%	100.00%	100.00%	0.97%	0.94%

Table 82

Member State	Parties	Final Consumption of 2018 of SDAC Operational MS	Traded volume (TV) 2019 DA (GWh) to be used for sharing of SDAC costs in 2020	Shares MS as used for the costs of 01.01.2020 until 15.12.2020	Shares MS as used for the costs of 16.12.2020 until 31.12.2020	Share within MS as used for the costs of 01.01.2020 until 15.12.2020	Share within MS as used for the costs of 16.12.2020 until 31.12.2020	Shares per TSO for the costs of 1.1.2020 until 15.12.2020	Shares per TSO for the costs of 16.12.2020 until 31.12.2020
Luxembourg	CREOS								
Luxembourg	EPEX								
Luxembourg	NP EMCO								
Luxembourg	Nasdaq								
Luxembourg									
Netherlands	Tennet BV		0			100.00%	100.00%	3.50%	3.42%
Netherlands	EPEX		30,595			0.00%	0.00%	0.00%	0.00%
Netherlands	NP EMCO		619			0.00%	0.00%	0.00%	0.00%
Netherlands		114,036	31,214	3.50%	3.42%	100.00%	100.00%	3.50%	3.42%
Poland	PSE		0			100.00%	100.00%	3.85%	3.77%
Poland	TGE		5,333			0.00%	0.00%	0.00%	0.00%
Poland	EPEX		0			0.00%	0.00%	0.00%	0.00%
Poland	NP EMCO		0			0.00%	0.00%	0.00%	0.00%
Poland		151,398	5,333	3.85%	3.77%	100.00%	100.00%	3.85%	3.77%
Portugal	REN		0			100.00%	100.00%	2.51%	2.44%
Portugal	OMIE		54,330			0.00%	0.00%	0.00%	0.00%
Portugal		48,897	54,330	2.51%	2.44%	100.00%	100.00%	2.51%	2.44%
Romania	Transelectrica		0			100.00%	100.00%	1.96%	1.91%
Romania	OPCOM		21,771			0.00%	0.00%	0.00%	0.00%
Romania		49,778	21,771	1.96%	1.91%	100.00%	100.00%	1.96%	1.91%
Slovakia	SEPS		0			100.00%	100.00%	1.19%	1.15%
Slovakia	OKTE		5,352			0.00%	0.00%	0.00%	0.00%
Slovakia		26,872	5,352	1.19%	1.15%	100.00%	100.00%	1.19%	1.15%
Slovenia	ELES		0			100.00%	100.00%	0.96%	0.93%
Slovenia	BSP		8,284			0.00%	0.00%	0.00%	0.00%
Slovenia		13,813	8,284	0.96%	0.93%	100.00%	100.00%	0.96%	0.93%
Spain	REE		0			100.00%	100.00%	8.87%	8.65%
Spain	OMIE		177,936			0.00%	0.00%	0.00%	0.00%
Spain		245,769	177,936	8.87%	8.65%	100.00%	100.00%	8.87%	8.65%
Sweden	Affärsverket svenska kraftnät		0			100.00%	100.00%	5.67%	5.52%
Sweden	NP EMCO		135,611			0.00%	0.00%	0.00%	0.00%
Sweden	EPEX		0			0.00%	0.00%	0.00%	0.00%
Sweden	Nasdaq		0			0.00%	0.00%	0.00%	0.00%
Sweden		130,571	135,611	5.67%	5.52%	100.00%	100.00%	5.67%	5.52%

Table 82

Member State	Parties	Final Consumption of 2018 of SDAC Operational MS	Traded volume (TV) 2019 DA (GWh) to be used for sharing of SDAC costs in 2020	Shares MS as used for the costs of 01.01.2020 until 15.12.2020	Shares MS as used for the costs of 16.12.2020 until 31.12.2020	Share within MS as used for the costs of 01.01.2020 until 15.12.2020	Share within MS as used for the costs of 16.12.2020 until 31.12.2020	Shares per TSO for the costs of 1.1.2020 until 15.12.2020	Shares per TSO for the costs of 16.12.2020 until 31.12.2020
UK (including Northern Ireland whose consumption is 9TWh)	National Grid		0			32.35 %	32.35 %	3.03 %	2.96 %
UK (including Northern Ireland whose consumption is 9TWh)	Britned		0			32.35 %	32.35 %	3.03 %	2.96 %
UK (including Northern Ireland whose consumption is 9TWh)	Nemo Link		0			32.35 %	32.35 %	3.03 %	2.96 %
UK (including Northern Ireland whose consumption is 9TWh)	Eleclink		44,063			0.00 %	0.00 %	0.00 %	0.00 %
UK (including Northern Ireland whose consumption is 9TWh)	EPEX		0			0.00 %	0.00 %	0.00 %	0.00 %
UK (including Northern Ireland whose consumption is 9TWh)	NP EMCO		79,179			0.00 %	0.00 %	0.00 %	0.00 %
UK (including Northern Ireland whose consumption is 9TWh)	SONI (TSO)		0			2.96 %	2.96 %	0.28 %	0.27 %
UK (including Northern Ireland whose consumption is 9TWh)	SONI (NEMO)		7,791			0.00 %	0.00 %	0.00 %	0.00 %
UK (including Northern Ireland whose consumption is 9TWh)		306,584	131,033	9.35 %	9.14 %	100.00 %	100.00 %	9.35 %	9.14 %
Norway	Statnett		0			100.00 %	100.00 %	5.44 %	5.29 %
Norway	EPEX		0			0.00 %	0.00 %	0.00 %	0.00 %
Norway	NP EMCO		128,987			0.00 %	0.00 %	0.00 %	0.00 %
Norway		125,125	128,987	5.44 %	5.29 %	100.00 %	100.00 %	5.44 %	5.29 %

2.1 The following sharing key was used for the sharing of all TSOs and NEMOs costs of establishing and amending the SIDC in 2020

Table 83

Member State	Final consumption in 2018 according to Report nrg_cb_e (9.4.20) in GWh	MS share to be used for sharing of SIDC costs in 2020	Entity	Entity share within MS to be used for sharing of SIDC costs in 2020	NEMO share within MS	CACM Share - to be used for sharing of SIDC costs in 2020
Austria	65,474	2.3635 %	APG	50.0000 %		1.1818 %
			EPEX	39.5996 %	79.20 %	0.9359 %
			EXAA			0.0000 %
			NP EMCO	10.4004 %	20.80 %	0.2458 %
Belgium	84,384	2.9124 %	ELIA	50.0000 %		1.4562 %
			EPEX	41.0632 %	82.13 %	1.1959 %
			NP EMCO	8.9368 %	17.87 %	0.2603 %
Bulgaria	31,304	1.3717 %	ESO	50.0000 %		0.6858 %
			IBEX	50.0000 %	100.00 %	0.6858 %
Croatia	16,625	0.9456 %	HOPS	50.0000 %		0.4728 %
			CROPEX	50.0000 %	100.00 %	0.4728 %
Czech Republic	59,745	2.1972 %	ČEPS	50.0000 %		1.0986 %
			OTE	50.0000 %	100.00 %	1.0986 %
Denmark	32,033	1.3928 %	ENDK	50.0000 %		0.6964 %
			NP EMCO	41.6667 %	83.33 %	0.5803 %
			EPEX	8.3333 %	16.67 %	0.1161 %
Estonia	7,985	0.6948 %	Elering	50.0000 %		0.3474 %
			NP EMCO	41.6667 %	83.33 %	0.2895 %
			EPEX	8.3333 %	16.67 %	0.0579 %
Finland	84,021	2.9019 %	Fingrid	50.0000 %		1.4510 %
			NP EMCO	41.6667 %	83.33 %	1.2091 %
			EPEX	8.3333 %	16.67 %	0.2418 %
France	447,811	13.4619 %	RTE	50.0000 %		6.7310 %
			EPEX	25.0000 %	50.00 %	3.3655 %
			NP EMCO	25.0000 %	50.00 %	3.3655 %

