

CACM Cost Report of 2022





CACM Cost Report of 2022

**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**

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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 (SDAC) and Single Intra-Day Coupling (SIDC) according to the Article 80 of the Commission Regulation (EU) 2015/1222 of 24 July 2015 – CACM Regulation. Costs directly related to SDAC and SIDC 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).

As of 2023 NEMOs and TSOs agreed jointly that the yearly CACM cost report shall be prepared under the new Market Coupling Steering Committee (MCSC) body, which has been established in 2022.

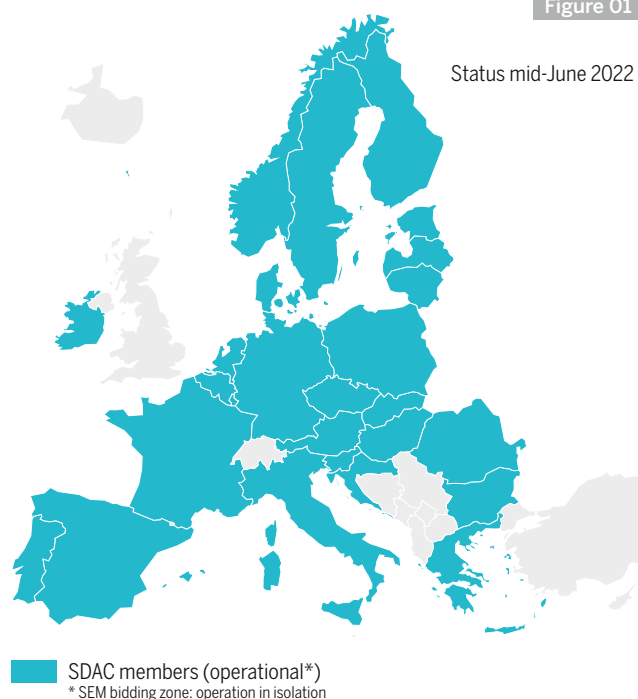
Single Day Ahead Coupling

The aim of 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. Until June 2021, there were two operational solutions under SDAC. These were coupled as part of the Interim Coupling project with the aim to integrate MRC and 4MMC couplings. In 2022, SDAC covered most of the EU, and, since from 8 June 2022, with the successful go-live of the CORE Flow Based Market Coupling, the flow-based capacity calculation method was implemented.

The topology of SDAC includes 27 countries, 62 bidding zones, 30 TSOs and 16 NEMOs.

Figure 01

Status mid-June 2022



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

Joint SDAC NEMOs and TSOs governance structure

The governance of SDAC consists of three layers:

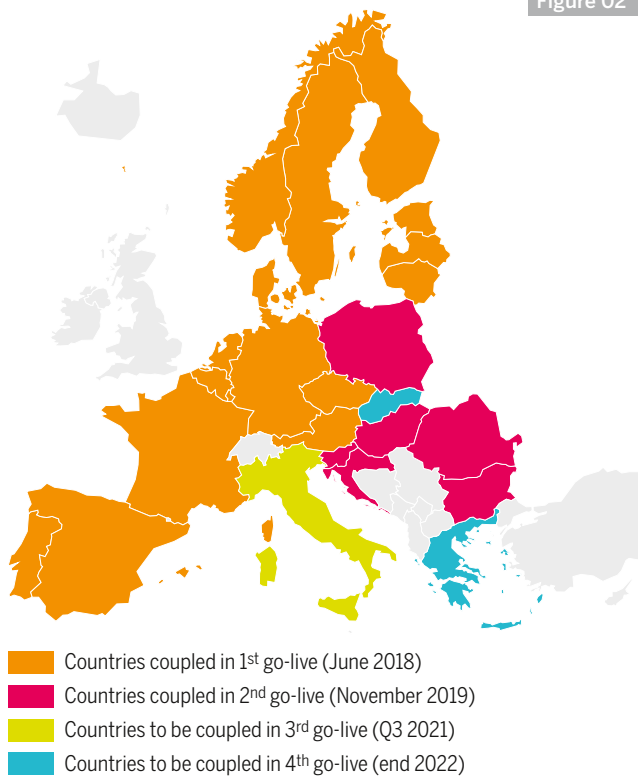
- Joint NEMOs and TSOs: governed by the Single Day-Ahead Coupling Operations Agreement (DAOA);
- NEMO-only: governed by the All NEMO Day Ahead Operation Agreement (ANDOA);
- TSO-only: governed by the TSO Cooperation Agreement for Single Day-Ahead Coupling (TCDA).



Single Intraday Coupling

The aim of SIDC is to create 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.

Figure 02



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

Description of Single Intraday Coupling (SIDC)

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.

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. Furthermore, the Northern Italian borders (IT-FR, IT-AT and IT-SI) were integrated into the already coupled intraday region on 21 September 2021. The SIDC topology at the end of 2022 includes 25 countries after the inclusion of Slovakia and Greece in the 4th wave that was realized in November.

In 2022 we see a significant growth in the continuous market traded volumes. The year of 2022 follows after previous three years with steady increase in annual market volumes since the market go live in 2018.

- The size of the coupled market in 2022 grew to 110.48 TWh traded – representing almost 89 million trades. For comparison, the traded volume in 2021 was 93.4 TWh.

The SIDC system handles orders and transmission capacity from 32 bidding zones and 54 borders, 30 TSOs and 16 NEMOs. The governance of the SIDC consists of three layers:

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



Joint SDAC and SIDC governance structure

In January 2022, a new joint governance structure was implemented in order to achieve a more streamlined cooperation between NEMOs and TSOs.

NEMOs and TSOs have been working intensely over recent years to achieve a truly integrated European electricity market. By integrating the decision making for both the day-ahead and intraday timeframe, the new structure will ensure further coordination, foster efficiency and create

a faster decision-making mechanism. Therefore, SDAC and SIDC have been merged into a single Market Coupling Steering Committee (MCSC) that includes representative of all parties involved. MCSC activities are supported by horizontal joint working groups which for example address the legal or communication aspects. In addition, SDAC as well as SIDC rely on the dedicated Working Groups: Operations (OPSCOM), Quality Assurance and Release Management (QARM), and Market and System Design (MSD).

Joint SDAC and SIDC governance structure

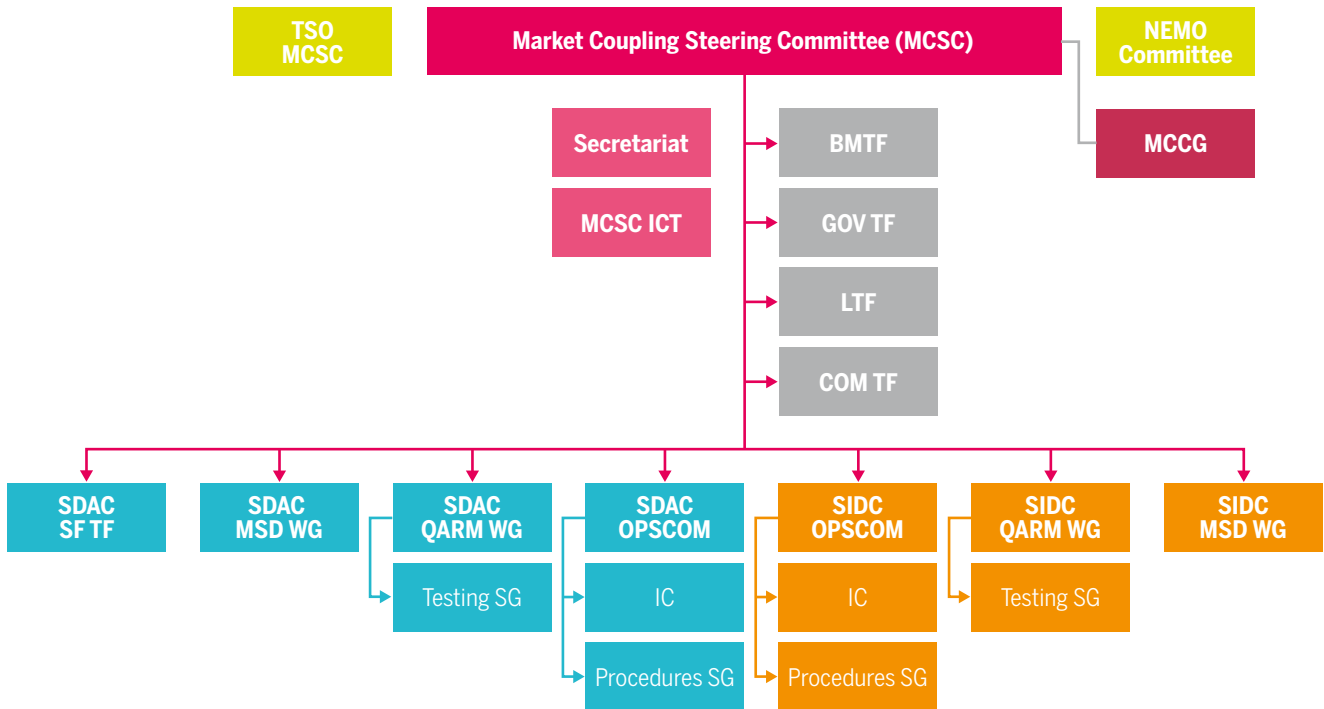


Figure 03

Market Coupling Consultative Group

In the Market Coupling Steering Committee of February 2022, where the implementation of the new governance was announced, all NEMOs and TSOs approved the creation of a dedicated stakeholder management group. The main objectives of the newly established Market Coupling Consultative Group (MCCG) are:

- **To consult market participants** on issues related to the design, development, implementation and operation of SDAC and SIDC;
- **To facilitate the exchange of views and information** among NEMOs, TSOs and market participants;
- **To support the preparation of certain topics** to be addressed in the MESC.

The MCCG is open to everyone, the active members are the MCCG co-convenors, market participants (EFET, Eurelectric, IFIEC, etc.), relevant convenors or experts from NEMOs and TSOs actively contributing, individual market participants, representatives of individual NEMOs and TSOs.

MCCG is first and foremost a forum aiming at reaching a better common understanding between market participants, and NEMOs and TSOs. It has no decision-making power related to operation or implementation, which is a role belonging to the MCSC. The outcome of MCCG discussions will be duly considered by the MCSC. The MCCG can facilitate reaching aligned positioning that could be presented jointly to e.g. MESC. **The MCCG is convened by three co-convenors from NEMOs, TSOs, and market parties.**

Description of the cost categories included in the report

Table 1

		Establishing and amending costs		Operating costs	
SDAC common costs	All NEMOs and all TSOs costs	1.1	<ul style="list-style-type: none"> • Leader Remuneration (WGs) • 15min MTU project cost • SDAC Technical Solution • Market and System Design (MSD) • Project Management Office (PMO) • Maintenance contracts • Support Tasks • Simulation Facility costs 	1.2	<ul style="list-style-type: none"> • Procedures – Updates • PMO • Support Tasks • Simulation Facility • Operational Committee (OPSCOM)
	All NEMOs costs	1.3	<ul style="list-style-type: none"> • PMO • Support Tasks • Leader Remuneration (WGs) • Part of NEMOs committee costs (CACM related tasks) 	1.4	<ul style="list-style-type: none"> • Maintenance Contracts for SDAC • Operation Fee • Leader Remuneration (WGs) • PMO • Support Tasks • PMB release testing
	All TSOs costs	1.5	<ul style="list-style-type: none"> • Leader Remuneration (WGs) • PMO • Support Tasks 	1.6	<ul style="list-style-type: none"> • Leader Remuneration (WGs) • PMO • Support Tasks
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), • Leader Remuneration (WGs) • PMO • Support Tasks • Procedures – Updates 	2.2	<ul style="list-style-type: none"> • Hosting & Maintenance of SIDC Technical solution Incident Committee (IC SPOC) • Operational Committee (OPSCOM) • Leader Remuneration (WGs) • PMO • Support Tasks • Procedures – Updates
	All NEMOs costs	2.3	<ul style="list-style-type: none"> • PMO • Workgroups (PWG, TWG) • Travelling and meeting organisation • Legal support (LWG) • Part of 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"> • PMO • Support Tasks • Testing support • External admin costs 	2.6	<ul style="list-style-type: none"> • PMO • Support Tasks • Testing support • External admin costs • Operational reporting

Summary

Overview of costs since 2017 | E = Establishing and amending, O = Operating

Table 2

in K,€		2017		2018		2019		2020		2021		2022		2023 (forecast)	
		E	O	E	O	E	O	E	O	E	O	E	O	E	O
SDAC	Joint costs	204	0	902	0	1,368	264	2,028	346	3,240	449	3,397	458	4,468	1,009
	All NEMOs	1,315	0	1,314	0	1,134	446	1,149	465	366	761	346	1,009	455	690
	All TSOs	0	0	22	0	3	0	15	9	44	34	59	45	141	96
	Total	1,519	0	2,238	0	2,505	710	3,192	820	3,650	1,244	3,802	1,512	5,064	1,795
SIDC	Joint costs	2,846	0	4,854	959	3,780	2,135	4,674	2,571	3,944	2,448	5,385	2,587	6,656	3,021
	All NEMOs	863	0	679	71	472	235	424	847	354	826	302	847	455	901
	All TSOs	686	0	768	200	606	374	649	282	729	281	696	280	736	336
	Total	4,395	0	6,301	1,230	4,858	2,744	5,747	3,700	5,027	3,555	6,383	3,714	7,847	4,258
Regional total	Joint costs	703	592	718	317	1,113	645	576	278	1,183	139	1,029	300	929	183
	All NEMOs	6	0	1	0	0	117	0	656	0	398	0	107	0	0
	All TSOs	637	378	535	429	918	101	1,133	503	893	527	892	535	1,528	440
	Total	1,346	970	1,254	746	2,031	863	1,709	1,437	2,076	1,064	1,921	942	2,457	623
Grand Total (common + regional costs)		7,260	970	9,793	1,976	9,394	4,317	10,648	5,957	10,753	5,863	12,106	6,168	15,368	6,676
Total cost per year		8,231		11,769		13,711		16,605		16,616		18,274		22,044	
Total since 2017		107,241													

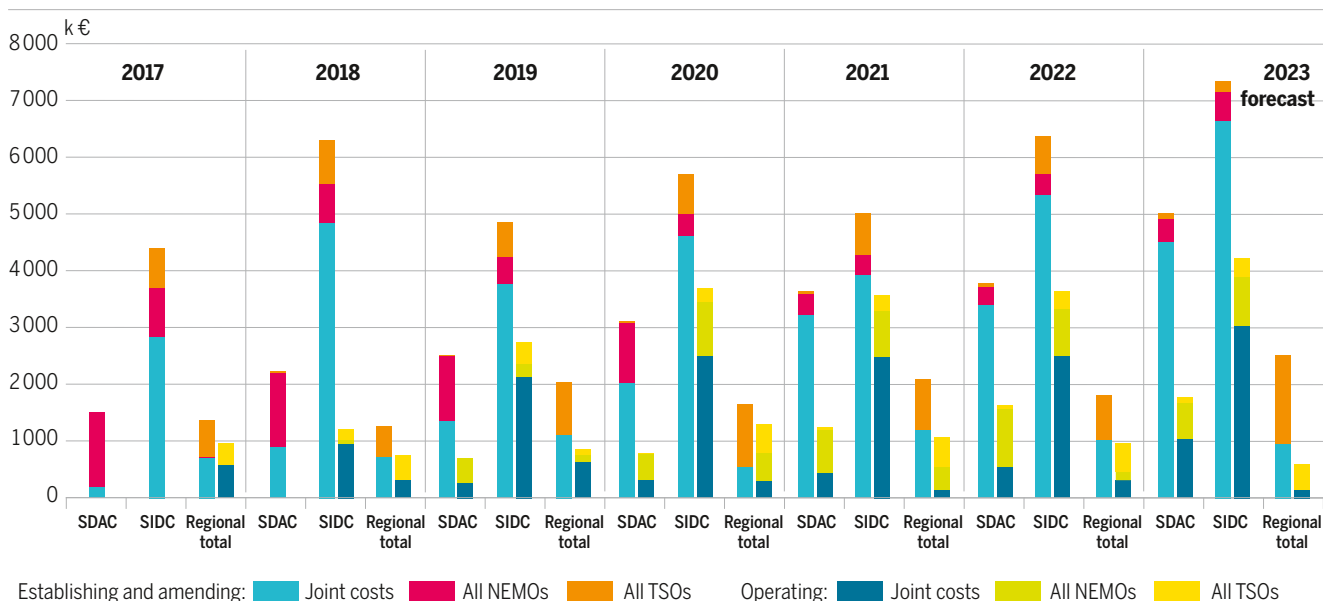


Figure 04

SDAC key achievements in 2022

In 2022, the SDAC operations continued to show great reliability and experienced a further decrease in the number of incidents with respect to the past year, mainly concentrated on cases related to technical issues belonging to local NEMO or TSO systems. Many RfCs of high complexity went live: among the others, CORE Flow-Based, including Day-Ahead Market Coupling on Croatian–Hungarian border, and the Multi Nemo Arrangement extension on Italian Northern borders.

The price spikes that occurred in May and August 2022 have been addressed by organising a public consultation and submitting to ACER in September 2022 a proposal for revision of the Harmonised Maximum and Minimum Clearing Price (HMMCP) methodologies. The general aim of the proposal was to reach a balanced approach between three main requirements: a) making the triggering of price limit increases less sensitive to occasional and non-structural events. b) minimizing the risk that the price limit set forth in the methodology becomes a “price-cap” limiting price formation and, c) ensuring maximum transparency and ease of implementation of the new rule, with the goal of promoting reliable operation of day-ahead and intraday market coupling activities by NEMOs, TSOs and market participants. After public consultation with interested stakeholders, assessment and adaptation, ACER published the new methodology in January 2023 (ACER decision 01/2023 and 02/2023).



For 15 min MTU implementation, substantial performance improvements have been reached for the main go-live scenarios. First, the volume problems were refactored, relying among others on leveraging the outer approximation on different levels. Second, the input-data reading time was improved. Third, further work on configurations allowed gains in performance. These improvements shall be included into different Euphemia releases, so that they are fully tested and ready for use for the 15 min MTU go-live. With these improvements, it is considered that the performance gap for the 15 min MTU implementation is closed. Nonetheless risk management is still required to make sure the algorithm can cope in time with the most challenging go-live scenarios.

For Non Uniform Pricing (NUP), the already existing prototype was adapted in order to include the last improvements implemented in Euphemia (e.g. outer approximation) and support 15 min MTU. With such an up-to-date prototype, simulations were performed, allowing valid comparisons with the outcomes of the Euphemia “uniform pricing” releases, in an “apple-to-apple” logic. A dedicated framework was also created, so that the NUP prototype can be run iteratively for a chosen session, with possibility to modify the orders based on the results and a specific strategy. This might provide further elements for studying the possible impacts on market participants behaviour. Altogether, a series of NUP studies has been thus closed, providing an overall picture on key aspects of the NUP, and impacts and conditions of its potential implementation in SDAC. In the immediate future, no further research is foreseen on this topic. Nonetheless as interesting gains in performance were demonstrated, especially for more challenging sessions, this topic might be later again included in the R&D pipeline.

SIDC key achievements in 2022

2022 was another year of continuous progress for SIDC. The geographical scope of SIDC was extended in November 2022 by the 4th wave adding Greece and Slovakia. New releases were successfully tested and deployed in 2022 and early 2023.

SIDC has continued to grow as the number of orders registered and trades concluded on the platform continued to increase all along the year, while operation has been stable and reliable.

During 2022, SIDC focussed on the main components of its roadmap:

- Development and start of the tests of the Release 3.2 including following improvements:
 - › Apache Tomcat Update
 - › ATC After Ramp Rate Improvement
 - › Cross Border Trading Halt Impact to OCC files
- The implementation and testing of the performance improvements for continuous trading was one of the key priorities in 2022 with the delivery in early 2023. Further performance improvements for providing optimised integration of continuous and auction trading (including impact on the NEMOs trading systems) in SIDC were analysed and agreed for implementation.



- A selected implementation option of Intraday Auctions was further analysed and developed. The conceptual and performance tests of the key components such as matching algorithm (Euphemia) or capacity allocation module of the continuous trading were executed. During the performance tests simulation of various scenarios was executed. Analysis of the partial (de)coupling process was completed and solution for go-live was agreed. Initial analysis of the Flow-based allocation resulting in the high-level concept was executed. In cooperation with IT provider several approaches for two key aspects of Flow-based were assessed from performance and changes complexity point of view – routing and shipping. This enabled to select the solutions to be further analysed within Minimum Viable Product.
- Development of the Cross Product Matching (CPM) – Implementation of the first part (so called Minimum Viable Product) was finalised included assessment of the performance impact of CPM on SIDC Solution. The analysis of the second part of CPM was finalised. The assessment has proven to have an immense performance impact on SIDC Solution, and an analysis of the proposed performance mitigation measures proved to be very cost demanding on both local and central SIDC levels. Reflecting the CPM implementation cost, the complexity and performance impact of the solution in central and local level, the alternative given with 15' parallel stream and the position of the market participants, the NEMOs and TSOs in accordance with NRAs agreed to put further development of CPM on hold for continuous trading.

Chapter A:

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 2022 (without the regional costs)

Table 3

in €		Establishing and amending costs		Operating costs	
SDAC common costs	All NEMOs and all TSOs costs	1.1	3,396,976	1.2	458,151
	All NEMOs costs	1.3	345,692	1.4	1,009,137
	All TSOs costs	1.5	58,629	1.6	45,412
SIDC common costs	All NEMOs and all TSOs costs	2.1	5,385,012	2.2	2,587,270
	All NEMOs costs	2.3	301,753	2.4	847,206
	All TSOs costs	2.5	696,244	2.6	279,936
Total			10,184,306		5,227,112

The following table provides an overview of the 2023 forecast of common costs for the SDAC and SIDC (without the regional costs)

Table 4

in €		Establishing and amending costs		Operating costs	
Day ahead related common costs	All NEMOs and all TSOs costs	3.1	4,467,556	3.2	1,008,606
	All NEMOs costs	3.3	477,071	3.4	690,216
	All TSOs costs	3.5	141,088	3.6	96,088
Intraday related common costs	All NEMOs and all TSOs costs	4.1	6,655,668	4.2	3,021,475
	All NEMOs costs	4.3	459,354	4.4	901,000
	All TSOs costs	4.5	736,188	4.6	335,880
Total			12,936,925		6,053,265

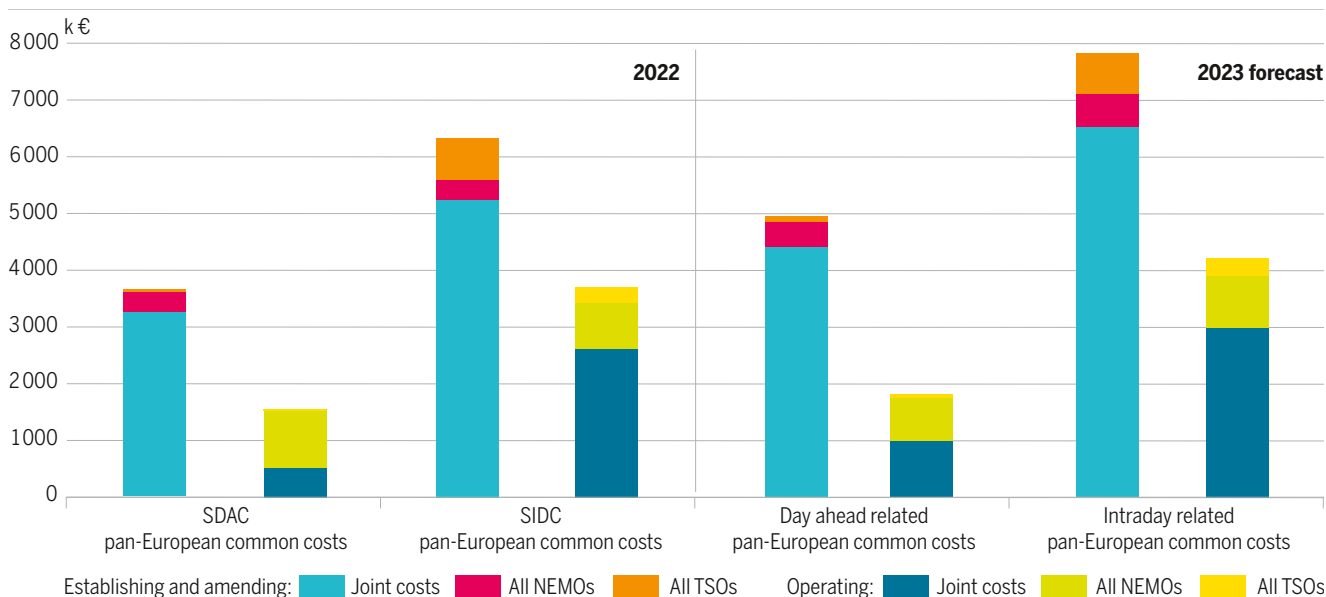


Figure 05

1 Actual SDAC costs of 2022

1.1 The joint all TSOs and all NEMOs costs of establishing and amending the SDAC

The amount of 3,396,976 € consists of:

Table 5

Item	Category	Temporary activity	2022 costs (€)
1.1.1	Simulation Facility Knowledge Sharing	YES	231
1.1.2	Simulation Facility CR Contingency	NO	39,759
1.1.3	Simulation Facility Monitoring & data processing improvements	YES	30,409
1.1.4	Simulation Facility Adaption for Euphemia releases	NO	750
1.1.5	Simulation Facility Platform hardware renewal	NO	1,621
1.1.6	Simulation Facility Task Force leader costs	NO	56,063
1.1.7	SDAC Technical Solution R&D	NO	828,809
1.1.8	MSD NEMOs & TSOs co leader	NO	159,918
1.1.9	MSD PMO & organizational aspects	NO	191,465
1.1.10	Dedicated budget on MSD Deliverables	NO	6,750
1.1.11	Co-optimisation roadmap study	YES	37,200
1.1.12	PM for 15 min MTU project	YES	169,601
1.1.13	MCSC Secretary	NO	67,844
1.1.14	Meeting Arrangements	NO	22,826
1.1.15	Communication Task Force Leader	NO	22,865
1.1.16	Legal Task Force Leaders	NO	53,744
1.1.17	SDAC Technical Solution Euphemia Releases	YES	53,921
1.1.18	SDAC Technical Solution Leader Remuneration	NO	222,399
1.1.19	SDAC Technical Solution PMB Releases	NO	469,713
1.1.20	SDAC Technical Solution ALWG Training	NO	58
1.1.21	SDAC Technical Solution Support Tasks	NO	57,894
1.1.22	Maintenance contracts	NO	835,055
1.1.23	Project Place Users - SDAC Task Force Leaders	NO	1,565
1.1.24	Central Settlement Entity Fees	NO	62,762
1.1.25	Contingency (SDAC Joint Establishment costs)	NO	3,754
	Total SUM		3,396,976

1.2 The joint all TSOs and all NEMOs costs of operating the SDAC

The amount of 458,151 € consists of:

Table 6

Item	Category	Temporary activity	2022 costs (€)
1.2.1	MCSC Secretary	NO	67,844
1.2.2	Meeting Arrangements	NO	22,826
1.2.3	Communication Task Force Leader	NO	7,622
1.2.4	Legal Task Force Leaders	NO	17,915
1.2.5	Simulation Facility Operational	NO	163,241
1.2.6	SDAC OPSCOM (Secretarial OPSCOM, Procedures SPoC, ...)	NO	115,941
1.2.7	Central Settlement Entity Fees	NO	62,762
	Total SUM		458,151

- The total 2022 Joint NEMOs and TSOs costs ended up consuming 77 % of the amount forecasted for the year. The unspent amounts derive from the postponement of some cost elements to the 2023 fiscal year such as:
 - › Hardware investments to support upcoming introduction of Distributed Computing which is a requirement for the 15' MTU products.
 - › Hardware investments related to the Simulation Facility
- A rate of 925 €/MD was used for internal resources of NEMOs and TSOs
- The cost sharing methodology for the 2022 Joint NEMOs and TSOs costs is based on the capacity allocation and congestion management (CACM) sharing keys implemented in the DAOA, which entered into force 28 March 2019.

SDAC Technical Solution

(Items 1.1.7, 1.1.17, 1.1.18, 1.1.19, 1.1.20 and 1.1.21)

The main goal of the SDAC Technical Solution used in SDAC is to calculate energy allocation prices across the European electricity market to increase the market 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".

In order to allow better track budget fulfilment throughout the year, the SDAC Technical Solution is broken down in multiple different cost Items. The majority of the costs derives from research and developments for the SDAC Algorithm, which was carried out by a third-party service provider N-Side.

Market and System Design Task Force

(Items 1.1.8 and 1.1.9)

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.
- Prepare the detailed development planning for the DA MCO function assets
- Evaluate the performance assessment reports of the algorithm releases
- 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 with the focus on the analytical and technical deliverables and market design needs.
- Provide the necessary market, technical and functional knowledge to other bodies and external parties.

MCSC Secretary and ICT PMO

(Items 1.1.13 and 1.2.1)

- Both roles were all performed by an external service provider, E-Bridge Consulting.
- The activities of this role focused on the facilitation of the MCSC meetings and the facilitation of the Integrated Coordination Team (ICT) which is responsible for the coordination of all deliverables across the various TFs such as:
 - › Preparation and facilitation of MCSC conference calls, including drafting meeting minutes and ensuring timely completion of agreed actions.
 - › Support the SDAC Co-chairs in day-to-day project management of SDAC.
 - › Preparation and moderation of weekly ICT calls and bi-annually strategy meetings. These meetings were held to coordinate dependencies and risks across the TFs, agree high-level planning, discuss overall strategy and prepare for MCSC meetings. Issues were highlighted to the SDAC Co-Chairs and mitigations agreed.
 - › Contract management and taking care of new party adherence.
 - › Single point of contact for request of MCSC members.
 - › Leading implementation of joint SDAC & SIDC governance

Central Settlement Entity Fees

(Item 1.1.24 and 1.2.7)

This role is performed by an external service provider, JAO. The following tasks are included in these Central Settlement Entity Fees:

- Budgeting and monitoring activities: JAO convenes the SDAC BMTF and is responsible for communicating, monitoring and managing the budget, together with the TSO and NEMO representatives in the BMTF.
- General PMO support of BMTF deliverables
- Financial settlements for the SDAC Joint NEMOs and TSOs Common costs.
- Monthly and Quarterly documentation and reporting of the SDAC project expenses.
- Providing support to the SDAC parties regarding financial issues: Making suggestions, proposing way forwards if deemed necessary.

Simulation Facility

(Items 1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.15, 1.17 and 1.2.5)

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 2022 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
- SF task force Telcos
- Functional Support Facility Operational (FSFO) activity (support to SF users, Leader role)
- Quarterly remuneration of SDAC Technical Solution NEMOs for Euphemia use

Maintenance contracts (Item 1.1.22)

These costs relate to non-operational recurring Hosting and Maintenance costs to support the SDAC technical solution. This cost is impacted by developments of the Common system. This cost mainly consists of continues support of the IT systems, software licenses and security services.

Most of these services are provided to the third-party suppliers Unicorn and N-side.

1.3 The all NEMOs costs of establishing and amending the SDAC

The all NEMOs costs of establishing and amending the SDAC in 2022 consist of:

- NEMO Committee costs totalling 136,332 €

- NEMOs-only costs of establishing and amending the SDAC algorithm and DA MCO Function System totalling 209,360 €

as further detailed below.

50 % of all costs encountered by the NEMO Committee in its tasks in 2022, totalling 136,332 €

Table 7

Item	Related Task Force	Temporary activity	2022 costs (€)
1.3.1	NEMO Committee - chairman	NO	37,344
1.3.2	NEMO Committee - PMO	NO	95,923
1.3.3	Reporting and communication Task Force	NO	55,833
1.3.4	Technical Task Force	NO	30,729
1.3.5	Legal Task Force	NO	13,866
1.3.6	NEMO Committee - support	NO	20,238
1.3.7	Intraday auction Task Force	YES	0
1.3.8	Cost Task Force	NO	17,691
1.3.9	Exceptional contingency	YES	1,041
	Total SUM		272,664

In 2022, the NEMO Committee (NC) continued in close cooperation with EC, ACER and TSOs in fulfilling tasks set out in the CACM Regulation, MCO Plan and related methodologies. The priority was to react on the turbulences on the energy markets and to safeguard the operation of the Day-Ahead and Intraday market coupling.

NEMO cooperation (Items 1.3.1, 1.3.2 and 1.3.6)

The NEMO Committee (NC) dedicated significant resources to cooperate with ACER and European Commission (EC) in the preparatory process of new CACM Regulation as well as in monitoring of the functioning of the markets and helping to assess EC's mitigation measures to secure accessible electricity for all European citizens. NC also welcomed new NEMO (ETPA – Energy Trading Platform Amsterdam) and triggered discussion with the Energy Community about possible future members of the NEMO Cooperation.

NEMO-TSO cooperation

(Items 1.3.1, 1.3.2 and 1.3.6)

The NC and All TSOs successfully conducted all steps in preparation of the joint governance for SDAC and SIDC and in February 2022, first Market Coupling Steering Commit-

tee (MCSC) was held. NEMOs and TSOs are continuing in close cooperation.

Methodologies (Item 1.3.4)

The NEMO Committee (NC) made a regular update of the relevant methodologies – ID Products methodology and Harmonised Minimum and Maximum Prices methodology. NC also proactively participated in discussion forums and provided replies to relevant consultations from TSOs, ACER and European Commission.

Communication and Stakeholders involvement (Item 1.3.3)

The NC continued in proactive communication with the Stakeholders, is regularly publishing on its 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, including detailed reports on decoupling incidents. The NC remains active in relevant forums, such as CACM Pentilateral Coordination Group (PCG) and MESC. The NC, together with the TSOs, has made a critical review of the proposal by ACER to the Capacity Allocation and Congestion Management guidelines for the governance of the Market Coupling Operation and made an alternative

proposal that builds upon the proven successes of the current organisation and addresses its alleged shortcomings.

NEMOs, TSOs and Market participants (via EFET and Eu-lectric) also created a new forum – Market Coupling Consultative Group (MCCG). This forum has been created with the aim to enable an open dialogue between NEMOs, TSOs and Market Participants to discuss and share views on the ongoing works related to the design, development, implementation, and operation of SDAC and SIDC. First meeting was held on 7 June, second on 1 December.

On 10 June 2022, the NC published Common set of requirements for the continuous trading matching algorithm and the intraday auction algorithm reporting the status of implementation as well as Common set of requirements for the price coupling algorithm reporting the status of implementation and the expected implementation deadlines.

On 1 July 2022, the NC published on its website the CACM Annual Report 2021, a report on operations, monitoring and development of the SDAC and SIDC. The report was prepared in cooperation with ENTSO-E and in compliance with provisions under Algorithm Methodology (Annex I to the ACER Decision 04/2020 on the Algorithm Methodology of 30 January 2020) and with CACM Regulation Article 37(5).

On 6 July 2022, the NC published the CACM Cost report 2021, prepared in cooperation with ENTSO-E and in compliance with CACM Regulation, Article 80.1.

On 28 September, a Seminar on the CACM Annual report was held, where NEMOs, together with TSOs, presented the CACM Annual report for 2021 and debated with the stakeholders about the future of the markets.

On 17 November, the NC published the public description of the Continuous Trading Matching Algorithm.

- 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.
- NEMO Committee costs (Items 1.3.1, 1.3.2 and 1.3.6) 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 1.3.3) is responsible for the NEMO Committee webpage, external communication, preparation of CACM reports and press releases of the NEMO Committee.
- The Technical TF (Item 1.3.4) was established as a merger of three 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 1.3.5) 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 1.3.8) 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.

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

Respective costs attributable to all NEMOs for establishment and amendment of SDAC algorithm and DA MCO Function System totalling 209,360 €

Table 8

Item	Category	Temporary activity	2022 costs (€)
1.3.11	PMO – General Support	NO	71,083
1.3.12	Support Tasks	NO	60,067
1.3.13	Leader Remuneration	NO	60,276
1.3.14	Facilities	NO	17,934
	Total SUM		209,360

As in 2021 the Maintenance costs remained categorised as joint NEMO-TSO common cost for establishment and amendment of SDAC, based on ongoing strengthening of joint governance of SDAC (including its systems).

- 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 external service provider in charge of development and 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 a competitive tender prior to CACM's entry into force.