Table 83

Member State	Final consumption in 2018 according to Report nrg_cb_e (9.4.20) in GWh	MS share to be used for sharing of SIDC costs in 2020	Entity	Entity share within MS to be used for sharing of SIDC costs in 2020	NEMO share within MS	CACM Share - to be used for sharing of SIDC costs in 2020
Germany	525,349	15.7127 %	50Hzt	21.9600 %		3.4505 %
			Amprion	32.0700 %		5.0391 %
			Tennet	28.4400 %		4.4687 %
			TransnetBW	17.5300 %		2.7544 %
			EPEX	0.0000 %	0.00 %	0.0000 %
			NP EMCO	0.0000 %	0.00 %	0.0000 %
			EXAA	0.0000 %	0.00 %	0.0000 %
Greece	51,096	1.9462 %	ADMIE	50.0000 %		0.9731 %
			HENEX	50.0000 %	100.00 %	0.9731 %
Hungary	40,595	1.6413 %	MAVIR	50.0000 %		0.8207 %
			HUPX	50.0000 %	100.00 %	0.8207 %
Ireland	27,273	1.2546 %	EirGRID T	50.0000 %		0.6273 %
			EirGRID N	50.0000 %	100.00 %	0.6273 %
			NP EMCO	0.0000 %	0.00 %	0.0000 %
Italy	303,443	9.2712 %	Terna	50.0000 %		4.6356 %
			GME	50.0000 %	100.0000 %	4.6356 %
Latvia	6,662	0.6564 %	AST	50.0000 %		0.3282 %
			NP EMCO	41.6667 %	83.3333 %	0.2735 %
			EPEX	8.3333 %	16.6667 %	0.0547 %
Lithuania	11,283	0.7905 %	LITGRID	50.0000 %		0.3952 %
			NP EMCO	41.6667 %	83.3333 %	0.3294 %
			EPEX	8.3333 %	16.6667 %	0.0659 %
Luxembourg	6,424	0.6494 %	Creos	100.0000 %		0.6494 %
			EPEX	0.0000 %	0.0000 %	0.0000 %
			NP EMCO	0.0000 %	0.0000 %	0.0000 %
Netherlands	114,036	3.7732 %	Tennet BV	50.0000 %		1.8866 %
			EPEX	47.5204 %	95.0408 %	1.7930 %
			NP EMCO	2.4796 %	4.9592 %	0.0936 %
Poland	151,398	4.8577 %	PSE	50.0000 %		2.4289 %
			TGE	38.8889 %	77.7778 %	1.8891 %
			EPEX	5.5556 %	11.1111 %	0.2699 %
			NP EMCO	5.5556 %	11.1111 %	0.2699 %

Table 83

Member State	Final consumption in 2018 according to Report nrg_cb_e (9.4.20) in GWh	MS share to be used for sharing of SIDC costs in 2020	Entity	Entity share within MS to be used for sharing of SIDC costs in 2020	NEMO share within MS	CACM Share - to be used for sharing of SIDC costs in 2020
Portugal	48,897	1.8823 %	REN	50.0000 %		0.9412 %
			OMIE	50.0000 %	100.0000 %	0.9412 %
Romania	49,778	1.9079 %	TEL	50.0000 %		0.9539 %
			OPCOM	50.0000 %	100.0000 %	0.9539 %
Slovakia	26,872	1.2430 %	SEPS	50.0000 %		0.6215 %
			OKTE	50.0000 %	100.0000 %	0.6215 %
Slovenia	13,813	0.8639 %	ELES	50.0000 %		0.4320 %
			BSP	50.0000 %	100.0000 %	0.4320 %
Spain	245,769	7.5971 %	REE	50.0000 %		3.7985 %
			OMIE	50.0000 %	100.0000 %	3.7985 %
Sweden	130,571	4.2719 %	SVK	50.0000 %		2.1266 %
			NP EMCO	41.6667 %	83.3333 %	1.7721 %
			EPEX	8.3333 %	16.6667 %	0.3544 %
United Kingdom	306,584	9.4529 %	NationalGrid	24.2666 %		2.2719 %
			BritNed	24.2666 %		2.2719 %
			EPEX	24.2666 %	50.0000 %	2.2719 %
			NP EMCO	24.2666 %	50.0000 %	2.2719 %
			SONI	2.9336 %		0.2747 %
			SONI	0.0000 %	0.0000 %	0.0000 %
Norway	125,125	4.0237 %	Statnett	50.0000 %		2.0475 %
			EPEX	41.6667 %	83.3333 %	1.7063 %
			NP EMCO	8.3333 %	16.6667 %	0.3413 %

2.2 The following sharing key was used for the sharing of all TSOs and NEMOs costs of operating the SIDC in 2020

Table 84

Member State	Final consumption in 2018 according to Report nrg_cb_e (9.4.20) in GWh	MS share to be used for sharing of SIDC costs in 2020	Entity	Entity share within MS to be used for sharing of SIDC costs in 2020	NEMO share within MS	CACM Share - to be used for sharing of SIDC costs in 2020
Austria	65,474	3.0941 %	APG	50.0000 %		1.5470 %
			EPEX	39.5996 %	79.20 %	1.2252 %
			EXAA	0.0000 %	0.00 %	0.0000 %
			NP EMCO	10.4004 %	20.80 %	0.3218 %
Belgium	84,384	3.8158 %	ELIA	50.0000 %		1.9079 %
			EPEX	41.0632 %	82.13 %	1.5669 %
			NP EMCO	8.9368 %	17.87 %	0.3410 %
Bulgaria	31,304	1.7900 %	ESO	50.0000 %		0.8950 %
			IBEX	50.0000 %	100.00 %	0.8950 %
Croatia	16,625	1.2297 %	HOPS	50.0000 %		0.6149 %
			CROPEX	50.0000 %	100.00 %	0.6149 %
Czech Republic	59,745	2.8754 %	ČEPS	50.0000 %		1.4377 %
			OTE	50.0000 %	100.00 %	1.4377 %
Denmark	32,033	1.8178 %	ENDK	50.0000 %		0.9089 %
			NP EMCO	41.6667 %	83.33 %	0.7574 %
			EPEX	8.3333 %	16.67 %	0.1515 %
Estonia	7,985	0.9000 %	Elering	50.0000 %		0.4500 %
			NP EMCO	50.0000 %	83.33 %	0.4500 %
			EPEX	0.0000 %	16.67 %	0.0000 %
Finland	84,021	3.8019 %	Fingrid	50.0000 %		1.9010 %
			NP EMCO	41.6667 %	83.33 %	1.5841 %
			EPEX	8.3333 %	16.67 %	0.3168 %
France	447,811	17.6861 %	RTE	50.0000 %		8.8430 %
			EPEX	44.8670 %	89.73 %	7.9352 %
			NP EMCO	5.1330 %	10.27 %	0.9078 %
Germany	525,349	20.6453 %	50Hzt	21.9600 %		4.5337 %
			Amprion	32.0700 %		6.6210 %
			Tennet	28.4400 %		5.8715 %
			TransnetBW	17.5300 %		3.6191 %
			EPEX	0.0000 %	0.00 %	0.0000 %
			NP EMCO	0.0000 %	0.00 %	0.0000 %
			EXAA	0.0000 %	0.00 %	0.0000 %

Table 84

Member State	Final consumption in 2018 according to Report nrg_cb_e (9.4.20) in GWh	MS share to be used for sharing of SIDC costs in 2020	Entity	Entity share within MS to be used for sharing of SIDC costs in 2020	NEMO share within MS	CACM Share - to be used for sharing of SIDC costs in 2020
Greece			ADMIE	50.0000 %		0.0000 %
			HENEX	50.0000 %	100.00 %	0.0000 %
Hungary	40,595	2.1446 %	MAVIR	50.0000 %		1.0723 %
			HUPX	50.0000 %	100.00 %	1.0723 %
Ireland			EirGRID T	50.0000 %		0.0000 %
			EirGRID N	50.0000 %	100.00 %	0.0000 %
			NP EMCO	0.0000 %	0.00 %	0.0000 %
Italy			Terna	50.0000 %		0.0000 %
			GME	50.0000 %	100.0000 %	0.0000 %
Latvia	6,662	0.8495 %	AST	50.0000 %		0.4248 %
			NP EMCO	50.0000 %	83.3333 %	0.4248 %
			EPEX	0.0000 %	16.6667 %	0.0000 %
Lithuania	11,283	1.0259 %	LITGRID	50.0000 %		0.5129 %
			NP EMCO	50.0000 %	83.3333 %	0.5129 %
			EPEX	0.0000 %	16.6667 %	0.0000 %
Luxembourg			Creos	100.0000 %		0.0000 %
			EPEX	0.0000 %	0.0000 %	0.0000 %
			NP EMCO	0.0000 %	0.0000 %	0.0000 %
Netherlands	114,036	4.9475 %	Tennet BV	50.0000 %		2.4737 %
			EPEX	47.5204 %	95.0408 %	2.3511 %
			NP EMCO	2.4796 %	4.9592 %	0.1227 %
Poland	151,398	6.3734 %	PSE	50.0000 %		3.1867 %
			TGE	38.8889 %	77.7778 %	2.4785 %
			EPEX	5.5556 %	11.1111 %	0.3541 %
			NP EMCO	5.5556 %	11.1111 %	0.3541 %
Portugal	48,897	2.4614 %	REN	50.0000 %		1.2307 %
			OMIE	50.0000 %	100.0000 %	1.2307 %
Romania	49,778	2.4950 %	TEL	50.0000 %		1.2475 %
			OPCOM	50.0000 %	100.0000 %	1.2475 %
Slovakia			SEPS	50.0000 %		0.0000 %
			OKTE	50.0000 %	100.0000 %	0.0000 %
Slovenia	13,813	1.1224 %	ELES	50.0000 %		0.5612 %
			BSP	50.0000 %	100.0000 %	0.5612 %
Spain	245,769	9.9751 %	REE	50.0000 %		4.9875 %
			OMIE	50.0000 %	100.0000 %	4.9875 %

Table 84

Member State	Final consumption in 2018 according to Report nrg_cb_e (9.4.20) in GWh	MS share to be used for sharing of SIDC costs in 2020	Entity	Entity share within MS to be used for sharing of SIDC costs in 2020	NEMO share within MS	CACM Share - to be used for sharing of SIDC costs in 2020
Sweden	130,571	5.5785 %	SVK	50.0000 %		2.7893 %
			NP EMCO	41.6667 %	83.3333 %	2.3244 %
			EPEX	8.3333 %	16.6667 %	0.4649 %
United Kingdom			NationalGrid	24.2693 %	24.2693 %	0.0000 %
			BritNed	24.2693 %	24.2693 %	0.0000 %
			EPEX	24.2693 %	24.2693 %	0.0000 %
			NP EMCO	24.2693 %	24.2693 %	0.0000 %
			SONI	2.9229 %	2.9229 %	0.0000 %
			SONI	0.0000 %	0.0000 %	0.0000 %
Norway	125,125	5.3707 %	Statnett	50.0000 %		2.6853 %
			EPEX	41.6667 %	83.3333 %	2.2378 %
			NP EMCO	8.3333 %	16.6667 %	0.4476 %

2.3 The following sharing key was used for the sharing of all NEMOs costs of establishing and amending the SIDC in 2020

Table 85

Member State	Final consumption in 2018 according to Report nrg_cb_e (9.4.20) in GWh	MS share to be used for sharing of SIDC costs in 2020	NEMO	NEMO share within MS to be used for sharing of SIDC costs in 2020	CACM Share - to be used for sharing of SIDC costs in 2020
Austria	65,474	2.3635 %	EPEX	79.1992 %	1.8719 %
			EXAA	0.0000 %	0.0000 %
			NP EMCO	20.8008 %	0.4916 %
Belgium	84,384	2.9124 %	EPEX	82.1265 %	2.3919 %
			NP EMCO	17.8735 %	0.5206 %
Bulgaria	31,304	1.3717 %	IBEX	100.0000 %	1.3717 %
Croatia	16,625	0.9456 %	CROPEX	100.0000 %	0.9456 %
Czech Republic	59,745	2.1972 %	OTE	100.0000 %	2.1972 %
Denmark	32,033	1.3928 %	NP EMCO	83.3333 %	1.1607 %
			EPEX	16.6667 %	0.2321 %
Estonia	7,985	0.6948 %	NP EMCO	83.3333 %	0.5790 %
			EPEX	16.6667 %	0.1158 %
Finland	84,021	2.9019 %	NP EMCO	83.3333 %	2.4183 %
			EPEX	16.6667 %	0.4837 %
France	447,811	13.4619 %	EPEX	50.0000 %	6.7310 %
			NP EMCO	50.0000 %	6.7310 %
Germany	525,349	15.7127 %	EPEX	50.0000 %	7.8563 %
			NP EMCO	50.0000 %	7.8563 %
Greece	51,096	1.9462 %	HENEX	100.0000 %	1.9462 %
Hungary	40,595	1.6413 %	HUPX	100.0000 %	1.6413 %
Ireland	27,273	1.2546 %	EirGRID	100.0000 %	1.2546 %
Ireland			NP EMCO	0.0000 %	0.0000 %
Italy	303,443	9.2712 %	GME	100.0000 %	9.2712 %
Latvia	6,662	0.6564 %	NP EMCO	83.3333 %	0.5470 %
			EPEX	16.6667 %	0.1094 %
Lithuania	11,283	0.7905 %	NP EMCO	83.3333 %	0.6587 %
			EPEX	16.6667 %	0.1317 %
Luxembourg	6,424	0.6494 %	EPEX	50.0000 %	0.3247 %
			NP EMCO	50.0000 %	0.3247 %