- PMO - General Support (Item 1.3.11) costs consist of the costs of the external support related to project management services provided 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 the remuneration of the Legal TF and Procedures TF leadership provided by the internal resources of NEMOs.
- Support tasks (Item 1.3.12) refer to ad-hoc tasks performed for the benefit of all NEMOs such preparation for Algorithm testing including the setup of internal tools or update of materials such documentation related to procedures. These tasks are provided internally by NEMOs.
- Facilities (Item 1.3.14) refer to costs of the ProjectPlace (document management system provided by Plain-view).

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

1.4 The all NEMOs-only costs of operating the SDAC

The amount of 1,009,137 € consists of:

Table 9

Item	Category	Temporary activity	2022 costs (€)
1.4.1	Maintenance Contracts	NO	370,837
1.4.2	Leader Remuneration	NO	84,695
1.4.3	Facilities	NO	54,105
1.4.4	PMO – General Support	NO	26,278
1.4.5	Support Tasks	NO	11,331
1.4.6	Operation Fees	NO	461,890
	Total SUM		1,009,137

With the 2021 merger of MRC and 4M MC regions and enduring solution for SDAC in place, the operation fees (cost of day-to-day operation of single coupling) remained a joint NEMO cost with slight increase of the online Maintenance costs. Compared to 2021 the total actual cost was closer to the budget (88 % of the forecast).

- 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 (Item 1.4.1) refers to the part of the 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”).

- The external service provider in charge of development and 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 a competitive tender prior to CACM's entry into force.
- Leader Remuneration (Item 1.4.2) refers to the remuneration of the Procedures TF, Algorithm Working Group, Testing Working Group, Operational Steering Committee (OPSCOM) leadership provided by the internal resources of NEMOs for the benefit of the operation of SDAC.
- Facilities (Item 1.4.3) refers to usage of conferencing tool used by NEMOs for SDAC.
- PMO - General Support (Item 1.4.4) costs consist of the costs of the of external support related to project management services provided by Indra Czech Republic s.r.o. as of 6 May 2020.
- Support tasks (Item 1.4.5) costs refer to the cost of the ACER study performed by NEMOs on a yearly basis.
- Operation Fees (Item 1.4.6) refers to day-to-day operation of the SDAC assets.
- The external support for PMO services was selected based on a competitive tender prior to CACM's entry into force.

1.5 The all TSO-only costs of establishing and amending the SDAC

The amount of 58,629 € consists of:

Table 10

Item	Category	Temporary activity	2022 costs (€)
1.5.1	TSO Legal Task Force support	NO	13,216
1.5.2	TSO MCSC Secretary	NO	16,456
1.5.3	TSO Chair	NO	8,036
1.5.4	Central Settlement Entity Fees	NO	20,921
	Total SUM		58,629

- The TSOs-only costs for establishing and amending the SDAC consist of external legal Support to the TCDA Agreement (Bernard Energy), Secretary costs of the TSO MCSC (E-Bridge Consulting), TSO Chair cost and the Central Settlement Entity (JAO).
- The external legal services have been provided based on the direct assignment, as a continuity of the selected service providers, by the SDAC TSOs MCSC.

The cost-sharing methodology for the 2022 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 all TSO-only costs of operating the SDAC

The amount of 45,412 € consists of:

Table 11

Item	Category	Temporary activity	2022 costs (€)
1.6.1	TSO MCSC Secretary	NO	16,456
1.6.2	TSO Chair	NO	8,036
1.6.3	Central Settlement Entity Fees	NO	20,921
	Total SUM		45,412

TSO MCSC Secretary (Items 1.5.2 and 1.6.1)

The roles are all performed by an external service provider, E-Bridge Consulting.

The activities of this role focus on the facilitation TSO-only Market Coupling Steering Committee meetings:

- Preparation and facilitation of the TSO MCSC conference calls, including drafting meeting minutes and ensuring the timely completion of agreed actions
- Support the TSO 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 MCSC members
- Implementation of Joint SDAC & SIDC TSO governance

Central Settlement Entity Fees

(Items 1.5.4 and 1.6.3)

This role is performed by an external service provider, JAO. The following tasks are included in these Central Settlement Entity Fees:

- Budgeting and monitoring activities: JAO convenes the SDAC BMTF and is responsible for communicating, monitoring and managing the budget, together with the TSO representatives in the TSO BMTF.
- General PMO support of BMTF deliverables
- Financial settlements for the SDAC TSOs only Common costs.
- Monthly and Quarterly documentation and reporting of the SDAC project expenses.
- Providing support to the SDAC parties regarding financial issues: Making suggestions, proposing way forwards if deemed necessary.

2 Actual SIDC costs of 2022

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

The amount of 5,385,012 € consists of:

Table 12

Item	Category	Temporary activity	2022 costs (€)
2.1.1	Aggregated PM costs	NO	888,245
2.1.3	Technical support tools (PP, ReQTest)	NO	21,719
2.1.4	DBAG costs - development + CRs	NO	1,902,443
2.1.5	DBAG costs - hosting/maintenance	NO	1,633,734
2.1.6	IDA Implementation	YES	938,871
	Total SUM		5,385,012

The actuals in 2022 were considerably lower compared to expected budget (6,65 Mio. €), where the main difference is caused by significantly lower spending related to:

- Further development of SIDC continuous solution (difference of 1M) , where CR 106 related to release 4.0 was postponed into 2023
- Associated cost related to project management (difference of 0,2M)

Hosting & Maintenance of the SIDC technical solution and further development of the SIDC technical solution (Deutsche Börse AG [DBAG] costs) (Items 2.1.5 and 2.2.4)

The cost consists of recurring Hosting and Maintenance costs 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 3,123,382 €, of which 1,633,734 € represent the costs of establishing and amending the SIDC and 1,489,648 € 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 Hosting & 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.

Development of SIDC technical solution and IDA implementation (Items 2.1.4 and 2.1.6)

New functionality or service:

- ASR025 and ASR029 – IP Support 4th Wave / DBAG's support of TP and GL – With these services project parties agreed on the necessary support of the service provider for the save and efficient Go Live of the 4th wave. The services were mainly focused on Go Live preparation, Trial Period and LIP testing.
- ASR026 – CPM Part II – The service was focused on finalization of outstanding clarification topic related to the Cross Product Matching.
- ASR027 – Analysis IDA – The service was focused on the initial analysis of the available implementation options for IDAs.

- ASR028 – Analysis for Flow-based – The service was focused on the initial analysis of the available implementation options for the flow-based implementation and its impact on continuous trading platform.
- CR103 – Release 3.3 – This implementation was one of the key development and testing activities in the year 2022. The main goal was an overall increase of the XBID performance which resulted in the substantial increase of system boundaries (the increase, among others, extended 5 times a number of order transactions and 3 times a number of trades). The implemented modifications were as follows:
 - › CR102 Topology Flexibility Updates (XBID-5611)
 - › Common ATC/NTC for Bidding Zone borders (XBID-4982)
 - › sFTP logs provision for purpose of PMI Logs usage monitoring (XBID-5273)
 - › Technical (Reporting Engine, CMI Reports, Disputes removal, Sender batching, Reporting and monitoring, ComTrader, Code optimization) and infrastructure (Server upgrade, Storage size increase) enhancements necessary for uplifting the Service Boundaries in order the XBID Solution be able to handle 10 million daily Order Transactions
 - › Update of SLA reporting
 - › FIXIT of JIRAs from previous releases, IMTs
 - › Third party software upgrades
- CR104 – ECP4 Upgrade_DBAG – The delivery of the services was mainly focused on the application of the most recent version of ECP software to XBID communication endpoint in order to improve robustness and stability of the communication channel.
- CR106 – Release 4.0 – substantial part of the implementation of Release 4.0 (implementation of IDAs in XBID) was concluded in the year 2022 with a final delivery in 2023.
 - › Intraday Auctions (IDA)
 - › Performance improvements needed for IDA
 - Asynchronous persister
 - ComTrader for Asynchronous persister
 - Routing key change
 - API clean-up
 - › Update of test clients for IDA
 - › Enhancement of Contractual Halt functionality with selection of direction(s) (XBID-4970)
 - › Change of Auction.type attribute in OCC files (XBID-6086)
 - › Automatic IDA cancellation - time parameter configurable at system setting USM998 (XBID-6272)
 - › FIXIT of JIRAs from previous releases, IMTs
 - › Third party software upgrades
- Analysis and implementation of IDA CIP Module – The module ensures efficient and transparent exchange of IDA related messages between XBID on one side and NEMOs on the other side (Local systems, PMB/Euphemia cloud)
- PMB/Euphemia modifications – Analysis, performance testing, changes and improvements of PMB/Euphemia due to IDA implementations, namely:
 - › PMB modification due to IDAs
 - › Simulation for IDA HW requirement
 - › Usage of Euphemia for the SIDC testing phase (Block 9 of N-SIDE contract)
 - › IDA related change to EUPHEMIA
 - › 15 min MTU PCR R&D
 - › Release 11.1
 - › Release 11.2
 - › REMIT Reporting CRO6 - PMI LAT - Handling of Receipts – Part 1
 - › EUPHEMIA calculation time performance improvements – Second SIDC simulation study – Part 1 (14 scenarios)
 - › EUPHEMIA calculation time performance improvements – Second SIDC simulation study – Part 2 (rest of the scenarios)

XBID Testing Group (XTG) (part of Item 2.1.1 and Item 2.2.1)

In 2022 there was one main activity which was performed by XTG, namely release 3.3. At the beginning of the year XTG started with the preparations for R3.3 and the rest of the year was spent to the actual execution of the different user acceptance phases (UAT's):

- UAT Phase I/R – Functional and Regression tests: from 2022/05/10 until 2022/08/12
- UAT Phase VI – DST tests: from 2022/08/12 – 2022/09/16
- UAT Phase II – Performance tests: from 2022/09/19 – 2022/10/14
- UAT Phase V – Failover tests: from 2022/10/17 – 2022/11/03
- UAT Phase III – Integration/E2E tests: from 2022/11/04 – 2022/11/21
- Final bug retesting period: from 2022/11/24 – 2022/12/20

Co-chaired by representatives from ELES, TTN, OMIE (until May), HUPX (May till September), BSP (from October on)

IDA Testing Group (IDA TG) (part of Item 2.1.1 and Item 2.2.1)

IDATG was initiated in 2022 with two major points of focus.

IDA Testing: The main goal of the task was to prepare initial planning for IDA FITs and SITs testing. There was a limited elaboration on the task in 2022, a basic principle of Functional Integration Test and Simulation Integration Test were discussed, and important issues, which were subject of further processing, were identified.

IDA CIP Functional Test: The task represented the major activity of IDATG in 2022. As the IDA CIP was brand-new module, the preparation of the testing was done from the scratch:

- Preparatory activities: from 2021/06 – 2022/10 – Preparation of the test scenarios, test case, preparation of the test data, setup of the testing tools and testing environment, overall governance of the testing
- IDA CIP functional Testing – Phase 1 : from 2022/10 – 2023/02

Co-chaired by NEMO Project Manager and TSO representative of Elia (PMO provided by the same representative).

MSD (part of Item 2.1.1 and Item 2.2.1)

MSD manages the technical/design 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 Flow-based and IDA. IDA was mainly managed under IDA SG (see separate section), only systems documentation updates were managed directly under MSD. Work on Flow-based was partially done under a FB Subgroup but as FB will impact all SIDC parties major part of discussions on the design questions from DBAG + the DBAG assessment of various alternatives from implementation of routing and shipping was organised directly in MSD.

Concerning the work overseen by the MSD with regards to losses on DC cables, a new central solution suggested in 2021 was further discussed with regard to role of balancing agent and possible settlement concepts. Further discussions were put on hold as it is understood performance impact of flow-based need to be assessed first to ensure there are technical resources remaining to mitigate losses impact after FB introduction. SG Losses was also involved

to detailed design of losses under IDA ensuring compatibility with continuous trading without losses related features. MSD intensively supported resolution of issues identified in R3.3. testing – especially Topology updates flexibility.

Chaired by TSO representative from E-Bridge and NEMO representative from NordPool (PMO provided by the same representative).

QA&RM (part of Item 2.1.1. and Item 2.2.1)

QA&RM represents 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 4th wave of go live)

The main drivers leading of the cost attributed in 2022 were mainly services associated with

- Business topic related to the specific elements of IDA implementation such as business/contractual negotiation with CIP provider,
- Resolution of the issues which occurred during Implementation of the Release 3.3
- Business scoping discussion on the Release 4.0 and 4.1.
- Planning activities for the new releases including planning for IDAs, performance optimisation and minor CRs summarized in the form of SIDC Roadmap
- Managing of the inputs for the CACM report and for the JET-A cooperation.
- Clarification of the business and project topics with XBID system provider.
- Coordination of the planning and activities and execution of the 4th wave of SIDC geographical extension.
- Preliminary activities related to the 5th wave.

Co-chaired by NEMO Project Manager and TSO representative of Elia (PMO provided by the same representative).

IDA SG (part of Item 2.1.1 and Item 2.2.1 SG)

IDA SG manages the preparation of technical/design requirements regarding IDA implementation, clarification of design aspects for other governance bodies and also overall coordination. This included in 2022: completion of work on detailed design including description of process/design for further alignment with relevant IT providers, preparation of technical specifications with IT providers and transforming them to update of systems documentation, providing a guidance regarding specific business aspects to Operations TF as an input for IDA related operational procedures preparations, aligning with SDAC PCR on preparation of performance tests allowing to decide on order types to be supported in IDA, aligning with PCR assets IT providers on services scope for IDA support and providing inputs to Legal TF in order to prepare contractual framework amendment for IDAs.

Facilitating cooperation among SIDC and SDAC where required. Monitoring and updating overall plan for IDA implementation. *Co-Chaired by TSO representative from E-Bridge and NEMO representative from NordPool (PMO provided by INDRA).*

LIP Testing Coordinator (LTC) (part of Item 2.1.1 and Item 2.2.1)

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 4th Wave LIP testing execution (Greek and Slovakia accession to operation). These activities included Integration, Functional and Simulation tests in the period May to September.

Work was organised with weekly calls of 4th wave parties focusing on alignment concerning testing preparations and planning. During an active test phase (usual duration of a "run" 1 week), daily stand-up calls were organised to clarify/confirm the activities for the given day and summarise the results of the previous test day. *Chaired by representative from E-Bridge (PMO provided by the same representative).*

BMSG (part of Item 2.1.1 and Item 2.2.1)

The BMSG managed financial reporting and validation monthly. The resettlement of the cost among all SIDC parties takes places quarterly. In 2022 the costs were split using the:

- 1) Sharing Key for Establishing and Amending Cost;
- 2) Operational cost sharing key

All cost-sharing keys were calculated according to the CACM sharing key and in compliance with the IDOA, among the IDOA signatories. The budget for the 2023 and financial roadmap for 2024–2026 was developed and approved according to the IDOA process. *Chaired by representative of OTE. PMO provided by Ernst and Young.*

ICT (part of 2.1.1 and Item 2.2.1)

The ICT is responsible for the coordination of the integrated plan across all work streams. Regular meetings were held to update the status of milestones in the plan and coordinate 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. *PMO provided by Ernst and Young.*

Communications Subgroup (part of Item 2.1.1 and Item 2.2.1)

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. *Chaired by TSO Project Manager. PMO provided by Ernst and Young.*

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

The amount of 2,587,270 € consists of:

Table 13

Item	Category	Temporary activity	2022 costs (€)
2.2.1	Aggregated PM costs	NO	414,567
2.2.2	MPLS costs pre-financed by NEMOs respectively TSOs and defined as joint costs	NO	63,087
2.2.3	Technical support tools (PP, ReQTest)	NO	33,961
2.2.4	DBAG costs - hosting/maintenance	NO	1,489,648
2.2.7	IC SPOC (ICCC)	NO	586,008
	Total SUM		2,587,270

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

Incident Committee single point of contact (IC SPOC) (Item 2.2.7)

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 cooperation 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. *Performed by the operational NEMOs based on a rotational scheme.*

Operational Committee (OPSCOM) (part of Item 2.2.1)

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. *Chaired by a NEMO representative on a rotational basis, PMO provided by Ernst and Young.*

Costs of MPLS (Item 2.2.2)

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

2.3 The all NEMOs costs of establishing and amending the SIDC

The all NEMOs costs of establishing and amending the SIDC in 2022 consist of:

- NEMO Committee costs totalling 136,332 €

- NEMOs-only costs of establishing and amending the SIDC totalling 165,421 €

as further detailed below.

50 % of all costs encountered by the NEMO Committee in its tasks in 2022, totalling 136,332 €

Table 14

Item	Related Task Force	Temporary activity	2022 costs (€)
1.3.1	NEMO Committee – chairman	NO	37,344
1.3.2	NEMO Committee – PMO	NO	95,923
1.3.3	Reporting and communication Task Force	NO	55,833
1.3.4	Technical Task Force	NO	30,729
1.3.5	Legal Task Force	NO	13,866
1.3.6	NEMO Committee – support	NO	20,238
1.3.7	Intraday auction Task Force	YES	0
1.3.8	Cost Task Force	NO	17,691
1.3.9	Exceptional contingency	YES	1,041
	Total SUM		272,664

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 165,421 €.

Table 15

Item	Category	Temporary activity	2022 costs (€)
2.3.1	Project Management (PM)	NO	79,407
2.3.2	Expenses	YES	2,968
2.3.3	Technical WG (TWG)	NO	51,868
2.3.4	Legal TF (LTF)	NO	14,571
2.3.5	Procedures WG (PWG)	NO	6,370
2.3.6	Cost Management WG (CMG)	NO	5,484
2.3.7	Intraday Auctions SG (IDA SG)	YES	4,750
	Total SUM		165,421

- 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 resources for the NEMOs-only part of the SIDC project were secured through external providers support by Indra Czech Republic s.r.o. for PM, PWG, CMG, IDA SG and TWG and by MODO Advocaten for LTF.
- The external support for PMO services was selected based on a competitive tender.