Table 85

Member State	Final consumption in 2018 according to Report nrg_cb_e (9.4.20) in GWh	MS share to be used for sharing of SIDC costs in 2020	NEMO	NEMO share within MS to be used for sharing of SIDC costs in 2020	CACM Share - to be used for sharing of SIDC costs in 2020
Netherlands	114,036	3.7732 %	EPEX	95.0408 %	3.5861 %
			NP EMCO	4.9592 %	0.1871 %
Poland	151,398	4.8577 %	TGE	77.7778 %	3.7782 %
			EPEX	11.1111 %	0.5397 %
			NP EMCO	11.1111 %	0.5397 %
Portugal	48,897	1.8823 %	OMIE	100.0000 %	1.8823 %
Romania	49,778	1.9079 %	OPCOM	100.0000 %	1.9079 %
Slovakia	26,872	1.2430 %	OKTE	100.0000 %	1.2430 %
Slovenia	13,813	0.8639 %	BSP	100.0000 %	0.8639 %
Spain	245,769	7.5971 %	OMIE	100.0000 %	7.5971 %
Sweden	130,571	4.2532 %	NP EMCO	83.3333 %	3.5443 %
			EPEX	16.6667 %	0.7089 %
United Kingdom	306,584	9.3624 %	EPEX	48.5332 %	4.5439 %
			NP EMCO	48.5332 %	4.5439 %
			SONI	2.9336 %	0.2747 %
Norway	125,125	4.0951 %	EPEX	83.3333 %	3.4126 %
			NP EMCO	16.6667 %	0.6825 %

2.4 The following sharing key was used for the sharing of all NEMOs costs of operating the SIDC in 2020

Table 85

Member State	Final consumption in 2018 according to Report nrg_cb_e (9.4.20) in GWh	MS share to be used for sharing of SIDC costs in 2020	NEMO	Share within MS	NEMO share within MS to be used for sharing of SIDC costs in 2020	CACM Share - to be used for sharing of SIDC costs in 2020
Austria	65,474	3.0941 %	EPEX	79.1992 %	79.1992 %	2.4505 %
			EXAA	0.0000 %	0.0000 %	0.0000 %
			NP EMCO	20.8008 %	20.8008 %	0.6436 %
Belgium	84,384	3.8158 %	EPEX	82.1265 %	82.1265 %	3.1338 %
			NP EMCO	17.8735 %	17.8735 %	0.6820 %
Bulgaria	31,304	1.7900 %	IBEX	100.0000 %	100.0000 %	1.7900 %
Croatia	16,625	1.2297 %	CROPEX	100.0000 %	100.0000 %	1.2297 %
Czech Republic	59,745	2.8754 %	OTE	100.0000 %	100.0000 %	2.8754 %
Denmark	32,033	1.8178 %	NP EMCO	83.3333 %	83.3333 %	1.5148 %
			EPEX	16.6667 %	16.6667 %	0.3030 %
Estonia	7,985	0.9000 %	NP EMCO	83.3333 %	83.3333 %	0.7500 %
			EPEX	16.6667 %	16.6667 %	0.1500 %
Finland	84,021	3.8019 %	NP EMCO	83.3333 %	83.3333 %	3.1683 %
			EPEX	16.6667 %	16.6667 %	0.6337 %
France	447,811	17.6861 %	EPEX	89.7341 %	89.7341 %	15.8704 %
			NP EMCO	10.2659 %	10.2659 %	1.8156 %
Germany	525,349	20.6453 %	EPEX	50.0000 %	50.0000 %	10.3227 %
			NP EMCO	50.0000 %	50.0000 %	10.3227 %
Greece			HENEX	100.0000 %	100.0000 %	0.0000 %
Hungary	40,595	2.1446 %	HUPX	100.0000 %	100.0000 %	2.1446 %
Ireland			EirGRID	100.0000 %	100.0000 %	0.0000 %
Ireland			NP EMCO	0.0000 %	0.0000 %	0.0000 %
Italy			GME	100.0000 %	100.0000 %	0.0000 %
Latvia	6,662	0.8495 %	NP EMCO	83.3333 %	83.3333 %	0.7079 %
			EPEX	16.6667 %	16.6667 %	0.1416 %
Lithuania	11,283	1.0259 %	NP EMCO	83.3333 %	83.3333 %	0.8549 %
			EPEX	16.6667 %	16.6667 %	0.1710 %
Luxembourg			EPEX	50.0000 %	50.0000 %	0.0000 %
			NP EMCO	50.0000 %	50.0000 %	0.0000 %
Netherlands	114,036	4.9475 %	EPEX	95.0408 %	95.0408 %	4.7021 %
			NP EMCO	4.9592 %	4.9592 %	0.2454 %

Table 85

Member State	Final consumption in 2018 according to Report nrg_cb_e (9.4.20) in GWh	MS share to be used for sharing of SIDC costs in 2020	NEMO	Share within MS	NEMO share within MS to be used for sharing of SIDC costs in 2020	CACM Share - to be used for sharing of SIDC costs in 2020
Poland	151,398	6.3734 %	TGE	77.7778 %	77.7778 %	4.9571 %
			EPEX	11.1111 %	11.1111 %	0.7082 %
			NP EMCO	11.1111 %	11.1111 %	0.7082 %
Portugal	48,897	2.4614 %	OMIE	100.0000 %	100.0000 %	2.4614 %
Romania	49,778	2.4950 %	OPCOM	100.0000 %	100.0000 %	2.4950 %
Slovakia			OKTE	100.0000 %	100.0000 %	0.0000 %
Slovenia	13,813	1.1224 %	BSP	100.0000 %	100.0000 %	1.1224 %
Spain	245,769	9.9751 %	OMIE	100.0000 %	100.0000 %	9.9751 %
Sweden	130,571	5.5785 %	NP EMCO	83.3333 %	83.3333 %	4.6488 %
			EPEX	16.6667 %	16.6667 %	0.9298 %
United Kingdom			EPEX	0.0000 %	0.0000 %	0.0000 %
			NP EMCO	0.0000 %	0.0000 %	0.0000 %
			SONI	0.0000 %		0.0000 %
Norway	125,125	5.3707 %	EPEX	83.3333 %	83.3333 %	4.4756 %
			NP EMCO	16.6667 %	16.6667 %	0.8951 %

Related to 2.5 and 2.6, the following sharing key was used for the sharing of all TSOs costs of the SIDC in 2020