- The external support for LTF services was selected based on a direct assignment prior to CACM's entry into force.
- Project Management (Item 2.3.1) is responsible for the project management of NEMOs-only bodies under the SIDC project.
- Expenses (Item 2.3.2) relate mostly to the costs of traveling/meeting place and office management (e.g., postage).
- The TWG (Item 2.3.3) is responsible for the review of technical and functional specification of the SIDC MCO Function System.
- The LTF (Item 2.3.4) is responsible for the delivery of the contractual framework required by NEMOs to establish and operate the SIDC.
- The PWG (Item 2.3.5) is responsible for establishing the NEMOs only procedures of SIDC (Intraday continuous and Intraday auctions procedures), NEMOs activities (drafting and review) related to joint NEMOs and TSOs procedures and for organising the NEMO operational training.
- The CMG (Item 2.3.6) is responsible for the budgeting, validating and reviewing of NEMO-only costs and for validating and reviewing of the joint all TSOs and all NEMOs costs for services contractually linked to NEMOs. CMG is also responsible for preparing and validating the resettlement quarterly reports.
- The IDA SG (Item 2.3.7) manages the preparation of technical requirements regarding IDA implementation and also overall coordination. NEMOs' PMO assigned to the group continued providing the support the whole year. This Item covers his assignment until it has been agreed to categorise this PMO cost as the join all TSOs and all NEMOs cost.

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

PM/PMO represents several types of activities supporting NEMOs in the following project bodies: NEMO SIDC steering committee, Market Coupling steering committee, JSC with DBAG, NEMO Committee, SIDC Integration and Coordination Task Force and Integration and Coordination Task Force with NEMO Committee.

Regarding the 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 2022 were mainly services associated with:

- Negotiation and implementation of the Release 3.3, Release 4.0 and Release 4.1
- Negotiation of ASRs/CRs and management of contractual changes
- Clarifications in respect of the implementation of the IDAs and contractual negotiation with IDA CIP provider
- Management of the process and activities for the 4th wave go live
- NEMO IDSC alignment on IDA related topics
- Regular interaction with NEMO Committee, tasks stemming from the integration, preparations of the process supporting higher level of integration (MCSC)
- Processing of business requirements related to the REMIT reporting
- Regular clarifications on the project status with NRAs via JET platform
- Resolution of different escalations from working level.

NEMO Central Admin (Item 2.4.1)

The importance of the NEMO Central Admin is to ensure that 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.

TWG, PWG (Items 2.3.3, 2.3.5, 2.4.3 and 2.4.5)

List of activities from January 2022 to December 2022:

- **TWG:**

- › ACER REMIT Reporting – solution implemented, tested, deployed, maintained, improved further (CRs)
- › ACER reporting – provision of report data twice a year
- › CACM Annual report – NEMO indicator data preparation, simulation and data provision for Scalability analysis
- › Stakeholders reporting – NEMO indicators data preparation and provision to OPSCOM/AM TF twice a year
- › Monthly SLA Performance monitoring, analysis and managerial summaries preparation, evolution of the reports
- › BBPs/SMs review for XBID R3.3 (NEMO part)
- › CPM impact to ACER reporting – analysis done
- › CPM: Mass Trade cancellation
- › XBID R3.3 Performance tests preparation, execution

with LTSs connected, results and reports analysis

- › Support requests of NEMO ID SC, NEMO OPSCOM, OPSCOM, QARM, XTG, MSD
- › Impact of RTS4A performance improvements for R3.3 and R4.0 BBPs/SMs (Asynchronous Persister, code improvements)
- › PMI log analysis tool – maintenance, CRs
- › PMI log analysis tool – Mini auctions statistics CR: requirements definition, testing of functionality
- › DC Hausen migration – performance, security, networking aspects, high level concept review
- › CPM MVP – Performance recommendations for CPM implementation

- **PWG:**

- › Support and organisation of the recurring training of operators
- › Amendments and enhancement of procedures according to findings from operations
- › Preparation of operator's certification
- › Drafting of NEMO Intraday auctions procedures

2.4 The all NEMOs costs of operating the SIDC

The amount of 847,206 € consists of:

Table 16

Item	Category	Temporary activity	2022 costs (€)
2.4.1	Project Management (PM)	NO	777
2.4.2	Expenses	NO	48,604
2.4.3	Technical WG (TWG)	NO	51,760
2.4.4	Legal TF (LTF)	NO	4,857
2.4.5	Procedures WG (PWG)	NO	6,111
2.4.6	Cost Management WG (CMG)	NO	5,096
2.4.7	Central Administrator	NO	730,000
	Total SUM		847,206

- 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 resources for the NEMOs-only part of the SIDC project were secured through external providers support by Indra Czech Republic s.r.o. for CMG, PM, PWG and TWG and by MODO Advocaten for LTF.
- The external support for PMO services was selected based on a competitive tender.

- The external support for LTF services was selected based on a direct assignment prior to CACM's entry into force.
- The rate for the Central Administrator role was set up to 2000 €/24 hours.
- The Central Administrator role rotates among NEMOs who volunteered to perform this role.
- Project Management (Item 2.4.1) is responsible for the project management of NEMOs-only bodies under the SIDC project.
- Expenses (Item 2.4.2) relate to the costs of Hosting and Maintenance of the PMI log analysis tool.
- The TWG (Item 2.4.3) is responsible for the review of the technical and functional specification of the SIDC MCO Function System.
- The LTF (Item 2.4.4) is responsible for the delivery of the contractual framework required by NEMOs to establish and operate the SIDC.
- The PWG (Item 2.4.5) is responsible for establishing the NEMOs-only procedures of SIDC (Intraday continuous and Intraday auctions procedures), NEMOs activities (drafting and review) related to joint NEMOs and TSOs procedures and for organising the NEMO operational training.
- The CMG (Item 2.3.6) is responsible for the budgeting, validating and reviewing of NEMO-only costs and for validating and reviewing of the joint all TSOs and all NEMOs costs for services contractually linked to NEMOs. CMG is also responsible for preparing and validating the resettlement quarterly reports.
- The Central Administrator (Item 2.3.7) is responsible for the operation of the central system (XBID Solution) and for the performance of all Central Administrator's procedures in 24/7 regime.

2.5 The all TSOs costs of establishing and amending the SIDC

The amount of 696,244 € consists of:

Item	Category	Temporary activity	2022 costs (€)
2.5.1	Costs for project management	NO	338,993
2.5.2	ECP/MPLS	NO	72,315
2.5.3	Central Admin	NO	2,233
2.5.4	Flow Based expert	NO	1,463
2.5.5	Testing Support	Yes	270,833
2.5.6	Knowledge sharing WS	Yes	10,408
	Total SUM		696,244

A rate of 925 €/MD was used for the internal resources of TSOs.

Costs for project management (Item 2.5.1)

Under this category, 90 % of the costs related to the following roles related to the project management for the SIDC project are included:

- TSO project manager (CEPS)
- TSO chair (transferred to 50Hertz as of October 2022)
- Legal support (Bernard Energy)
- General PMO support (E-Bridge)
- Expert and PMO support for the upgrade to ECP4 (Magnus Red)

ECP/MPLS (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
- The Central Admin (Item 2.5.3) covers cost for the general configuration of the CCM and SM part of the LIP and XTG testing environments. This central admin role is provided by JAO.
- Flow Based Expert (Item 2.5.4) relate to expert support to the R&D work on the Flow-Based Intraday Capacity Allocation.
- Testing Support (Item 2.5.5) was performed by service provider SYSQA, who tested new releases for the SIDC solution on behalf of all TSOs.

2.6 The all TSOs costs of operating the SIDC

The amount of 279,936 € consists of:

Table 18

Item	Category	Temporary activity	2022 costs (€)
2.6.1	Costs for project management	No	29,901
2.6.2	ECP/MPLS	No	72,315
2.6.3	Central Admin	No	157,469
2.6.4	Reporting to EMFIP	No	20,251
	Total SUM		279,936

- For costs for project management (Item 2.6.1) under this category, the remaining 10 % of the costs related to the project management for the SIDC project are included. See cost Item 2.5.1 under chapter 2.5.
- The remaining 50 % of cost Item 2.6.2 under chapter 2.5 is reported under cost Item 2.6.2.
- Central Admin (Item 2.6.3) covers efforts related to the configuration of the CCM and SM part of the operational environments. It also covers the 24/7 general availability and on-call service fee. This Central Admin role is provided by JAO.
- Reporting to EMFIP (Item 2.6.4) includes the 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.

3 Forecast of SDAC costs for 2023

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

The amount of 4,467,556 € consists of:

Table 19

Item	Category	Temporary activity	Budget 2023 (€)
3.1.1	SDAC Technical Solution Simulation Facility Training Users	NO	5,000
3.1.2	Simulation Facility CR Contingency	NO	30,000
3.1.3	Simulation Facility Monitoring & data processing improvements	NO	35,000
3.1.4	SDAC Technical Solution Simulation Facility Specifications updates	NO	18,500
3.1.5	SDAC Technical Solution Simulation Facility Task Force Workshops	NO	10,000
3.1.6	Simulation Facility Adaptation for Euphemia releases	NO	52,000
3.1.7	Simulation Facility Platform hardware renewal	NO	5,000
3.1.8	Simulation Facility Euphemia hardware renewal	NO	30,000
3.1.9	SDAC Technical Solution Simulation Facility Adding Euphemia instances	NO	23,548
3.1.10	Simulation Facility V4 General Improvements	NO	22,000
3.1.11	Simulation Facility Task Force leader costs	NO	131,600
3.1.12	MSD Task Force budget for support of Task Force members	NO	10,500
3.1.13	PCR R&D (MSD R&D & Algorithm Dev & NEMO expert support)	NO	603,994
3.1.14	MSD NEMOs & TSOs co leader	NO	148,925
3.1.15	MSD PMO + organizational aspects	NO	158,900
3.1.16	MSD Task Force general contingency	NO	50,000
3.1.17	15min MTU PCR R&D + Diagnosis	NO	44,012
3.1.18	Non-uniform pricing development	NO	90,000
3.1.19	Dedicated budget on MSD Deliverables	NO	124,653
3.1.20	Co-optimisation roadmap study	NO	62,000
3.1.21	15 min MTU project (PM, testing body)	NO	131,600
3.1.22	MCSC Secretary	NO	70,000
3.1.23	Meeting Arrangements	NO	26,000
3.1.24	Contingency for SDAC "do-ers"	NO	129,500
3.1.25	QARM	NO	107,144
3.1.26	Communication Task Force Leader	NO	24,563
3.1.27	Legal Task Force Leaders	NO	54,188
3.1.28	SDAC Technical Solution Euphemia Releases	NO	171,253
3.1.29	SDAC Technical Solution Leader Remuneration	NO	162,055
3.1.30	SDAC Technical Solution PMB Releases	NO	474,594
3.1.31	SDAC Technical Solution Support Tasks	NO	49,294
3.1.32	Maintenance contracts	NO	1,084,717
3.1.33	DisCo daily fee	NO	151,256
3.1.34	SDAC IT tools	NO	5,000
3.1.35	Central Settlement Entity Fees	NO	70,763
3.1.36	Contingency (SDAC Joint Establishment costs)	NO	100,000
	Total SUM		4,467,556

The forecast of 2023 establishing and amending costs was calculated based on the Joint NEMOs and TSOs SDAC costs in 2022.

The total of the 2023 forecast was increased by 129,950 € compared to the 2022 actuals. The main drivers behind this increase are:

- The introduction of Contingency for SDAC “do-ers” (Item 3.1.24)
- The cost of Maintenance Contracts (Item 3.1.32) has been increased due to the higher expected usage of assets as of January 2023.

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

The amount of 1,008,606 € consists of:

Table 20

Item	Category	Temporary activity	Budget 2023 (€)
3.2.1	MCSC Secretary	NO	70,000
3.2.2	Meeting Arrangements	NO	26,000
3.2.3	Contingency for SDAC “do-ers”	NO	26,825
3.2.4	Communication Task Force Leader	NO	8,188
3.2.5	Legal Task Force Leaders	NO	18,063
3.2.6	Simulation Facility Operational	NO	215,200
3.2.7	SDAC OPSCOM (Secretarial OPSCOM, Procedures SPoC, ...)	NO	121,000
3.2.8	SDAC Technical Solution Leader Remuneration	NO	3,120
3.2.9	Maintenance contracts	NO	399,447
3.2.10	Central Settlement Entity Fees	NO	70,763
3.2.11	Contingency (SDAC Joint Operational costs)	NO	50,000
	Total SUM		1,008,606

The forecast of 2023 operating costs was calculated based on the Joint NEMOs and TSOs SDAC costs in 2022. The total of the 2023 forecast was increased by 346,331 € compared to the 2022 actuals. This main drivers behind this increase are:

- The introduction of Maintenance Contracts (Item 3.2.9). The cost of Maintenance Contracts has been added as a result of the usage of variety assets in the benefit of SDAC from January 2023.

3.3 The all NEMOs forecast of establishing and amending the SDAC

The costs consists of:

- All NEMO Committee costs totalling 227,354 €
- All NEMOs PMO and WG support totalling 249,717 € as further detailed below
- 50 % of all costs forecasted for the All NEMO Committee in its tasks of preparation of CACM methodologies and proposals totalling 227,354 €

Table 21

Item	Category	Temporary activity	Budget 2023 (€)
3.3.1	Chairman	NO	57,970
3.3.2	PMO and administrative costs	NO	148,200
3.3.3	Legal Task Force	NO	20,350
3.3.4	Cost Task Force	NO	28,600
3.3.5	Reporting and communication Task Force	NO	73,810
3.3.6	Technical Task Force	NO	85,800
3.3.7	Drafting Team (Governance)	YES	25,000
3.3.8	Exceptional contingency	YES	15,000
	Total SUM		454,730

The forecast of 2023 establishing and amending costs was based on the NEMOs only SDAC costs in 2022. The total of the 2023 forecast was increased by 109,038 € compared to the 2022 actuals. The main drivers behind this increase are:

- There is an expected increase related to the Reporting and Communication Task Force due to more proactive communication, additional reporting requirements, more advanced website and planning of physical meetings (Seminar on CACM Annual report).
- There is an expected increase for Technical Task Force based on the workload linked with update of the methodologies, co-optimization, 15 min resolution implementation on SDAC, IDAs and CACM 2.0.
- There is a slight increase related to the Chairman of NC due to the increase of activities related to CACM 2.0 as well as regarding NEMOs alignments before MCSC meetings.
- In order to be more proactive in discussions about future of the CACM Regulation and other governance related topics, new dedicated drafting team was created. The team is working on ad-hoc basis, when NEMOs have to prepare a common position or statement.
- The exceptional contingency of 15K € is included to cover unexpected tasks in 2023, 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 totalling 249,717 €

Table 22

Item	Category	Temporary activity	Budget 2023 (€)
3.3.11	PMO – General Support	NO	93,054
3.3.12	Support tasks	NO	59,877
3.3.13	Leader Remuneration Fee	NO	78,235
3.3.14	Facilities	NO	18,551
	Total SUM		249,717

- The budget of 2023 is corresponding with actuals of 2022 based on the fact that majority of development activities are carried out under joint NEMO-TSO management.
- The increase in PMO – General Support (3.3.11) and Leader Remuneration Fee (3.3.13) has reflected the actuals observed in time of budget creation.

3.4 The all NEMOs forecast of operating the SDAC

The amount of 690,216 € consists of:

Table 23

Item	Category	Temporary activity	Budget 2023 (€)
3.4.1	Maintenance Contracts	NO	0
3.4.2	Leader Remuneration	NO	97,127
3.4.3	Facilities	NO	96,000
3.4.4	PMO – General Support	NO	20,538
3.4.5	Support tasks	NO	10,980
3.4.6	Operation Fees	NO	450,775
3.4.7	PMB release testing	NO	14,796
	Total SUM		690,216

The forecasted of 2023 operating costs represent a significant decrease of 318,921€ compared to the actuals of 2022 due to the fact that the Maintenance costs were categorised as Joint NEMOs and TSOs common cost for operating the SDAC, based on ongoing strengthening of joint governance of SDAC (including its systems).

3.5 The all TSOs forecast of establishing and amending the SDAC

The amount of 141,088 € consists of:

Table 24

Item	Category	Temporary activity	Budget 2023 (€)
3.5.1	TSO Legal Task Force Support	NO	10,000
3.5.2	TSO MCSC Secretary	NO	17,500
3.5.3	TSO Chair	NO	35,000
3.5.4	Tendering costs for TSO MCSC Secretary/PMO	YES	15,000
3.5.5	Central Settlement Entity Fees	NO	23,588
3.5.6	Contingency	NO	40,000
	Total SUM		141,088

The forecast of 2023 establishing and amending costs was calculated based on the TSO only SDAC costs in 2022. The total of the 2023 forecast was increased by 95,676 € compared to the 2022 actuals. The main drivers behind this increase are:

- Introduction of TSO Chair (Item 3.5.3) remuneration
- Slight increase of efforts expected from the TSO MCSC Secretary (Item 3.5.2)
- Foreseen expense in 2023 for the tendering process for the single MCSC PMO (Item 3.5.4)
- Cost Items 3.5.2, 3.5.3 and 3.5.5 have been equally split between the categorisations establishing and amending the SDAC and operating the SDAC

3.6 The all TSOs forecast of operating the SDAC

The amount of 96,088 € consist of:

Table 25

Item	Category	Temporary activity	Budget 2023 (€)
3.6.1	TSO Legal Task Force Support	NO	17,500
3.6.2	TSO MCSC Secretary	NO	35,000
3.6.3	TSO Chair	NO	23,588
3.6.4	Tendering costs for TSO MCSC Secretary/PMO	NO	20,000
	Total SUM		96,088

The forecast of 2023 operating costs was calculated based on the TSO only SDAC costs in 2022. The total of the 2023 forecast was increased by 50,676 € compared to the 2022 actuals. The main drivers behind this increase are:

- Introduction of TSO Chair (Item 3.6.3) remuneration
- Slight increase of efforts expected from the TSO MCSC Secretary (Item 3.6.2)
- Cost Items 3.6.1, 3.6.2 and 3.6.3 have been equally split between the categorisations establishing and amending the SDAC and operating the SDAC

4 Forecast of SIDC costs for 2023

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

The amount of 6,655,668 € consists of:

Table 26

Item	Category	Temporary activity	Budget 2023 (€)
4.1.1	Aggregated Project Management costs	NO	494,657
4.1.2	Procurement costs		0
4.1.3	Technical support tools (ProjectPlace, ReQTest)	NO	26,356
4.1.4	DBAG costs – R&D	NO	1,000,000
4.1.5	DBAG costs – development + CRs	YES	1,600,000
4.1.6	DBAG costs – hosting/maintenance ongoing	NO	1,613,136
4.1.7	DBAG costs - hosting/maintenance increase with CRs	NO	6,455
4.1.8	Intraday Auctions Implementation PCR side + PMO	NO	1,146,814
4.1.9	Intraday Auctions Maintenance	YES	21,907
	Total SUM		6,655,668

The forecast for 2023 establishing and amending costs was calculated based on the Joint NEMOs and TSOs costs in 2022. The total of the 2023 forecast was increased by 1,270,656 € compared to the 2022 actuals. The main drivers behind this increase are:

- Delay of delivery of release 3.3, which was expected to be implemented in 2022
- Increased budget for IDA implementation (an increase of more than 100 %)
- The expected increase in the Hosting & Maintenance costs.

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

The amount of 3,021,475 € consists of:

Table 27

Item	Category	Temporary activity	Budget 2023 (€)
4.2.1	Aggregated Project Management Costs	NO	494,657
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	1,788,500
4.2.5	DBAG costs – hosting/maintenance increase with Change Requests	NO	6,455
4.2.6	DBAG costs – hosting/maintenance contingency	NO	50,000
4.2.7	IC SPOC (ICCC)	YES	586,008
4.2.8	REMIT H&M	YES	8,000
	Total SUM		3,021,475

The forecast for 2023 operating costs was calculated based on the Joint NEMOs and TSOs costs in 2022. The total of the 2023 forecast was increased by 434,205 € compared to the 2022 actuals. The main drivers behind this increase are:

- Increased workload of PMO
- Increase of Hosting and Maintenance costs based on new development.

4.3 The all NEMOs forecast of establishing and amending the SIDC

The costs consist of:

- All NEMO Committee costs totalling 227,354 €
- All NEMOs PMO and WG support totalling 232,000 € as further detailed below

Table 28

Item	Category	Temporary activity	Budget 2023 (€)
4.3.1	Chairman	NO	57,970
4.3.2	PMO and administrative costs	NO	148,200
4.3.3	Legal Task Force	NO	20,350
4.3.4	Cost Task Force	NO	28,600
4.3.5	Reporting and communication Task Force	NO	73,810
4.3.6	Technical Task Force	NO	85,800
4.3.7	Drafting Team (Governance)	YES	25,000
4.3.8	Exceptional contingency	YES	15,000
	Total SUM		454,730

- 50 % of all costs forecasted for the All NEMO Committee in 2023 for its tasks of preparation of CACM methodologies and proposals totalling 227,354 €

Respective costs attributable to all NEMOs for the establishment and amendment of SIDC in 2023 totalling 232,000 €

Table 29

Item	Category	Temporary activity	Budget 2023 (€)
4.3.9	NEMOs organisation	NO	222,000
4.3.10	Other costs and contingency	YES	10,000
	Total SUM		232,000

The NEMOs organisation budget for 2023 is expected to be higher compared to 2022 due to the increased workload related to IDA topics.

4.4 The all NEMOs forecast of operating the SIDC

The amount of 901,000 € consists of:

Table 30

Item	Category	Temporary activity	Budget 2023 (€)
4.4.1	Central Admin (NEMOs rotation)	NO	730,000
4.4.2	NEMOs organisation	NO	110,000
4.4.3	Other costs and contingency	YES	61,000
	Total SUM		901,000

The main task of NEMO Central Admin is predicted to be charged in the same amount as for 2022.

4.5 The all TSOs forecast of establishing and amending the SIDC

The amount of 736,188 € consists of:

Table 31

Item	Category	Temporary activity	Budget 2023 (€)
4.5.1	Aggregated PM costs	No	279,000
4.5.2	ECP/MPLS	No	46,400
4.5.3	Central Admin	No	4,000
4.5.4	External testers	No	280,000
4.5.5	Flow-based expert	Yes	15,000
4.5.6	Knowledge sharing WS	Yes	3,600
4.5.7	Tendering costs for TSO MCSC Secretary/PMO	Yes	15,000
4.5.8	Central Settlement Entity Fees	Yes	53,188
4.5.9	Contingency	YES	40,000
	Total SUM		736,188

The forecast of 2023 establishing and amending costs was calculated based on the TSO only SDAC costs in 2022. The total of the 2023 forecast was increased by 39,944 € compared to the 2022 actuals. The main drivers behind this increase are:

- Foreseen expense in 2023 for the tendering process for the single MCSC PMO (Item 4.5.7)
- Introduction of cost Item Central Settlement Entity Fees (Item 4.5.8)
- Foreseen Contingency (Item 4.5.9)

4.6 The all TSOs forecast of operating the SIDC

The amount of 335,880 € consists of:

Table 32

Item	Category	Temporary activity	Budget 2023 (€)
4.6.1	Aggregated PM costs	No	31,000
4.6.2	ECP/MPLS	No	46,400
4.6.3	Central Admin	No	163,200
4.6.4	Reporting to EMFIP	No	22,092
4.6.5	Central Settlement Entity Fees	Yes	53,188
4.6.6	Contingency	Yes	20,000
	Total SUM		335,880

The forecast of 2023 operating costs was calculated based on the TSO only SDAC costs in 2022. The total of the 2023 forecast was increased by 55,944 € compared to the 2022 actuals. The main drivers behind this increase are:

- Introduction of cost Item Central Settlement Entity Fees (Item 4.5.8)
- Foreseen Contingency (Item 4.6.6)

Chapter B:

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	CWE	8	Baltic MNA
2	CORE	9	Baltic – IDA RIP
3	CORE – IDA RIP	10	DE-AT-PL 4MMC
4	Nordic projects	11	LIP 14 – XBID + CRIDA project, including GR–BG border
5	IBWT	12	LIP 17
6	IBWT – IDA RIP	13	IDA RIP - SWE
7	Nordic Operations		

The following table provides an overview of the total actual common regional costs in 2022:

Table 34

in K €		Establishing and amending costs		Operating costs	
Day ahead related common costs	All NEMOs and all TSOs costs	1.1	725,482	1.2	300,239
	All NEMOs costs	1.3	0	1.4	106,915
	All TSOs costs	1.5	891,574	1.6	535,094
Intraday related common costs	All NEMOs and all TSOs costs	2.1	271,661	2.2	0
	All NEMOs costs	2.3	0	2.4	0
	All TSOs costs	2.5	0	2.6	0
Total			1,888,717		942,248

1. CWE

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 developed 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. With the Go-live of CORE FB MC in June 2022, the CWE project has been closed.

The default CACM sharing key applies for the CWE project.

Actual costs for 2022

The following table provides an overview of the total actual regional common costs in 2022:

Regional costs (€)	2022 establishing and amending costs	2022 operating costs
NEMOs costs	0	106,915
TSOs costs	0	19,998
NEMOs and TSOs costs	112,150	21,382

The joint NEMOs and TSOs establishing and amending costs totalling 112,150 € consist of:

Details	Temporary activity	2022 costs (€)
Joint PMO	YES	91,300
Target Governance	YES	20,850
Total SUM		112,150

The joint NEMOs and TSOs operational costs totalling 21,382 € consist of:

Details	Temporary activity	2022 costs (€)
CWE OPSCOM	YES	925
JLG	YES	1,734
JSC PMO	YES	12,748
BME	YES	5,075
Q&A Site	YES	900
Total SUM		21,382

- A rate of 925 €/MD was used for CWE internal resources.
- CWE OPSCOM is responsible for the operation of the CWE Market Coupling, 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 Budget Management Entity provides services for the process of sharing, budgeting, monitoring, providing resettlement calculations and reporting towards CWE Regional NEMOs and TSOs.

The NEMOs only operational costs totalling 106,915 € consist of:

Details	Temporary activity	2022 costs (€)
CIP costs	YES	106,915
Total SUM		106,915

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 operational costs in the amount of 19,998 € consist of:

Details	Temporary activity	2022 costs (€)
MPLS costs	YES	19,998
Total SUM		19,998

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.

2. CORE

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 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.

The project go-live was in June 2022. A specific regional sharing key approved by the competent national authorities of each Member States in the region on 20 May 2015 applies in the Core Flow-based market coupling project.

Actual costs for 2022

The following table provides an overview of the total actual regional common costs in 2022:

Regional costs (€)	2022 establishing and amending costs	2022 operating costs
NEMOs costs	0	0
TSOs costs	0	0
NEMOs and TSOs costs	400,035	194,900

Forecasts for 2023

With the Go-live of the CORE FB MC project in June 2022, there are no common costs projected for 2023.

The joint NEMOs and TSOs costs¹ of establishing and amending Core FB MC totalling 400,035 € consist of:

Item	Details	Temporary activity	2022 costs (€)
1	PMO	YES	239,228
2	Cost of Flow Based User Group & Market Training	YES	20,525
3	Convenorships	YES	63,247
4	Specific common deliverables	YES	3,353
5	Operational costs of simulations	YES	31,856
6	3 rd party services	YES	41,827
	Total SUM		400,035

- The PMO cost in the above table encompass the cost of the PMO services required to facilitate the Core Joint program the Steering Committee and all relevant Task Forces/ Working Groups.
- 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 was the central working body where parties are designing and implementing all required assets for project go-live. JWG was 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 Project is in development phase so only Joint TSOs and NEMOs costs of establishing and amending costs occur until Go-live in June. After the Go-live permanent costs (operational cost) will occur.

The joint TSOs and NEMOs costs² of operating Core FB MC totalling 194,900 € consist of:

Table 42

Item	Details	Temporary activity	2022 costs (€)
1	PMO	YES	185,074
2	Conveners	YES	9,826
	Total SUM		194,900

Forecasts for 2023

The Joint NEMOs and TSOs costs of establishing and amending CORE FB MC totaling 291,244 € consist of:

Table 43

Item	Details	Temporary activity	2023 costs (€)
1	PMO	YES	222,374
2	Test Coordination	YES	39,270
3	Convenorships	YES	29,600
	Total SUM		291,244

The Joint NEMOs and TSOs costs of operating CORE FB MC totaling 68,283 € consist of:

Table 44

Item	Details	Temporary activity	2023 costs (€)
1	PMO	YES	68,283
	Total SUM		68,283

3. CORE – IDA RIP

The CORE RIP aims at the implementation of the regional processes for the Intraday Auctions (IDAs) in the CORE region (Austria, Belgium, Croatia, the Czech Republic, France, Germany, Hungary, Luxembourg, the Netherlands, Poland,

Romania, Slovakia and Slovenia) which are not in scope of the central SIDC IDA Project, mainly the IDAs post-coupling process.

Actual costs for 2022

The following table provides an overview of the total actual regional common costs in 2022:

Table 45

Regional costs (€)	2022 establishing and amending costs	2022 operating costs
NEMOs costs	0	0
TSOs costs	0	0
NEMOs and TSOs costs	32,013	0

The joint NEMOs and TSOs establishing and amending costs totalling 32,013 € consist of:

Table 46

Details	Temporary activity	2022 costs (€)
PMO costs	YES	21,954
Conveners	YES	10,059
Total SUM		32,013

2 Project had a separate budget after go-live, also with specific Cost Sharing Keys that differed from before Go-live.

4. Nordic projects

This Chapter is focused on the Nordic Flow Based project (DA) and the Nordic 15 min MTU project (DA and ID), which do not include any operating costs. Costs of operations and other projects are captured in Chapter B7) Nordic operations.

Nordic Flow Based project (DA)

This project concerns the regional costs for amending and establishing the Nordic day-ahead solutions by implementing the FB capacity calculation and associated processes.

Actual costs for 2022

The following table provides an overview of the total actual regional common costs in 2022:

Regional costs (€)	2022 establishing and amending costs	2022 operating costs
NEMOs costs	0	0
TSOs costs	891,574	0
NEMOs and TSOs costs	0	0

The TSOs establishing and amending costs totalling 571,684 € consists of:

Details	Temporary activity	2022 costs (€)
PMO costs	YES	793,922
Other administrative costs	YES	0
System development costs	YES	97,652
Total SUM		891,574

- 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.
- System Development costs cover the NEMO integration analysis work.

Forecast for 2023

The following table provides an overview of the forecast of regional common costs for 2023:

Regional costs (€)	2023 establishing and amending costs	2023 operating costs
NEMOs costs	0	0
TSOs costs	1,528,178	0
NEMOs and TSOs costs	0	0

The TSOs establishing and amending costs totalling 1,528,178 € consist of:

Details	Temporary activity	2022 costs (€)
PMO costs	YES	716,488
Other administrative costs	YES	0
System development costs	YES	811,690
Total SUM		1,528,178

- 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 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.

Nordic 15 min MTU & IDA project (DA and ID)

This project concerns the regional costs for amending and establishing the Nordic day-ahead and intraday solutions by implementing the 15 min MTUs.

Actual costs for 2022

The following table provides an overview of the total actual regional common DA and ID costs in 2022:

Regional costs (€)	2022 establishing and amending costs	2022 operating costs
NEMOs costs	0	0
TSOs costs	0	0
NEMOs and TSOs costs	399,651	0

- Here, it is pointed out that the costs are split equally between DA and ID.
- Regarding the NEMOs, please note that both EMCO and EPEX are involved in both DA and ID, whereas Nasdaq is only involved in DA.

The NEMOs and TSOs establishing and amending costs totalling 339,651 € consist of:

Details	Temporary activity	2022 costs (€)
PMO + administrative costs	YES	399,651
System development costs	YES	0
Total SUM		399,651

- 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 15 min MTU & IDA project.
- The administrative costs cover the Project Place licenses for the Nordic 15 min MTU & IDA project.
- System Development costs are not shared, but handled on an individual party basis

Forecast for 2023

The following table provides an overview of the forecast of regional common costs for 2023:

Regional costs (€)	2023 establishing and amending costs	2023 operating costs
NEMOs costs	0	0
TSOs costs	0	0
NEMOs and TSOs costs	633,600	0

The NEMOs and TSOs establishing and amending costs totalling 633,600 € consist of:

Details	Temporary activity	2023 costs (€)
PMO + administrative costs	YES	633,600
System development costs	YES	0
Total SUM		633,600

- 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 15 min MTU & IDA project.
- The administrative costs cover the Project Place licenses for the Nordic 15 min MTU & IDA project.
- System Development costs are not shared, but handled on an individual party basis

5. IBWT

The main objective of the IBWT for Day-Ahead markets (Italian Borders Working Table) project is to coordinate operations amongst the involved parties.

The involved parties are: Austrian Power Grid AG ("APG"), ELECTRICITY SYSTEM OPERATOR EAD ("ESO"), ELES, d.o.o. ("ELES"), Croatian Transmission System Operator Plc. ("HOPS"), IPTO Independent Power Transmission Operator ("ADMIE"), RTE Réseau de transport d'électricité ("RTE"), Swissgrid ag ("Swissgrid") as observer member, TERNA S.p.A. Rete Elettrica Nazionale ("TERNA"), BSP Regional Energy Exchange LL C ("BSP") CROATIAN POWER EXCHANGE Ltd. ("CROPEX"), EPEX Spot SE ("EPEX"), Nord Pool European Market Coupling Operator AS ("Nord Pool EMCO"), EXAA Abwicklungsstelle für Energieprodukte AG ("EXAA"), Gestore dei Mercati Energetici S.p.A. ("GME"), HELLENIC ENERGY EXCHANGE S.A. ("HEEx"), Independent Bulgarian Energy Exchange ("IBEX"),

A specific regional sharing key applies for this project.

Actual costs for 2022

The following table provides an overview of the total actual regional common costs in 2022:

Regional costs (€)	2022 establishing and amending costs	2022 operating costs
NEMOs costs	0	0
TSOs costs	0	0
NEMOs and TSOs costs	13,472 €	0

The joint NEMOs and TSOs establishing and amending costs totalling 13,472 € consist of:

Details	Temporary activity	2022 costs (€)
IPT Convener for MNA implementation	YES	3,122
PMO support for MNA implementation	YES	10,350
Total SUM		13,472

The common costs stated above were covered by parties requesting the change and were related to MNA implementation on AT-IT and FR-IT border APG, RTE, EPEX SPOT, NordPool, EXAA were the parties covering the costs with the usage of the equal sharing key.

Forecasts for 2023

No costs are foreseen for the year 2023.

6. IBWT – IDA RIP

The IBWT IDA RIP aims at the implementation of the regional processes for the Intraday Auctions (IDAs) in the IBWT region which are not in scope of the central SIDC IDA Project, mainly the IDAs post-coupling process.

7. Nordic Operations

In addition to the costs related to projects as captured in Chapter B3) Nordic projects (DA and ID), in this Chapter, an overview of the costs of operating and the costs of establishing and amending is presented.

Actual costs for 2022

The following table provides an overview of the total actual regional common costs in 2022:

Regional costs (€)	2022 establishing and amending costs	2022 operating costs
NEMOs costs	0	0
TSOs costs	0	416,333
NEMOs and TSOs costs	0	83,957

The TSOs of operating costs totalling 416,333 € consist of:

Details	Temporary activity	2022 costs (€)
Operational costs	No	416,333
Total SUM		416,333

The operational costs in the above table encompass the costs of operating the joint Nordic IT systems.

The NEMOs and TSOs operating costs totalling 83,957 € consist of:

Details	Temporary activity	2022 costs (€)
PMO costs	NO	83,957
Total SUM		83,957

The PMO cost in the above table encompass the cost of the PMO services required to facilitate the execution of all tasks to operate the Nordic DA market (Nordic JSC, Nordic OPSCOM, and Nordic Budget Management TF).

Forecast for 2023

The following table provides an overview of the forecast of regional common costs for 2023:

Regional costs (€)	2023 establishing and amending costs	2023 operating costs
NEMOs costs	0	0
TSOs costs	0	440,000
NEMOs and TSOs costs	0	115,000

The TSOs operating costs totalling 440,000 € consist of:

Details	Temporary activity	2023 costs (€)
Operational costs	No	440,000
Total SUM		440,000

The operational costs in the above table encompass the costs of operating the joint Nordic IT systems.

The joint NEMOs and TSOs costs totalling 115,000 € consist of:

Details	Temporary activity	2023 costs (€)
PMO costs	NO	115,000
Total SUM		115,000

The PMO cost in the above table encompasses the cost of the PMO services required to facilitate the execution of all tasks to operate the Nordic DA market (Nordic JSC, Nordic OPSCOM, and Nordic Budget Management TF).

8. Baltic MNA

This project concerns the regional costs for amending and establishing the Baltic day-ahead and intraday solutions to become MNA compatible. Currently, Baltic TSOs and engaged NEMOs are expecting to finish all necessary documentation and, when the 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.