Table 86

			Establishment and amendment		Operational	
Member State	Final consumption in 2018 according to Report 105a (data from 9.4.2020) (in GWh)	TSO	Share within MS	Share per TSO	Share within MS	Share per operational TSO
Austria	65,474	APG	100.000 %	2.364 %	100.000 %	3.094 %
Belgium	84,384	Elia	100.000 %	2.912 %	100.000 %	3.816 %
Bulgaria	31,304	ESO	100.000 %	1.372 %	100.000 %	1.790 %
Croatia	16,625	HOPS	100.000 %	0.946 %	100.000 %	1.230 %
Czech Republic	59,745	ČEPS	100.000 %	2.197 %	100.000 %	2.875 %
Denmark	32,033	Energinet/ ELSO	100.000 %	1.393 %	100.000 %	1.818 %
Estonia	7,985	Elering	100.000 %	0.695 %	100.000 %	0.900 %
Finland	84,021	Fingrid	100.000 %	2.902 %	100.000 %	3.802 %
France	447,811	RTE	100.000 %	13.462 %	100.000 %	17.686 %
Germany	525,349	50 Hertz	21.960 %	3.451 %	21.960 %	4.534 %
		Amprion	32.070 %	5.039 %	32.070 %	6.621 %
		TTG	28.440 %	4.469 %	28.440 %	5.872 %
			17.530 %	2.754 %	17.530 %	3.619 %
Greece	51,096	ADMIE	100.000 %	1.946 %	0.000 %	0.000 %
Hungary	40,595	MAVIR	100.000 %	1.641 %	100.000 %	2.145 %
Ireland	27,273	EirGrid	100.000 %	1.255 %	0.000 %	0.000 %
Italy	303,443	Terna	100.000 %	9.271 %	0.000 %	0.000 %
Latvia	6,662	AST	100.000 %	0.656 %	100.000 %	0.850 %
Lithuania	11,283	Litgrid	100.000 %	0.790 %	100.000 %	1.026 %
Luxembourg	6,424	CREOS	100.000 %	0.649 %	0.000 %	0.000 %
Netherlands	114,036	TTN	100.000 %	3.773 %	100.000 %	4.947 %
Poland	151,398	PSE	100.000 %	4.858 %	100.000 %	6.373 %
Portugal	48,897	REN	100.000 %	1.882 %	100.000 %	2.461 %
Romania	49,778	Trans-electrica	100.000 %	1.908 %	100.000 %	2.495 %
Slovakia	26,872	SEPS	100.000 %	1.243 %	0.000 %	0.000 %
Slovenia	13,813	ELES	100.000 %	0.864 %	100.000 %	1.122 %
Spain	245,769	REE	100.000 %	7.597 %	100.000 %	9.975 %
Sweden	130,571	Svk	100.000 %	4.253 %	100.000 %	5.579 %
UK (including NI whose consumption is 9.000 GWh)	306,584	BritNed	48.532 %	9.362 %	0.000 %	0.000 %
		NGIC	48.532 %		0.000 %	0.000 %
		SONI	2.936 %		0.000 %	0.000 %
Norway	125,125	Statnett	100.000 %	4.095 %	100.000 %	5.371 %
Total	3,014,351			100.000 %		100.000 %

Regional CWE sharing key

The detailed disaggregation of the CWE NEMOs and TSOs regional costs is available in the following tables

Table 87

Member State	Entity	Share within MS	NEMO split within MS
Austria	APG	50.00 %	
	EPEX	37.92 %	75.84 %
	EXAA	6.44 %	12.88 %
	NP	5.64 %	11.28 %
Belgium	ELIA	44.27 %	
	EPEX	45.00 %	88.54 %
	NP	5.73 %	11.46 %
France	RTE	50.00 %	
	EPEX	25.00 %	50.00 %
	NP	25.00 %	50.00 %
Germany	Amprion	41.09 %	
	Tennet	36.44 %	
	TransnetBW	22.46 %	
	EPEX	0 %	0 %
	NP	0 %	0 %
	EXAA	0 %	0 %
Luxembourg	Creos	100.00 %	
	EPEX	0.00 %	0 %
	NP	0.00 %	0 %
The Netherlands	Tennet BV	50.00 %	
	EPEX	50.00 %	100.00 %
	NP	0.00 %	0 %

Establishing and amending costs

Table 88

Member State	Share_ MS(i) for 2017	Share_ MS(i) for 2018-2019	Share_ MS(i) for 2020
Austria	7.02 %	7.12 %	6.89 %
Belgium	7.32 %	7.23 %	7.31 %
France	31.27 %	30.82 %	30.66 %
Germany	42.52 %	42.93 %	42.83 %
Luxembourg	2.41 %	2.41 %	2.41 %
The Netherlands	9.46 %	9.49 %	9.91 %

Operating costs

Table 89

Member State	Share_ MS(i) for 2017	Share_ MS(i) for 2018-2019	Share_ MS(i) for 2020
Austria	7.45 %	7.55 %	7.32 %
Belgium	7.76 %	7.67 %	7.75 %
France	31.81 %	31.36 %	31.19 %
Germany	43.08 %	43.48 %	43.38 %
Luxembourg	0.00 %	0.00 %	0.00 %
The Netherlands	9.91 %	9.94 %	10.36 %

Regional Core FB MC Sharing keys

Table 90

Party	Total Share Per Party	Party	Total Share Per Party
50Hertz	10.8316 %	OKTE	3.3598 %
Tennet	8.2043 %	SEPS	3.0858 %
APG	8.2043 %	PSE	3.0858 %
EXAA	3.2653 %	TGE	4.1240 %
BSP	3.2653 %	OPCOM	4.1240 %
ELES	2.7347 %	Transelectrica	3.5139 %
ČEPS	2.7347 %	HOPS	3.5139 %
OTE	3.9740 %	CROPEX	2.8045 %
HUPX	3.9740 %	Nord Pool	2.8045 %
MAVIR	3.3598 %	Nasdaq	10.8316 %
		SUM	8.2043 %

The detailed disaggregation of the Core FB MC NEMOs and TSOs regional costs is available in the following tables

Table 91

Member State	Project Parties	Final electricity consumption 2013 [GWh] based on Erostat table nrg_105a**	Share per Project Country ("PCSs")	Share per Project Country ("PCSs") - 50 %
Austria	APG, EPEX, EXAA, Nord Pool	62,940	7.07 %	3.54 %
Czech Republic	ČEPS, OTE	56,691	6.37 %	3.19 %
Germany	50Hertz, Tennet, EPEX, Nord Pool, Nasdaq	518,089	58.23 %	29.12 %
Hungary	MAVIR, HUPX	34,836	3.92 %	1.96 %
Poland	PSE, TGE, EPEX, Nord Pool	124,059	13.94 %	6.97 %
Slovakia	SEPS, OKTE	25,084	2.82 %	1.41 %
Slovenia	ELES, BSP	12,590	1.42 %	0.71 %
Romania	Transelectrica, OPCOM	40,317	4.53 %	2.27 %
Croatia	HOPS, CROPEX	15,072	1.69 %	0.85 %
Total		889,678	100.00 %	50.00 %