9. Baltic – IDA RIP

The Baltic IDA RIP aims at the implementation of the regional processes for the Intraday Auctions (IDAs) in the Baltic region (Estonia, Latvia and Lithuania) which are not

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 19 April 2019.

There are no regional costs in 2022 nor budgeted costs in 2023 for this project as project parties are waiting for a second NEMO to become operational in the area.

10. DE-AT-PL 4MMC

The DE-AT-PL-4M MC Project (Interim Coupling) aims to couple the 4M MC and Poland with the MRC by introducing NTC-based implicit allocation on 6 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 afore-mentioned 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. The Interim Coupling Project successfully went live on 17 June 2021 (with delivery day 18 June 2021). With the Go-live of CORE FB MC in June 2022, the DE-AT-PL 4MMC project has been closed.

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 2019.

11. LIP 14 – XBID + CRIDA, including GR-BG border

LIP 14 agreed in December 2020 to identify two different Go-live phases (LIP 14 First Go live and LIP 14 Second Go live) for the SIDC.

The group of parties targeting the LIP 14 First Go live was referred to as group A and the remaining group as group B. This terminology is used also in the text in this chapter. The decision was contractually supported by signature of the First Amendment to the LIP 14 Cooperation Agreement, in effect from April 2021. This amendment impacted the list of

in scope of the central SIDC IDA Project, mainly the IDAs post-coupling process. In 2022, no Regional costs occurred for the Baltic IDA RIP.

Actual costs for 2022

The TSO operating costs totalling 98,763 € consist of:

Table 63

Details	Temporary activity	2022 costs (€)
Joint TSO system operational fee*	YES	98,763
Total SUM		98,763

*The joint TSO operational costs encompass the monthly fee paid by TSOs for the operation of the joint TSO system.

Forecast for 2023

There are no budgeted common regional costs for 2023.

involved borders, parties and also the way the invoicing of PMO services was organised.

LIP 14 covers the following borders:

until April 2021: AT-IT, IT-FR, IT-SI, IT-GR, GR-BG and internal IT borders

after April 2021: Group A: AT-IT, IT-FR, IT-SI and internal IT borders; Group B: IT-GR, GR-BG

Involved parties are:

Group A:

TSOs: Terna Rete Italia S.p.A., Austrian Power Grid AG, RTE Réseau de Transport d'Electricité and ELES, d.o.o.

NEMOs: BSP Energy Exchange LL C, EPEX Spot SE, Gestore dei Mercati Energetici S.p.A. and European Market Coupling Operator AS.

Group B:

TSOs: Terna Rete Italia S.p.A., Electricity System Operator EAD and IPTO Independent Power Transmission Operator

NEMOs: Gestore dei Mercati Energetici S.p.A., Independent Bulgarian Energy Exchange EAD and Hellenic Energy Exchange S.A..

The invoicing for PMO services has changed from April 2021 and the costs have been categorised in 3 groups:

1. Applicable to all LIP 14 parties
2. Applicable to group A
3. Applicable to group B

The cost sharing key applied in LIP 14 is based on shares equal to the number of parties in respective Go-live group.

The Go-live of group A has been organised on 21 September 2021. The Go-live of group B has been organised on 29 November 2022.

The actual 2022 costs consist purely of PMO support cost. There are no special deliverables prepared by PMO other than the documents supporting the meetings of LIP 14 working groups (agenda, MoM, ...). The total 2022 costs have been invoiced to and shared by the group B parties only.

12. 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 go-live of the project was 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.

Actual costs for 2022

The joint NEMOs and TSOs establishing and amending costs totalling 5,764 € consist of:

Table 64

Item	Details	Temporary activity	2022 costs (€)
1	Costs for project management applicable to group B parties	Yes	5,764
2	Administration	Yes	0
	Total SUM		5,764

- 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.
- Administration referred in 2021 to one time cost of the postage for distribution of signed copies of First Amendment to the LIP 14 Cooperation Agreement. This cost type was not applied in 2022.

Forecast for 2023

With SIDC 4th wave Go-live of HENEX the LIP 14 activities ceased in October 2022.

Governance structure:

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

Actual costs for 2022

The joint NEMOs and TSOs establishing and amending costs totalling 61,734 € consist of:

Table 65

Item	Details	Temporary activity	2022 costs (€)
1	Costs for project management	Yes	61,734
	Total SUM		61,734

No further costs, project successfully implemented.

13. IDA RIP – SWE

The SWE RIP aims at the implementation of the regional processes for the Intraday Auctions (IDAs) in the SWE region (France, Portugal and Spain) which are not in scope of the central SIDC IDA Project, mainly the IDAs post-coupling process.

Actual costs for 2022

The following table provides an overview of the total actual regional common costs in 2022:

Table 66

Regional costs (€)	2022 establishing and amending costs	2022 operating costs
NEMOs costs	0	0
TSOs costs	0	0
NEMOs and TSOs costs	4,338	0

The joint TSOs and NEMOs costs of establishing and amending totalling 4,338 € consist of:

Table 67

Details	Temporary activity	2022 costs (€)
Joint PMO	YES	4,338
Total SUM		4,338

- In 2022, only PMO costs occurred for the project.
- Joint PMO costs consist of the costs of the external support related to project management services provided by Indra Business Consulting, S.L.U as of 1 April 2022.
- The external support for PMO services was selected based via a contractual tender.
- A rate of 690 €/MD was used.

Forecasts for 2023

The joint TSOs and NEMOs costs of establishing and amending totalling 4,338 € consist of:

Table 68

Details	Temporary activity	2022 costs (€)
Joint PMO	YES	4,338
Total SUM		4,338

For 2023, the same limited costs as in 2022 are expected.

Chapter C:

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

TSOs, as agreed with the NRAs, report the national cost in two categories for each timeframe:

- Category A is the costs of representation in meetings and includes the time for preparation.
- Category B is the costs for national IT implementation solely related to market coupling.

TSOs would like to emphasise that as there is no common system to track the costs, the homogeneity of the numbers reported is not guaranteed.

Table 69

Member State	TSO	National costs related to SDAC (€)		National costs related to SIDC (€)	
		Category A	Category B	Category A	Category B
Austria	APG	150,062	77,649	159,760	9,790
Belgium	Elia	81,257	196,977	185,579	25,000
Bulgaria	ESO	57,357	0	80,078	27,600
Croatia	HOPS	29,498	49,752	17,306	85,740
Czech Republic	ČEPS	14,784	441,813	36,692	222,322
Denmark	Energinet / ELSO	213,525	0	119,658	0
Estonia	Elering	2,725	25,498	2,388	25,498
Finland	Fingrid	99,930		32838	
France	RTE	52,000	438,000	98,000	440,000
Germany	Baltic Cable	51,450	119,304	0	0
	50 Hertz	322,693	17,437	111,122	27,563
	Amprion	181,747	81,105	296,210	4,360
	TTG	272,925	74,265	154,719	115,887
	TransnetBW	49,280	0	53,138	0
Greece	ADMIE				
Hungary	MAVIR	37,264	461,864	44,978	381,654
Ireland	EirGrid				
Italy	Terna				
Latvia	AST		124,987		124,987
Lithuania	Litgrid	35,800	39,180	35,800	39,180
Luxembourg	CREOS	26,302	0	31,064	0
Netherlands	TTN	30,000	0	180,000	830,000
Norway	Statnett	441,382	41,391	345,730	41,391
Poland	PSE	48,737	361,982	44,637	99,906
Portugal	REN	2,632	0	12,502	0
Romania	Transelectrica	0	0	0	0
Slovakia	SEPS	56,478	16,393	127,187	1,415,498
Slovenia	ELES	56,234	13,520	64,313	0
Spain	REE	23,773		14,752	
Sweden	Svenska kraftnät	177,338	128,632	357,304	253,834

Disclaimer: NEMOs 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 currently classified as sensitive commercial information. NEMOs will report, unless agreed otherwise on the national level, in harmonised level in two categories for each timeframe: Category A is the costs of representation in meetings and includes the time for preparation; Category B is the costs for national IT implementation solely related to market coupling.

Chapter D:

Contributions made to NEMO costs by TSOs in accordance with Article 76(2)

Table 70

Member State	TSO	Contributions made to NEMO costs by TSOs in accordance with Article 76(2) for the Day Ahead timeframe (€)	Contributions made to NEMO costs by TSOs in accordance with Article 76(2) for the Intraday timeframe (€)
Austria	APG	54,123	71,205
Belgium	Elia	21,439	19,030
Bulgaria	ESO		
Croatia	HOPS	173,423	
Czech Republic	ČEPS		
Denmark	Energinet /ELSO		
Estonia	Elering	49,476	
Finland	Fingrid		
France	RTE	599,028	557,818
Germany	Baltic Cable	0	0
	50 Hertz	93,794	53,248
	Amprion	102,220	77,763
	TTG	122,000	77,000
	TransnetBW	53,563	42,507
Greece	ADMIE		
Hungary	MAVIR	1,588,430	
Ireland	EirGrid		
Italy	Terna		
Latvia	AST		
Lithuania	Litgrid	65,213	
Luxembourg	CREOS	0	0
Netherlands	TTN		
Norway	Statnett		
Poland	PSE	129,598	127,527
Portugal	REN		
Romania	Transelectrica		
Slovakia	SEPS	0	0
Slovenia	ELES	740,178	464,609
Spain	REE		
Sweden	Svenska kraftnät	0	0

Disclaimer: Preliminary figures as national cost recovery for 2022 is not processed yet.

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 Systemen 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	FSF	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 Plc.
CMM	Capacity Management Module		
COMSG	Communication Support Group		

HR	Croatia	MAVIR	Magyar Villamosenergia-ipari Átviteli Rendszerirányító Zártkörűen Működő Részvénytársaság
HU	Hungary	MCO	Market Coupling Operator
HVDC	High Voltage Direct Current	ME	Montenegro
IAT	Integration Acceptance Test	MESC	Market Stakeholder Committee
IC	Incident Committee	MEPSO	Macedonian Transmission System Operator AD
ICG	Implementation Coordination Group	MK	Macedonia
ICP	Interim Coupling Project (coupling 4MMC and SDAC area on NTC based approach)	MNA	Multiple NEMOs Arrangements
ICT	Integrated Coordination 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
JAO	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		
LU	Luxembourg		
LWG	Legal Working Group		
MC	Market Coupling		

PMI	Public Message Interface	SONI	System Operator for Northern Ireland Ltd
PMI LAT	Public Message Interface Log Analysis tool	SWE	South Western Europe
PM	Project Management Officer	TCDA	TSO Cooperation Operational Agreement
PSE	Polskie Sieci Elektroenergetyczne	TCG	Trilateral Coordination Group
PT	Portugal	TCID	TSO Co-operation Agreement for Single Intraday Coupling
PUN	National Single Price	TCOA	TSO Co-operation Agreement for Day-ahead Coupling
PWG	Procedural WG	Terna	Terna - Rete Elettrica Nazionale SpA
QA&RM	Quality Assurance & Release Management	TF	Task Force
R&D	Research and Development	TSO	Transmission System Operator
RCB	Release Control Board	TWG	Technical WG
REE	Red Eléctrica de España S.A.U.	UAT	User Acceptance Tests
REN	Rede Eléctrica Nacional, S.A.	UK	United Kingdom
Rf	Request for Offer	WG	Working Group
RO	Romania	XBID	Cross-Border Intraday, a technical solution supporting SIDC implementation
RS	Serbia	XML	Extensible Markup Language (file type)
RTE	Réseau de Transport d'Electricité	XK	Kosovo
SARs	Shadow Allocation Rules	XTG	XBID Testing Group
SDAC	Single Day Ahead Coupling		
SE	Sweden		
SEM	Single Electricity Market (covering the Republic of Ireland and Northern Ireland)		The terms used in this document have the meaning of the definitions included in Article 2 of the CACM regulation.
SF	Simulation Facility		
SG	Support Group		
SI	Slovenia		
SIDC	Single Intraday Coupling		
SEE	South-East Europe		
SEPS	Slovenská elektrizačná prenosová sústava, a.s.		
SK	Slovakia		
SLA	Service Level Agreement		
SLA KPI	Service Level Agreement Key Performance Indicator		
SM	Shipping Module		
SOB	Shared Order Book		

Annex

Sharing keys for joint projects

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 71

Member State	TSO/ NEMO	Final Consumption of 2020 of SDAC Operational MS – Used for the costs of 2022	Traded volume (TV) 2021 DA (GWh) – Used for the costs of 2022	Shares MS Used for the costs of 2022	Share within MS of 1.1.2022 – 30.04.2022	Shares per Party used for the costs of of 1.1.2022 – 30.04.2022	Share within MS of 1.5.2022 – 30.06.2022	Shares per Party used for the costs of 1.5.2022 – 30.06.2022	Share within MS of 1.7.2022 – 31.12.2022
Austria	APG		0		50.000 %	1.170 %	50.000 %	1.170 %	50.000 %
Austria	EPEX SPOT		14,404		29.190 %	0.683 %	29.190 %	0.683 %	29.190 %
Austria	EXAA		5,133		13.978 %	0.327 %	13.978 %	0.327 %	13.978 %
Austria	EMCO		778		6.832 %	0.160 %	6.832 %	0.160 %	6.832 %
Austria		63,577	20,316	2.339 %	100.000 %	2.339 %	100.000 %	2.339 %	100.000 %
Belgium	ELIA		0		50.000 %	1.360 %	50.000 %	1.360 %	50.000 %
Belgium	EPEX SPOT		16,611		41.452 %	1.127 %	41.452 %	1.127 %	41.452 %
Belgium	EMCO		1,617		8.548 %	0.232 %	8.548 %	0.232 %	8.548 %
Belgium		80,748	18,227	2.720 %	100.000 %	2.720 %	100.000 %	2.720 %	100.000 %
Bulgaria	ESO		0		50.000 %	0.803 %	50.000 %	0.803 %	50.000 %
Bulgaria	IBEX		25,305		50.000 %	0.803 %	50.000 %	0.803 %	50.000 %
Bulgaria		29,817	25,305	1.605 %	100.000 %	1.605 %	100.000 %	1.605 %	100.000 %
Croatia	HOPS		0		50.000 %	0.470 %	50.000 %	0.470 %	50.000 %
Croatia	CROPEX		5,967		50.000 %	0.470 %	50.000 %	0.470 %	50.000 %
Croatia		15,578	5,967	0.939 %	100.000 %	0.939 %	100.000 %	0.939 %	100.000 %
Czech Republic	ČEPS		0		50.000 %	1.100 %	50.000 %	1.100 %	50.000 %
Czech Republic	OTE		19,307		50.000 %	1.100 %	50.000 %	1.100 %	50.000 %
Czech Republic		58,498	19,307	2.199 %	100.000 %	2.199 %	100.000 %	2.199 %	100.000 %
Denmark	Energinet		0		50.000 %	0.857 %	50.000 %	0.857 %	50.000 %
Denmark	EMCO		21,426		31.535 %	0.540 %	31.535 %	0.540 %	31.535 %
Denmark	EPEX		6,065		12.910 %	0.221 %	12.910 %	0.221 %	12.910 %
Denmark	Nasdaq		0		5.556 %	0.095 %	5.556 %	0.095 %	5.556 %
Denmark		32,804	27,491	1.714 %	100.000 %	1.714 %	100.000 %	1.714 %	100.000 %
Estonia	Elering		0		50.000 %	0.378 %	50.000 %	0.378 %	50.000 %
Estonia	EMCO		6,609		41.665 %	0.315 %	41.665 %	0.315 %	41.665 %
Estonia	EPEX SPOT		0		8.335 %	0.063 %	8.335 %	0.063 %	8.335 %
Estonia		7,540	6,609	0.755 %	100.000 %	0.755 %	100.000 %	0.755 %	100.000 %

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Finland	Fingrid		0		50.000 %	1.655 %	49.500 %	1.639 %	49.500 %
Finland	Kraftnät Åland		0		0.000 %	0.000 %	0.500 %	0.017 %	0.500 %
Finland	EMCO		54,814		37.298 %	1.235 %	37.298 %	1.235 %	37.298 %
Finland	EPEX		2,748		7.147 %	0.237 %	7.147 %	0.237 %	7.147 %
Finland	Nasdaq		0		5.556 %	0.184 %	5.556 %	0.184 %	5.556 %
Finland		78,144	57,562	3.311 %	100.000 %	3.311 %	100.000 %	3.311 %	100.000 %
France	RTE		0		50.000 %	6.233 %	50.000 %	6.233 %	50.000 %
France	EPEX		105,563		25.000 %	3.116 %	25.000 %	3.116 %	25.000 %
France	EMCO		4,629		25.000 %	3.116 %	25.000 %	3.116 %	25.000 %
France	Nasdaq		0		0.000 %	0.000 %	0.000 %	0.000 %	0.000 %
France		420,356	110,192	12.466 %	100.000 %	12.466 %	100.000 %	12.466 %	100.000 %
Germany	50 Hertz		0		22.057 %	3.508 %	22.057 %	3.508 %	22.057 %
Germany	Amprion		0		31.640 %	5.032 %	31.640 %	5.032 %	31.640 %
Germany	TenneT DE		0		28.037 %	4.459 %	28.037 %	4.459 %	28.037 %
Germany	Transnet		0		17.266 %	2.746 %	17.266 %	2.746 %	17.266 %
Germany	Baltic Cable		0		1.000 %	0.159 %	1.000 %	0.159 %	1.000 %
Germany	EPEX		180,853		0.000 %	0.000 %	0.000 %	0.000 %	0.000 %
Germany	EMCO		19,452		0.000 %	0.000 %	0.000 %	0.000 %	0.000 %
Germany	EXAA		15,189		0.000 %	0.000 %	0.000 %	0.000 %	0.000 %
Germany	Nasdaq		0		0.000 %	0.000 %	0.000 %	0.000 %	0.000 %
Germany		490,054	215,494	15.903 %	100.000 %	15.903 %	100.000 %	15.903 %	100.000 %
Greece	ADMIE		0		50.000 %	1.278 %	50.000 %	1.278 %	50.000 %
Greece	Henex		54,850		50.000 %	1.278 %	50.000 %	1.278 %	50.000 %
Greece		48,847	54,850	2.557 %	100.000 %	2.557 %	100.000 %	2.557 %	100.000 %
Hungary	Mavir		0		50.000 %	0.910 %	50.000 %	0.910 %	50.000 %
Hungary	HUPX		21,847		50.000 %	0.910 %	50.000 %	0.910 %	50.000 %
Hungary		41,083	21,847	1.820 %	100.000 %	1.820 %	100.000 %	1.820 %	100.000 %
Ireland	EirGrid (TSO)		0		50.000 %	0.847 %	50.000 %	0.847 %	50.000 %
Ireland	EirGrid (NEMO)		32,161		50.000 %	0.847 %	50.000 %	0.847 %	50.000 %
Ireland	EMCO		0		0.000 %	0.000 %	0.000 %	0.000 %	0.000 %
Ireland		28,784	32,161	1.694 %	100.000 %	1.694 %	100.000 %	1.694 %	100.000 %
Italy	Terna		0		50.000 %	5.968 %	50.000 %	5.968 %	50.000 %
Italy	GME		277,035		50.000 %	5.968 %	50.000 %	5.968 %	50.000 %
Italy		283,815	277,035	11.936 %	100.000 %	11.936 %	100.000 %	11.936 %	100.000 %
Latvia	AST		0		50.000 %	0.379 %	50.000 %	0.379 %	50.000 %