Table 92

Member State	Project Party	Equal Share	National Common Cost Sharing Key (NCCSK)	Total Share per Project Party
Austria	APG	2,3810 %	0,8843 %	3,2653 %
	EXAA	2,3810 %	0,8843 %	3,2653 %
	EPEX		0,8843 %	0,8843 %
	Nord Pool		0,8843 %	0,8843 %
Croatia	HOPS	2,3810 %	0,4235 %	2,8045 %
	CROPEX	2,3810 %	0,4235 %	2,8045 %
Czech Republic	ČEPS	2,3810 %	1,5930 %	3,9740 %
	OTE	2,3810 %	1,5930 %	3,9740 %
Germany	50Hertz	2,3810 %	5,8233 %	8,2043 %
	EPEX	2,3810 %	5,8233 %	8,2043 %
	Tennet	2,3810 %	5,8233 %	8,2043 %
	NASDAQ	2,3810 %	5,8233 %	8,2043 %
	Nord Pool	2,3810 %	5,8233 %	8,2043 %
Hungary	HUPX	2,3810 %	0,9789 %	3,3598 %
	MAVIR	2,3810 %	0,9789 %	3,3598 %
Poland	PSE	2,3810 %	1,7430 %	4,1240 %
	TGE	2,3810 %	1,7430 %	4,1240 %
	EPEX		1,7430 %	1,7430 %
	Nord Pool		1,7430 %	1,7430 %
Romania	OPCOM	2,3810 %	1,1329 %	3,5139 %
	Transelectrica	2,3810 %	1,1329 %	3,5139 %
Slovakia	OKTE	2,3810 %	0,7049 %	3,0858 %
	SEPS	2,3810 %	0,7049 %	3,0858 %
Slovenia	BSP	2,3810 %	0,3538 %	2,7347 %
	ELES	2,3810 %	0,3538 %	2,7347 %
Total/Checksum		50,0000 %	50,0000 %	100.0000 %

Core FB MC sharing key among NEMOs for CIP (Central Interface Point)

Table 93

Member State	Entity	NEMO share within MS to be used for sharing of costs	CACM Share - SDAC to be used for sharing of SDAC costs
Austria	EPEX	75.8400 %	3.7902 %
		12.8800 %	0.6437 %
		11.2800 %	0.5637 %
Belgium	EPEX	90.0000 %	4.5516 %
		10.0000 %	0.5057 %
Croatia	CROPEX	100.0000 %	1.5910 %
Czech Republic	OTE	100.0000 %	4.4200 %
France	EPEX	50.0000 %	11.9215 %
	EMCO	50.0000 %	11.9215 %
Germany	EPEX	33.3333 %	11.1222 %
	EMCO	33.3333 %	11.1222 %
	NASDAQ		0.0000 %
	EXAA	33.3333 %	11.1222 %
Hungary	HUPX	100.0000 %	3.5642 %
Luxembourg	EPEX	50.0000 %	0.6102 %
	NASDAQ		0.0000 %
	EMCO	50.0000 %	0.6102 %
Netherlands	EPEX	100.0000 %	6.8775 %
	EMCO	0.0000 %	0.0000 %
Poland	TGE	77.7800 %	5.2474 %
	EPEX	11.1100 %	0.7495 %
	EMCO	11.1100 %	0.7495 %
Romania	OPCOM	100.0000 %	4.0828 %
Slovakia	OKTE	100.0000 %	2.3472 %
Slovenia	BSP	100.0000 %	1.8860 %
Total/Checksum			100.0000 %

Regional MRC the Joint NEMOs and TSOs Sharing keys

The detailed disaggregation of the Joint NEMOs and TSOs regional costs for operating the MRC is available in the following table

Table 94

Member State	Parties	Share per party as used for the costs of 01.01.2020 until 15.12.2020	Share per party as used for the costs of 16.12.2020 until 31.12.2020
Austria	APG	1.22 %	1.19 %
Austria	EPEX	0.93 %	0.90 %
Austria	EXAA	0.00 %	0.00 %
Austria	EMCO	0.14 %	0.13 %
Austria		2.29 %	2.23 %
Belgium	ELIA	1.36 %	1.33 %
Belgium	EPEX	1.21 %	1.18 %
Belgium	EMCO	0.16 %	0.15 %
Belgium		2.73 %	2.66 %
Bulgaria	ESO	0.00 %	0.00 %
Bulgaria	IBEX	1.41 %	1.36 %
Bulgaria		1.41 %	1.36 %
Croatia	HOPS	0.49 %	0.48 %
Croatia	Cropex	0.49 %	0.48 %
Croatia		0.98 %	0.95 %
Czech Republic	ČEPS	0.00 %	0.00 %
Czech Republic	OTE	0.00 %	0.00 %
Czech Republic		0.00 %	0.00 %
Denmark	ELSO	0.88 %	0.85 %
Denmark	EMCO	0.73 %	0.71 %
Denmark	EPEX	0.15 %	0.14 %
Denmark		1.75 %	1.70 %
Estonia	Elering	0.42 %	0.40 %
Estonia	EMCO	0.42 %	0.40 %
Estonia	EPEX	0.00 %	0.00 %
Estonia		0.84 %	0.81 %
Finland	Fingrid	1.75 %	1.70 %
Finland	EMCO	1.46 %	1.42 %
Finland	EPEX	0.29 %	0.28 %

Member State	Parties	Share per party as used for the costs of 01.01.2020 until 15.12.2020	Share per party as used for the costs of 16.12.2020 until 31.12.2020
Finland		3.51 %	3.41 %
France	RTE	6.20 %	6.06 %
France	EPEX	6.20 %	6.06 %
France	EMCO	0.00 %	0.00 %
France		12.40 %	12.12 %
Germany	50Hertz	3.61 %	3.53 %
Germany	Amprion	5.28 %	5.15 %
Germany	Tennet DE	4.68 %	4.57 %
Germany	Transnet	2.89 %	2.81 %
Germany	EPEX	0.00 %	0.00 %
Germany	EMCO	0.00 %	0.00 %
Germany	EXAA	0.00 %	0.00 %
Germany		16.46 %	16.06 %
Greece	ADMIE		1.31 %
Greece	Henex		1.31 %
Greece			2.61 %
Hungary	Mavir	0.00 %	0.00 %
Hungary	HUPX	0.00 %	0.00 %
Hungary		0.00 %	0.00 %
Ireland	EirGrid (TSO)	0.87 %	0.84 %
Ireland	EirGrid (NEMO)	0.87 %	0.84 %
Ireland	EMCO	0.00 %	0.00 %
Ireland		1.74 %	1.69 %
Italy	Terna	5.70 %	5.55 %
Italy	GME	5.70 %	5.55 %
Italy		11.41 %	11.11 %
Latvia	AST	0.41 %	0.39 %
Latvia	EMCO	0.41 %	0.39 %
Latvia	EPEX	0.00 %	0.00 %
Latvia		0.81 %	0.78 %
Lithuania	Litgrid	0.51 %	0.49 %
Lithuania	EMCO	0.51 %	0.49 %
Lithuania	EPEX	0.00 %	0.00 %
Lithuania		1.02 %	0.99 %
Luxembourg	CREOS		
Luxembourg	EPEX		
Luxembourg	EMCO		

Table 94

Member State	Parties	Share per party as used for the costs of 01.01.2020 until 15.12.2020	Share per party as used for the costs of 16.12.2020 until 31.12.2020
Luxembourg			
Netherlands	Tennet BV	1.86 %	1.81 %
Netherlands	EPEX	1.86 %	1.81 %
Netherlands	EMCO	0.00 %	0.00 %
Netherlands		3.71 %	3.62 %
Poland	PSE	2.04 %	1.99 %
Poland	TGE	1.59 %	1.55 %
Poland	EPEX	0.23 %	0.22 %
Poland	EMCO	0.23 %	0.22 %
Poland		4.08 %	3.99 %
Portugal	REN	1.33 %	1.29 %
Portugal	OMIE	1.33 %	1.29 %
Portugal		2.66 %	2.58 %
Romania	Transelectrica	0.00 %	0.00 %
Romania	OPCOM	0.00 %	0.00 %
Romania		0.00 %	0.00 %
Slovakia	SEPS	0.00 %	0.00 %
Slovakia	OKTE	0.00 %	0.00 %
Slovakia		0.00 %	0.00 %
Slovenia	ELES	0.50 %	0.49 %
Slovenia	BSP	0.50 %	0.49 %
Slovenia		1.01 %	0.97 %
Spain	REE	4.72 %	4.59 %
Spain	OMIE	4.72 %	4.59 %
Spain		9.44 %	9.19 %
Sweden	Affärsverket svenska kraftnät	3.02 %	2.93 %
Sweden	EMCO	2.51 %	2.44 %
Sweden	EPEX	0.50 %	0.49 %

Table 94

Member State	Parties	Share per party as used for the costs of 01.01.2020 until 15.12.2020	Share per party as used for the costs of 16.12.2020 until 31.12.2020
Sweden		6.03 %	5.86 %
UK (including North- ern Ireland whose consumption is 9TWh)	National Grid	1.61 %	1.57 %
UK (including North- ern Ireland whose consumption is 9TWh)	Britned	1.61 %	1.57 %
UK (including North- ern Ireland whose consumption is 9TWh)	Nemo Link	1.61 %	1.57 %
UK (including North- ern Ireland whose consumption is 9TWh)	EPEX	1.63 %	1.59 %
UK (including North- ern Ireland whose consumption is 9TWh)	EMCO	3.19 %	3.11 %
UK (including North- ern Ireland whose consumption is 9TWh)	SONI (TSO)	0.30 %	0.29 %
UK (including North- ern Ireland whose consumption is 9TWh)	SONI (NEMO)	0.00 %	0.00 %
UK (including North- ern Ireland whose consumption is 9TWh)		9.95 %	9.70 %
Norway	Statnett	2.89 %	2.81 %
Norway	EPEX	0.00 %	0.00 %
Norway	EMCO	2.89 %	2.81 %
Norway		5.78 %	5.62 %

Regional MRC NEMOs Sharing keys

Table 95

Member State	Final consumption in 2018 according to Report nrg_cb_e (9.4.20) in GWh	Traded volume 2019DA (GWh) to be used for sharing of SDAC costs in 2020	MS share to be used for sharing of SDAC costs in 2019	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2020	CACM Share - SDAC to be used for sharing of SDAC costs in 2020
Austria	65,473.5560	21,093	2.4762%	EPEX	75.8400 %	1.8780 %
		1,176		EXAA	12.8800%	0.3189 %
		273		EMCO	11.2800%	0.2793 %
Belgium	84,384.1000	14,343	2.7575%	EPEX	88.5449%	2.4416 %
		266		EMCO	11.4551%	0.3159 %
Bulgaria	31,304.2260	8,391	1.4513%	IBEX	100.0000%	1.4513 %
Croatia	16,625.2000	3,598	1.0343%	CROPEX	100.0000%	1.0343 %
Denmark	32,032.9180	25,984	1.7868%	EMCO	83.3333%	1.4890 %
				EPEX	16.6667%	0.2978 %
Estonia	7,985.0000	6,309	0.8892%	EMCO	83.3300%	0.7410 %
				EPEX	16.6700%	0.1482 %
Finland	84,021.0000	56,901	3.5165%	EMCO	83.3333%	2.9304 %
				EPEX	16.6667%	0.5861 %
France	447,810.5830	89,721	12.3013%	EPEX	99.3689%	12.2237 %
		570		EMCO	0.6311%	0.0776 %
Germany	525,349.0000	208,495	16.2772%	EPEX	33.3333%	5.4257 %
		397		EMCO	33.3333%	5.4257 %
		4,473		EXAA	33.3333%	5.4257 %
				NASDAQ	0.0000%	0.0000 %
Ireland	27,272.7190	31,390	1.7778%	EirGRID	100.0000%	1.7778 %
Italy	303,442.9700	213,264	11.2862%	GME	100.0000%	11.2862 %
Latvia	6,662.1410	6,650	0.8656%	EMCO	83.3300%	0.7213 %
				EPEX	16.6700%	0.1443 %
Lithuania	11,283.3000	12,171	1.0697%	EMCO	83.3300%	0.8914 %
				EPEX	16.6700%	0.1783 %
Netherlands	114,036.0070	30,595	3.7254%	EPEX	100.0000%	3.7254 %
		619		EMCO	0.0000%	0.0000 %
Poland	151,398.3760	5,333	4.0959%	TGE	77.7800%	3.1858 %
				EPEX	11.1100%	0.4551 %
		0		EMCO	11.1100%	0.4551 %
Portugal	48,897.0050	54,330	2.6801%	OMIE	100.0000%	2.6801 %
Slovenia	13,812.8870	8,284	1.0561%	BSP	100.0000%	1.0561 %
Spain	245,769.0000	177,936	9.3486%	OMIE	100.0000%	9.3486 %

Table 95

Member State	Final consumption in 2018 according to Report nrg_cb_e (9.4.20) in GWh	Traded volume 2019DA (GWh) to be used for sharing of SDAC costs in 2020	MS share to be used for sharing of SDAC costs in 2019	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2020	CACM Share - SDAC to be used for sharing of SDAC costs in 2020
Sweden	130,571.0000	135,611	5.9909%	EMCO	83.3333%	4.9924%
				EPEX	16.6667%	0.9985%
UK (NI whose consumption is 9,000 GWh)	306,584.3990	44,063	9.5756%	EPEX	40.5022%	3.8783%
		79,179		EMCO	59.4978%	5.6972%
Northern Ireland (calculated as part of 9 TWh of UK)		7,791	0.2896%	SONI	100.0000%	0.2896%
Norway	125,125.3610		5.7483%	EPEX	0.0000%	0.0000%
		128,987		EMCO	100.0000%	5.7483%

Regional MRC TSOs sharing keys

The detailed disaggregation of the TSOs only regional costs for operating the MRC is available in the following table