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Latvia	EMCO		7,957		41.667 %	0.315 %	41.667 %	0.315 %	41.667 %
Latvia	EPEX		0		8.333 %	0.063 %	8.333 %	0.063 %	8.333 %
Latvia		6,689	7,957	0.757 %	100.000 %	0.757 %	100.000 %	0.757 %	100.000 %
Lithuania	Litgrid		0		50.000 %	0.442 %	50.000 %	0.442 %	50.000 %
Lithuania	EMCO		9,140		41.667 %	0.369 %	41.667 %	0.369 %	41.667 %
Lithuania	EPEX		0		8.333 %	0.074 %	8.333 %	0.074 %	8.333 %
Lithuania		11,155	9,140	0.885 %	100.000 %	0.885 %	100.000 %	0.885 %	100.000 %
Luxembourg	CREOS		0		100.000 %	0.611 %	100.000 %	0.611 %	100.000 %
Luxembourg	EPEX		0		0.000 %	0.000 %	0.000 %	0.000 %	0.000 %
Luxembourg	EMCO		0		0.000 %	0.000 %	0.000 %	0.000 %	0.000 %
Luxembourg	Nasdaq		0		0.000 %	0.000 %	0.000 %	0.000 %	0.000 %
Luxembourg		6,120	0	0.611 %	100.000 %	0.611 %	100.000 %	0.611 %	100.000 %
Netherlands	Tennet BV		0		50.000 %	1.885 %	50.000 %	1.885 %	50.000 %
Netherlands	EPEX		25,392		38.494 %	1.451 %	38.494 %	1.451 %	38.494 %
Netherlands	EMCO		7,590		11.506 %	0.434 %	11.506 %	0.434 %	11.506 %
Netherlands		113,994	32,982	3.770 %	100.000 %	3.770 %	100.000 %	3.770 %	100.000 %
Poland	PSE		0		50.000 %	2.079 %	50.000 %	2.079 %	50.000 %
Poland	TGE		5,687		34.705 %	1.443 %	34.705 %	1.443 %	34.705 %
Poland	EPEX		782		9.566 %	0.398 %	9.566 %	0.398 %	9.566 %
Poland	EMCO		34		5.729 %	0.238 %	5.729 %	0.238 %	5.729 %
Poland		148,241	6,503	4.158 %	100.000 %	4.158 %	100.000 %	4.158 %	100.000 %
Portugal	REN		0		50.000 %	1.250 %	50.000 %	1.250 %	50.000 %
Portugal	OMIE		53,915		50.000 %	1.250 %	50.000 %	1.250 %	50.000 %
Portugal		47,179	53,915	2.501 %	100.000 %	2.501 %	100.000 %	2.501 %	100.000 %
Romania	Transelectrica		0		50.000 %	1.012 %	50.000 %	1.012 %	50.000 %
Romania	OPCOM		23,937		50.000 %	1.012 %	50.000 %	1.012 %	50.000 %
Romania		48,063	23,937	2.024 %	100.000 %	2.024 %	100.000 %	2.024 %	100.000 %
Slovakia	SEPS		0		50.000 %	0.589 %	50.000 %	0.589 %	50.000 %
Slovakia	OKTE		7,072		50.000 %	0.589 %	50.000 %	0.589 %	50.000 %
Slovakia		24,695	7,072	1.178 %	100.000 %	1.178 %	100.000 %	1.178 %	100.000 %
Slovenia	ELES		0		50.000 %	0.457 %	50.000 %	0.457 %	50.000 %
Slovenia	BSP		8,125		50.000 %	0.457 %	50.000 %	0.457 %	50.000 %
Slovenia		13,047	8,125	0.914 %	100.000 %	0.914 %	100.000 %	0.914 %	100.000 %
Spain	REE		0		50.000 %	4.447 %	50.000 %	4.447 %	50.000 %

Table 71

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Spain	OMIE		176,492		50.000 %	4.447 %	50.000 %	4.447 %	50.000 %
Spain		227,172	176,492	8.894 %	100.000 %	8.894 %	100.000 %	8.894 %	100.000 %
Sweden	Affärsverket svenska kraftnät		0		50.000 %	2.879 %	50.000 %	2.879 %	50.000 %
Sweden	EMCO		125,821		36.476 %	2.101 %	36.476 %	2.101 %	36.476 %
Sweden	EPEX		9,821		7.969 %	0.459 %	7.969 %	0.459 %	7.969 %
Sweden	Nasdaq		0		5.556 %	0.320 %	5.556 %	0.320 %	5.556 %
Sweden		125,678	135,642	5.759 %	100.000 %	5.759 %	100.000 %	5.759 %	100.000 %
Northern Ireland	EMCO		0		0.000 %	0.000 %	0.000 %	0.000 %	0.000 %
Northern Ireland	SONI (TSO)		0		100.000 %	0.822 %	100.000 %	0.822 %	100.000 %
Northern Ireland	SONI (NEMO)		8,498		0.000 %	0.000 %	0.000 %	0.000 %	0.000 %
Northern Ireland		9,000	8,498	0.822 %	100.000 %	0.822 %	100.000 %	0.822 %	100.000 %
Norway	Statnett		0		50.000 %	2.886 %	50.000 %	2.886 %	50.000 %
Norway	EPEX		5,781		9.698 %	0.560 %	9.698 %	0.560 %	6.920 %
Norway	Nasdaq		0		0.000 %	0.000 %	0.000 %	0.000 %	5.556 %
Norway	EMCO		135,476		40.302 %	2.326 %	40.302 %	2.326 %	37.525 %
Norway		122,325	141,257	5.771 %	100.000 %	5.771 %	100.000 %	5.771 %	100.000 %

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

Table 72

Member State	TSO/NEMO	Final Consumption of 2020 of SDAC Operational MS – Used for the costs of 2022	Traded volume (TV) 2021 DA (GWh) – Used for the costs of 2022	Shares MS Used for the costs of 2022	Share within MS of 1.1.2022 – 30.4.2022	Shares per Party used for the costs of 1.1.2022 – 30.4.2022
Austria	APG		0		50.000 %	1.180 %
Austria	EPEX		14,404		29.190 %	0.689 %
Austria	EXAA		5,133		13.978 %	0.330 %
Austria	EMCO		778		6.832 %	0.161 %
Austria		63,577	20,316	2.360 %	100.000 %	2.360 %
Belgium	ELIA		0		50.000 %	1.371 %
Belgium	EPEX		16,611		41.452 %	1.137 %
Belgium	EMCO		1,617		8.548 %	0.234 %
Belgium		80,748	18,227	2.742 %	100.000 %	2.742 %
Bulgaria	ESO		0		50.000 %	0.812 %
Bulgaria	IBEX		25,305		50.000 %	0.812 %
Bulgaria		29,817	25,305	1.625 %	100.000 %	1.625 %
Croatia	HOPS		0		50.000 %	0.479 %
Croatia	CROPEX		5,967		50.000 %	0.479 %
Croatia		15,578	5,967	0.958 %	100.000 %	0.958 %
Czech Republic	ČEPS		0		50.000 %	1.110 %
Czech Republic	OTE		19,307		50.000 %	1.110 %
Czech Republic		58,498	19,307	2.221 %	100.000 %	2.221 %
Denmark	ELSO		0		50.000 %	0.867 %
Denmark	EMCO		21,426		34.312 %	0.595 %
Denmark	EPEX		6,065		15.688 %	0.272 %
Denmark	Nasdaq		0		0.000 %	0.000 %
Denmark		32,804	27,491	1.733 %	100.000 %	1.733 %
Estonia	Elering		0		50.000 %	0.387 %
Estonia	EMCO		6,609		41.665 %	0.322 %
Estonia	EPEX		0		8.335 %	0.064 %
Estonia		7,540	6,609	0.774 %	100.000 %	0.774 %
Finland	Fingrid		0		50.000 %	1.666 %
Finland	Kraftnät Åland		0		0.000 %	0.000 %
Finland	EMCO		54,814		40.075 %	1.336 %
Finland	EPEX		2,748		9.925 %	0.331 %
Finland	Nasdaq		0		0.000 %	0.000 %
Finland		78,144	57,562	3.333 %	100.000 %	3.333 %

Table 72

Member State	TSO/NEMO	Final Consumption of 2020 of SDAC Operational MS – Used for the costs of 2022	Traded volume (TV) 2021 DA (GWh) – Used for the costs of 2022	Shares MS Used for the costs of 2022	Share within MS of 1.1.2022 – 30.4.2022	Shares per Party used for the costs of 1.1.2022 – 30.4.2022
France	RTE		0		50.000 %	6.254 %
France	EPEX		105,563		47.899 %	5.991 %
France	EMCO		4,629		2.101 %	0.263 %
France	Nasdaq		0		0.000 %	0.000 %
France		420,356	110,192	12.508 %	100.000 %	12.508 %
Germany	50 Hertz		0		22.057 %	3.518 %
Germany	Amprion		0		31.640 %	5.046 %
Germany	TenneT DE		0		28.037 %	4.472 %
Germany	Transnet		0		17.266 %	2.754 %
Germany	Baltic Cable		0		1.000 %	0.159 %
Germany	EPEX		180,853		0.000 %	0.000 %
Germany	EMCO		19,452		0.000 %	0.000 %
Germany	EXAA		15,189		0.000 %	0.000 %
Germany	Nasdaq		0		0.000 %	0.000 %
Germany		490,054	215,494	15.949 %	100.000 %	15.949 %
Greece	ADMIE		0		50.000 %	1.289 %
Greece	Henex		54,850		50.000 %	1.289 %
Greece		48,847	54,850	2.577 %	100.000 %	2.577 %
Hungary	Mavir		0		50.000 %	0.920 %
Hungary	HUPX		21,847		50.000 %	0.920 %
Hungary		41,083	21,847	1.840 %	100.000 %	1.840 %
Ireland	EirGrid (TSO)		0		50.000 %	0.857 %
Ireland	EirGrid (NEMO)		32,161		50.000 %	0.857 %
Ireland	EMCO		0		0.000 %	0.000 %
Ireland		28,784	32,161	1.714 %	100.000 %	1.714 %
Italy	Terna		0		50.000 %	5.985 %
Italy	GME		277,035		50.000 %	5.985 %
Italy		283,815	277,035	11.970 %	100.000 %	11.970 %
Latvia	AST		0		50.000 %	0.388 %
Latvia	EMCO		7,957		41.667 %	0.323 %
Latvia	EPEX		0		8.333 %	0.065 %
Latvia		6,689	7,957	0.775 %	100.000 %	0.775 %

Table 72

Member State	TSO/NEMO	Final Consumption of 2020 of SDAC Operational MS – Used for the costs of 2022	Traded volume (TV) 2021 DA (GWh) – Used for the costs of 2022	Shares MS Used for the costs of 2022	Share within MS of 1.1.2022 – 30.4.2022	Shares per Party used for the costs of 1.1.2022 – 30.4.2022
Lithuania	Litgrid		0		50.000 %	0.452 %
Lithuania	EMCO		9,140		41.670 %	0.376 %
Lithuania	EPEX		0		8.330 %	0.075 %
Lithuania		11,155	9,140	0.903 %	100.000 %	0.903 %
Luxembourg	CREOS					
Luxembourg	EPEX					
Luxembourg	EMCO					
Luxembourg	Nasdaq					
Luxembourg						
Netherlands	TenneT BV		0		50.000 %	1.897 %
Netherlands	EPEX		25,392		38.494 %	1.460 %
Netherlands	EMCO		7,590		11.506 %	0.437 %
Netherlands		113,994	32,982	3.794 %	100.000 %	3.794 %
Poland	PSE		0		50.000 %	2.092 %
Poland	TGE		5,687		34.705 %	1.452 %
Poland	EPEX		782		9.566 %	0.400 %
Poland	EMCO		34		5.729 %	0.240 %
Poland		148,241	6,503	4.184 %	100.000 %	4.184 %
Portugal	REN		0		50.000 %	1.261 %
Portugal	OMIE		53,915		50.000 %	1.261 %
Portugal		47,179	53,915	2.521 %	100.000 %	2.521 %
Romania	Transelectrica		0		50.000 %	1.022 %
Romania	OPCOM		23,937		50.000 %	1.022 %
Romania		48,063	23,937	2.044 %	100.000 %	2.044 %
Slovakia	SEPS		0		50.000 %	0.599 %
Slovakia	OKTE		7,072		50.000 %	0.599 %
Slovakia		24,695	7,072	1.197 %	100.000 %	1.197 %
Slovenia	ELES		0		50.000 %	0.466 %
Slovenia	BSP		8,125		50.000 %	0.466 %
Slovenia		13,047	8,125	0.932 %	100.000 %	0.932 %
Spain	REE		0		50.000 %	4.462 %
Spain	OMIE		176,492		50.000 %	4.462 %
Spain		227,172	176,492	8.925 %	100.000 %	8.925 %

Table 72

Member State	TSO/NEMO	Final Consumption of 2020 of SDAC Operational MS – Used for the costs of 2022	Traded volume (TV) 2021 DA (GWh) – Used for the costs of 2022	Shares MS Used for the costs of 2022	Share within MS of 1.1.2022 – 30.4.2022	Shares per Party used for the costs of 1.1.2022 – 30.4.2022
Sweden	Affärsverket svenska kraftnät		0		50.000 %	2.892 %
Sweden	EMCO		125,821		39.253 %	2.270 %
Sweden	EPEX		9,821		10.747 %	0.622 %
Sweden	Nasdaq		0		0.000 %	0.000 %
Sweden		125,678	135,642	5.784 %	100.000 %	5.784 %
Northern Ireland	EMCO		0		0.000 %	0.000 %
Northern Ireland	SONI (TSO)		0		100.000 %	0.840 %
Northern Ireland	SONI (NEMO)		8,498		0.000 %	0.000 %
Northern Ireland		9,000	8,498	0.840 %	100.000 %	0.840 %
Norway	Statnett		0		50.000 %	2.898 %
Norway	EPEX		5,781		9.698 %	0.562 %
Norway	EMCO		135,476		40.302 %	2.336 %
Norway		122,325	141,257	5.796 %	100.000 %	5.796 %

1.3 The following sharing key was used for the sharing of all NEMOs costs of establishing and amending the SDAC in 2022

For Q1 and Q2 of 2022

Table 73

Member State	Final consumption in 2020 according to Report nrg_cb_e (14/02/2022) in GWh	Traded volume 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	MS share to be used for sharing of SDAC costs in 2022	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2022 – establishing and amending	CACM Share – SDAC to be used for sharing of SDAC costs in 2022 – establishing and amending
Austria	63,577.13	14,404.45	2.3390 %	EPEX	58.3799 %	1.3655 %
		5,133.00		EXAA	27.9553 %	0.6539 %
		778.20		EMCO	13.6648 %	0.3196 %
Belgium	80,748.40	16,610.78	2.7198 %	EPEX	82.9047 %	2.2549 %
		1,616.60		EMCO	17.0953 %	0.4650 %
Bulgaria	29,817.03	25,305.41	1.6051 %	IBEX	100.0000 %	1.6051 %
Croatia	15,578.00	5,967.00	0.9391 %	CROPEX	100.0000 %	0.9391 %
Czech Republic	58,497.96	19,307.08	2.1994 %	OTE	100.0000 %	2.1994 %
Denmark	32,803.82	21,425.50	1.7137 %	EMCO	63.0690 %	1.0808 %
		6,065.35		EPEX	25.8199 %	0.4425 %
		N/A		NASDAQ	11.1111 %	0.1904 %
Estonia	7,540.06	6,609.40	0.7553 %	EMCO	83.3300 %	0.6294 %
		0.00		EPEX	16.6667 %	0.1259 %
Finland	78,144.00	54,814.00	3.3107 %	EMCO	74.5950 %	2.4696 %
		2,748.09		EPEX	14.2939 %	0.4732 %
		N/A		NASDAQ	11.1111 %	0.3679 %
France	420,355.86	105,562.57	12.4660 %	EPEX	50.0000 %	6.2330 %
		N/A		NASDAQ	0.0000 %	0.0000 %
		4,629.40		EMCO	50.0000 %	6.2330 %
Germany	490,054.00	180,853.36	15.9029 %	EPEX	25.0000 %	3.9757 %
		19,451.70		EMCO	25.0000 %	3.9757 %
		N/A		NASDAQ	25.0000 %	3.9757 %
		15,189.00		EXAA	25.0000 %	3.9757 %
Greece	48,847.37	54,850.00	2.5567 %	HENEX	100.0000 %	2.5567 %
Hungary	41,083.00	21,846.61	1.8202 %	HUPX	100.0000 %	1.8202 %
Ireland	28,783.97	32,161.00	1.6941 %	EirGRID	100.0000 %	1.6941 %
Italy	283,814.52	0.00	11.9357 %	EMCO		
Latvia	6,688.88	277,034.79	0.7571 %	GME	100.0000 %	11.9357 %
		7,956.50		EMCO	83.3300 %	0.6309 %
Lithuania	11,155.00	0.00	0.8848 %	EPEX	16.6667 %	0.1262 %
		9,139.60		EMCO	83.3300 %	0.7373 %