Table 96

Member State	Parties	Share per party as used for the costs of 01.01.2020 until 15.12.2020	Share per party as used for the costs of 16.12.2020 until 31.12.2020
Austria	APG	2.49 %	2.42 %
Austria	EPEX	0.00 %	0.00 %
Austria	EXAA	0.00 %	0.00 %
Austria	EMCO	0.00 %	0.00 %
Austria		2.49 %	2.42 %
Belgium	ELIA	2.77 %	2.70 %
Belgium	EPEX	0.00 %	0.00 %
Belgium	EMCO	0.00 %	0.00 %
Belgium		2.77 %	2.70 %
Bulgaria	ESO		
Bulgaria	IBEX		
Bulgaria		0.00 %	0.00 %
Croatia	HOPS	1.01 %	0.98 %
Croatia	Cropex	0.00 %	0.00 %
Croatia		1.01 %	0.98 %
Czech Republic	ČEPS	0.00 %	0.00 %
Czech Republic	OTE	0.00 %	0.00 %
Czech Republic		0.00 %	0.00 %
Denmark	ELSO	1.78 %	1.73 %
Denmark	EMCO	0.00 %	0.00 %
Denmark	EPEX	0.00 %	0.00 %
Denmark		1.78 %	1.73 %
Estonia	Elering	0.86 %	0.83 %
Estonia	EMCO	0.00 %	0.00 %
Estonia	EPEX	0.00 %	0.00 %
Estonia		0.86 %	0.83 %
Finland	Fingrid	3.56 %	3.46 %
Finland	EMCO	0.00 %	0.00 %
Finland	EPEX	0.00 %	0.00 %
Finland		3.56 %	3.46 %

Member State	Parties	Share per party as used for the costs of 01.01.2020 until 15.12.2020	Share per party as used for the costs of 16.12.2020 until 31.12.2020
France	RTE	12.54 %	12.26 %
France	EPEX	0.00 %	0.00 %
France	EMCO	0.00 %	0.00 %
France		12.54 %	12.26 %
Germany	50Hertz	3.65 %	3.56 %
Germany	Amprion	5.33 %	5.20 %
Germany	Tennet DE	4.73 %	4.61 %
Germany	Transnet	2.91 %	2.84 %
Germany	EPEX	0.00 %	0.00 %
Germany	EMCO	0.00 %	0.00 %
Germany	EXAA	0.00 %	0.00 %
Germany		16.63 %	16.22 %
Greece	ADMIE		2.65 %
Greece	Henex		0.00 %
Greece			2.65 %
Hungary	Mavir	0.00 %	0.00 %
Hungary	HUPX	0.00 %	0.00 %
Hungary		0.00 %	0.00 %
Ireland	EirGrid (TSO)	1.77 %	1.72 %
Ireland	EirGrid (NEMO)	0.00 %	0.00 %
Ireland	EMCO	0.00 %	0.00 %
Ireland		1.77 %	1.72 %
Italy	Terna	11.53 %	11.22 %
Italy	GME	0.00 %	0.00 %
Italy		11.53 %	11.22 %
Latvia	AST	0.84 %	0.81 %
Latvia	EMCO	0.00 %	0.00 %
Latvia	EPEX	0.00 %	0.00 %
Latvia		0.84 %	0.81 %
Lithuania	Litgrid	1.05 %	1.01 %
Lithuania	EMCO	0.00 %	0.00 %
Lithuania	EPEX	0.00 %	0.00 %
Lithuania		1.05 %	1.01 %
Luxembourg	CREOS		
Luxembourg	EPEX		
Luxembourg	EMCO		
Luxembourg			

Table 96

Member State	Parties	Share per party as used for the costs of 01.01.2020 until 15.12.2020	Share per party as used for the costs of 16.12.2020 until 31.12.2020
Netherlands	Tennet BV	3.77 %	3.67 %
Netherlands	EPEX	0.00 %	0.00 %
Netherlands	EMCO	0.00 %	0.00 %
Netherlands		3.77 %	3.67 %
Poland	PSE	4.14 %	4.04 %
Poland	TGE	0.00 %	0.00 %
Poland	EPEX	0.00 %	0.00 %
Poland	EMCO	0.00 %	0.00 %
Poland		4.14 %	4.04 %
Portugal	REN	2.70 %	2.62 %
Portugal	OMIE	0.00 %	0.00 %
Portugal		2.70 %	2.62 %
Romania	Transelectrica	0.00 %	0.00 %
Romania	OPCOM	0.00 %	0.00 %
Romania		0.00 %	0.00 %
Slovakia	SEPS	0.00 %	0.00 %
Slovakia	OKTE	0.00 %	0.00 %
Slovakia		0.00 %	0.00 %
Slovenia	ELES	1.03 %	1.00 %
Slovenia	BSP	0.00 %	0.00 %
Slovenia		1.03 %	1.00 %
Spain	REE	9.54 %	9.28 %
Spain	OMIE	0.00 %	0.00 %
Spain		9.54 %	9.28 %
Sweden	Affärsverket svenska kraftnät	6.10 %	5.92 %
Sweden	EMCO	0.00 %	0.00 %
Sweden	EPEX	0.00 %	0.00 %
Sweden		6.10 %	5.92 %

Table 96

Member State	Parties	Share per party as used for the costs of 01.01.2020 until 15.12.2020	Share per party as used for the costs of 16.12.2020 until 31.12.2020
UK (including North- ern Ireland whose consumption is 9TWh)	National Grid	3.25 %	3.17 %
UK (including North- ern Ireland whose consumption is 9TWh)	Britned	3.25 %	3.17 %
UK (including North- ern Ireland whose consumption is 9TWh)	Nemo Link	3.25 %	3.17 %
UK (including North- ern Ireland whose consumption is 9TWh)	EPEX	0.00 %	0.00 %
UK (including North- ern Ireland whose consumption is 9TWh)	EMCO	0.00 %	0.00 %
UK (including North- ern Ireland whose consumption is 9TWh)	SONI (TSO)	0.30 %	0.29 %
UK (including North- ern Ireland whose consumption is 9TWh)	SONI (NEMO)	0.00 %	0.00 %
UK (including North- ern Ireland whose consumption is 9TWh)		10.06 %	9.81 %
Norway	Statnett	5.85 %	5.68 %
Norway	EPEX	0.00 %	0.00 %
Norway	EMCO	0.00 %	0.00 %
Norway		5.85 %	5.68 %

LIP 17 Sharing Key

Table 97

Member State	Entity	Share within MS	LIP 17 - share within MS	LIP 17 cost sharing key
Czechia	ČEPS	50.00%	50.00%	11.15 %
Czechia	OTE	50.00%	50.00%	11.15 %
Hungary	MAVIR	50.00%	50.00%	8.06 %
Hungary	HUPX	50.00%	50.00%	8.06 %
Poland	PSE	50.00%	50.00%	25.16 %
Poland	TGE	38.89%	43.75%	22.01 %
Poland	EPEX	5.56%	0.00%	0.00 %
Poland	NORDPOOL	5.56%	6.25%	3.14 %
Slovakia	SEPS	50.00%	50.00%	5.64 %
Slovakia	OKTE	50.00%	50.00%	5.64 %

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