Table 73

Member State	Final consumption in 2020 according to Report nrg_cb_e (14/02/2022) in GWh	Traded volume 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	MS share to be used for sharing of SDAC costs in 2022	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2022 – establishing and amending	CACM Share – SDAC to be used for sharing of SDAC costs in 2022 – establishing and amending
Luxembourg	6,119.51	0.00	0.6110 %	EPEX	33.3333 %	0.2037 %
		N/A		NASDAQ	33.3333 %	0.2037 %
		0.00		EMCO	33.3333 %	0.2037 %
Netherlands	113,993.50	25,392.23	3.7695 %	EPEX	76.9878 %	2.9021 %
		7,589.90		EMCO	23.0122 %	0.8674 %
Poland	148,241.11	5,687.00	4.1580 %	TGE	69.4106 %	2.8861 %
		782.40		EPEX	19.1318 %	0.7955 %
		33.80		EMCO	11.4576 %	0.4764 %
Portugal	47,179.28	53,915.00	2.5008 %	OMIE	100.0000 %	2.5008 %
Romania	48,062.64	23,937.14	2.0238 %	OPCOM	100.0000 %	2.0238 %
Slovakia	24,695.00	7,071.65	1.1781 %	OKTE	100.0000 %	1.1781 %
Slovenia	13,046.91	8,125.00	0.9137 %	BSP	100.0000 %	0.9137 %
Spain	227,172.00	176,492.00	8.8937 %	OMIE	100.0000 %	8.8937 %
Sweden	125,678.00	125,821.10	5.7588 %	EMCO	72.9510 %	4.2011 %
		9,820.65		EPEX	15.9379 %	0.9178 %
		N/A		NASDAQ	11.1111 %	0.6399 %
Northern Ireland (calculated as part of 9 TWh of UK)	9,000.00	8,498.00	0.8103 %	SONI	100.000 %	0.8220 %
Norway	122,325.12	5,781.41	5.7710 %	EPEX	19.3952 %	1.1193 %
		135,475.80		EMCO	80.6048 %	4.6517 %
Total/Checksum	2,583,002.07	1,503,882.47	100.000 %			100.000 %

Table 74

Member State	Final consumption in 2020 according to Report nrg_cb_e (14/02/2022) in GWh	Traded volume 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	MS share to be used for sharing of SDAC costs in 2022	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2022 – establishing and amending	CACM Share – SDAC to be used for sharing of SDAC costs in 2022 – establishing and amending
Austria	63,577.13	14,404.45	2.3390 %	EPEX	58.3799 %	1.3655 %
		5,133.00		EXAA	27.9553 %	0.6539 %
		778.20		EMCO	13.6648 %	0.3196 %
Belgium	80,748.40	16,610.78	2.7198 %	EPEX	82.9047 %	2.2549 %
		1,616.60		EMCO	17.0953 %	0.4650 %
Bulgaria	29,817.03	25,305.41	1.6051 %	IBEX	100.0000 %	1.6051 %
Croatia	15,578.00	5,967.00	0.9391 %	CROPEX	100.0000 %	0.9391 %
Czech Republic	58,497.96	19,307.08	2.1994 %	OTE	100.0000 %	2.1994 %
Denmark	32,803.82	21,425.50	1.7137 %	EMCO	63.0690 %	1.0808 %
		6,065.35		EPEX	25.8199 %	0.4425 %
		N/A		NASDAQ	11.1111 %	0.1904 %
Estonia	7,540.06	6,609.40	0.7553 %	EMCO	83.3333 %	0.6294 %
		0.00		EPEX	16.6667 %	0.1259 %
Finland	78,144.00	54,814.00	3.3107 %	EMCO	74.5950 %	2.4696 %
		2,748.09		EPEX	14.2939 %	0.4732 %
		N/A		NASDAQ	11.1111 %	0.3679 %
France	420,355.86	105,562.57	12.4660 %	EPEX	50.0000 %	6.2330 %
		N/A		NASDAQ	0.0000 %	0.0000 %
		4,629.40		EMCO	50.0000 %	6.2330 %
Germany	490,054.00	180,853.36	15.9029 %	EPEX	33.3333 %	5.3010 %
		19,451.70		EMCO	33.3333 %	5.3010 %
		N/A		NASDAQ	0.0000 %	0.0000 %
		15,189.00		EXAA	33.3333 %	5.3010 %
Greece	48,847.37	54,850.00	2.5567 %	HENEX	100.0000 %	2.5567 %
Hungary	41,083.00	21,846.61	1.8202 %	HUPX	100.0000 %	1.8202 %
Ireland	28,783.97	32,161.00	1.6941 %	EirGRID	100.0000 %	1.6941 %
		0.00		EMCO	0.0000 %	0.0000 %
Italy	283,814.52	277,034.79	11.9357 %	GME	100.0000 %	11.9357 %
Latvia	6,688.88	7,956.50	0.7571 %	EMCO	83.3333 %	0.6309 %
		0.00		EPEX	16.6667 %	0.1262 %
Lithuania	11,155.00	9,139.60	0.8848 %	EMCO	83.3333 %	0.7373 %
		0.00		EPEX	16.6667 %	0.1475 %

Table 74

Member State	Final consumption in 2020 according to Report nrg_cb_e (14/02/2022) in GWh	Traded volume 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	MS share to be used for sharing of SDAC costs in 2022	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2022 – establishing and amending	CACM Share – SDAC to be used for sharing of SDAC costs in 2022 – establishing and amending
Luxembourg	6,119.51	0.00	0.6110 %	EPEX	50.0000 %	0.3055 %
		N/A		NASDAQ	0.0000 %	0.0000 %
		0.00		EMCO	50.0000 %	0.3055 %
Netherlands	113,993.50	25,392.23	3.7695 %	EPEX	76.9878 %	2.9021 %
		7,589.90		EMCO	23.0122 %	0.8674 %
Poland	148,241.11	5,687.00	4.1580 %	TGE	69.4106 %	2.8861 %
		782.40		EPEX	19.1318 %	0.7955 %
		33.80		EMCO	11.4576 %	0.4764 %
Portugal	47,179.28	53,915.00	2.5008 %	OMIE	100.0000 %	2.5008 %
Romania	48,062.64	23,937.14	2.0238 %	OPCOM	100.0000 %	2.0238 %
Slovakia	24,695.00	7,071.65	1.1781 %	OKTE	100.0000 %	1.1781 %
Slovenia	13,046.91	8,125.00	0.9137 %	BSP	100.0000 %	0.9137 %
Spain	227,172.00	176,492.00	8.8937 %	OMIE	100.0000 %	8.8937 %
Sweden	125,678.00	125,821.10	5.7588 %	EMCO	72.9510 %	4.2011 %
		9,820.65		EPEX	15.9379 %	0.9178 %
		N/A		NASDAQ	11.1111 %	0.6399 %
Northern Ireland (calculated as part of 9 TWh of UK)	9,000.00	8,498.00	0.8220 %	SONI	100.0000 %	0.8220 %
Norway	122,325.12	5,781.41	5.7710 %	EPEX	13.8397 %	0.7987 %
		N/A		NASDAQ	11.1111 %	0.6412 %
		135,475.80		EMCO	75.0492 %	4.3311 %
Total/Checksum	2,583,002.07	1,503,882.47	100.000 %			100.000 %

1.4 The following sharing key was used for sharing of all NEMOs costs of operating

For Q1 and Q2 of 2022

Table 75

Member State	Final consumption in 2020 according to Report nrg_cb_e (14/02/2022) in GWh	Traded volume 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	MS share to be used for sharing of SDAC costs in 2022 – operating	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2022 – operating	CACM Share – SDAC to be used for sharing of SDAC costs in 2022 – operating
Austria	63,577.13	14,404.45	2.3605 %	EPEX	58.3799 %	1.3781 %
		5,133.00		EXAA	27.9553 %	0.6599 %
		778.20		EMCO	13.6648 %	0.3226 %
Belgium	80,748.40	16,610.78	2.7423 %	EPEX	82.9047 %	2.2735 %
		1,616.60		EMCO	17.0953 %	0.4688 %
Bulgaria	29,817.03	25,305.41	1.6246 %	IBEX	100.0000 %	1.6246 %
Croatia	15,578.00	5,967.00	0.9578 %	CROPEX	100.0000 %	0.9578 %
Czech Republic	58,497.96	19,307.08	2.2205 %	OTE	100.0000 %	2.2205 %
Denmark	32,803.82	21,425.50	1.7334 %	EMCO	68.6246 %	1.1895 %
		6,065.35		EPEX	31.3754 %	0.5439 %
		N/A		NASDAQ	0.0000 %	0.0000 %
Estonia	7,540.06	6,609.40	0.7735 %	EMCO	83.3300 %	0.6446 %
		0.00		EPEX	16.6667 %	0.1289 %
Finland	78,144.00	54,814.00	3.3330 %	EMCO	80.1506 %	2.6714 %
		2,748.09		EPEX	19.8494 %	0.6616 %
		N/A		NASDAQ	0.0000 %	0.0000 %
France	420,355.86	105,562.57	12.5079 %	EPEX	95.7988 %	11.9824 %
		N/A		NASDAQ	0.0000 %	0.0000 %
		4,629.40		EMCO	4.2012 %	0.5255 %
Germany	490,054.00	180,853.36	15.9489 %	EPEX	33.3333 %	5.3163 %
		19,451.70		EMCO	33.3333 %	5.3163 %
		N/A		NASDAQ	0.0000 %	0.0000 %
		15,189.00		EXAA	33.3333 %	5.3163 %
Greece	48,847.37	54,850.00	2.5773 %	HENEX	100.0000 %	2.5773 %
Hungary	41,083.00	21,846.61	1.8404 %	HUPX	100.0000 %	1.8404 %
Ireland	28,783.97	32,161.00	1.7135 %	EirGRID	100.0000 %	1.7135 %
		0.00		EMCO		
Italy	283,814.52	277,034.79	11.9698 %	GME	100.0000 %	11.9698 %
Latvia	6,688.88	7,956.50	0.7753 %	EMCO	83.3300 %	0.6460 %
		0.00		EPEX	16.6667 %	0.1292 %
Lithuania	11,155.00	9,139.60	0.9033 %	EMCO	83.3300 %	0.7527 %
		0.00		EPEX	16.6667 %	0.1505 %

Table 75

Member State	Final consumption in 2020 according to Report nrg_cb_e (14/02/2022) in GWh	Traded volume 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	MS share to be used for sharing of SDAC costs in 2022 – operating	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2022 – operating	CACM Share – SDAC to be used for sharing of SDAC costs in 2022 – operating
Luxembourg	6,119.51	0.00		EPEX	0.0000 %	0.0000 %
		N/A		NASDAQ	0.0000 %	0.0000 %
		0.00		EMCO	0.0000 %	0.0000 %
Netherlands	113,993.50	25,392.23	3.7939 %	EPEX	76.9878 %	2.9208 %
		7,589.90		EMCO	23.0122 %	0.8730 %
Poland	148,241.11	5,687.00	4.1843 %	TGE	69.4106 %	2.9044 %
		782.40		EPEX	19.1318 %	0.8005 %
		33.80		EMCO	11.4576 %	0.4794 %
Portugal	47,179.28	53,915.00	2.5213 %	OMIE	100.0000 %	2.5213 %
Romania	48,062.64	23,937.14	2.0444 %	OPCOM	100.0000 %	2.0444 %
Slovakia	24,695.00	7,071.65	1.1973 %	OKTE	100.0000 %	1.1973 %
Slovenia	13,046.91	8,125.00	0.9323 %	BSP	100.0000 %	0.9323 %
Spain	227,172.00	176,492.00	8.9246 %	OMIE	100.0000 %	8.9246 %
Sweden	125,678.00	125,821.10	5.7838 %	EMCO	78.5066 %	4.5407 %
		9,820.65		EPEX	21.4934 %	1.2431 %
		N/A		NASDAQ	0.0000 %	0.0000 %
Northern Ireland (calculated as part of 9 TWh of UK)	9,000.00	8,498.00	0.8403 %	SONI	100.0000 %	0.8403 %
Norway	122,325.12	0.00	5.7959 %	EMCO		
		5,781.41		EPEX	19.3952 %	1.1241 %
		135,475.80		EMCO	80.6048 %	4.6717 %
Total/Checksum	2,583,002.07	1,503,882.47	100.000 %			100.000 %

Member State	Final consumption in 2020 according to Report nrg_cb_e (14/02/2022) in GWh	Traded volume 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	MS share to be used for sharing of SDAC costs in 2022 – operating	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2022 – operating	CACM Share – SDAC to be used for sharing of SDAC costs in 2022 – operating
Austria	63,577.13	14,404.45	2.3605 %	EPEX	58.3799 %	1.3781 %
		5,133.00		EXAA	27.9553 %	0.6599 %
		778.20		EMCO	13.6648 %	0.3226 %
Belgium	80,748.40	16,610.78	2.7423 %	EPEX	82.9047 %	2.2735 %
		1,616.60		EMCO	17.0953 %	0.4688 %
Bulgaria	29,817.03	25,305.41	1.6246 %	IBEX	100.0000 %	1.6246 %
Croatia	15,578.00	5,967.00	0.9578 %	CROPEX	100.0000 %	0.9578 %
Czech Republic	58,497.96	19,307.08	2.2205 %	OTE	100.0000 %	2.2205 %
Denmark	32,803.82	21,425.50	1.7334 %	EMCO	68.6246 %	1.1895 %
		6,065.35		EPEX	31.3754 %	0.5439 %
		N/A		NASDAQ	0.0000 %	0.0000 %
Estonia	7,540.06	6,609.40	0.7735 %	EMCO	83.3333 %	0.6446 %
		0.00		EPEX	16.6667 %	0.1289 %
Finland	78,144.00	54,814.00	3.3330 %	EMCO	80.1506 %	2.6714 %
		2,748.09		EPEX	19.8494 %	0.6616 %
		N/A		NASDAQ	0.0000 %	0.0000 %
France	420,355.86	105,562.57	12.5079 %	EPEX	95.7988 %	11.9824 %
		N/A		NASDAQ	0.0000 %	0.0000 %
		4,629.40		EMCO	4.2012 %	0.5255 %
Germany	490,054.00	180,853.36	15.9489 %	EPEX	33.3333 %	5.3163 %
		19,451.70		EMCO	33.3333 %	5.3163 %
		N/A		NASDAQ	0.0000 %	0.0000 %
		15,189.00		EXAA	33.3333 %	5.3163 %
Greece	48,847.37	54,850.00	2.5773 %	HENEX	100.0000 %	2.5773 %
Hungary	41,083.00	21,846.61	1.8404 %	HUPX	100.0000 %	1.8404 %
Ireland	28,783.97	32,161.00	1.7135 %	EirGRID	100.0000 %	1.7135 %
		0.00		EMCO	0.0000 %	0.0000 %
Italy	283,814.52	277,034.79	11.9698 %	GME	100.0000 %	11.9698 %
Latvia	6,688.88	7,956.50	0.7753 %	EMCO	83.3333 %	0.6461 %
		0.00		EPEX	16.6667 %	0.1292 %
Lithuania	11,155.00	9,139.60	0.9033 %	EMCO	83.3333 %	0.7527 %
		0.00		EPEX	16.6667 %	0.1505 %

Table 76

Member State	Final consumption in 2020 according to Report nrg_cb_e (14/02/2022) in GWh	Traded volume 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	MS share to be used for sharing of SDAC costs in 2022 – operating	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2022 – operating	CACM Share – SDAC to be used for sharing of SDAC costs in 2022 – operating
Luxembourg	6,119.51	0.00		EPEX	0.0000 %	0.0000 %
		N/A		NASDAQ	0.0000 %	0.0000 %
		0.00		EMCO	0.0000 %	0.0000 %
Netherlands	113,993.50	25,392.23	3.7939 %	EPEX	76.9878 %	2.9208 %
		7,589.90		EMCO	23.0122 %	0.8730 %
Poland	148,241.11	5,687.00	4.1843 %	TGE	69.4106 %	2.9044 %
		782.40		EPEX	19.1318 %	0.8005 %
		33.80		EMCO	11.4576 %	0.4794 %
Portugal	47,179.28	53,915.00	2.5213 %	OMIE	100.0000 %	2.5213 %
Romania	48,062.64	23,937.14	2.0444 %	OPCOM	100.0000 %	2.0444 %
Slovakia	24,695.00	7,071.65	1.1973 %	OKTE	100.0000 %	1.1973 %
Slovenia	13,046.91	8,125.00	0.9323 %	BSP	100.0000 %	0.9323 %
Spain	227,172.00	176,492.00	8.9246 %	OMIE	100.0000 %	8.9246 %
Sweden	125,678.00	125,821.10	5.7838 %	EMCO	78.5066 %	4.5407 %
		9,820.65		EPEX	21.4934 %	1.2431 %
		N/A		NASDAQ	0.0000 %	0.0000 %
Northern Ireland (calculated as part of 9 TWh of UK)	9,000.00	8,498.00	0.8403 %	SONI	100.0000 %	0.8403 %
Norway	122,325.12	5,781.41	5.7959 %	EPEX	19.3952 %	1.1241 %
		N/A		NASDAQ	0.0000 %	0.0000 %
		135,475.80		EMCO	80.6048 %	4.6717 %
Total/Checksum	2,583,002.07	1,503,882.47	100.000 %			100.000 %

1.5 The following sharing key was used for sharing of all TSOs costs of establishing and amending the SDAC in 2022

Table 77

Member State	TSO/NEMO	Final Consumption of 2020 of SDAC Operational MS	Traded volume (TV) 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	Shares MS as used for the costs as of 2022	Share within MS as used for the costs of 1.1.2022 – 30.4.2022	Shares per TSO for the costs as of 1.1.2022 – 30.4.2022	Share within MS as used for the costs of 1.5.2022 – 31.12.2022	Shares per TSO for the costs as of 1.5.2022 – 31.12.2022
Austria	APG		0		100.00 %	2.339 %	100.00 %	2.339 %
Austria	EPEX		14,404		0.00 %	0.000 %	0.00 %	0.000 %
Austria	EXAA		5,133		0.00 %	0.000 %	0.00 %	0.000 %
Austria	EMCO		778		0.00 %	0.000 %	0.00 %	0.000 %
Austria		63,577	20,316	2.339 %	100.00 %	2.339 %	100.00 %	2.339 %
Belgium	ELIA		0		100.00 %	2.720 %	100.00 %	2.720 %
Belgium	EPEX		16,611		0.00 %	0.000 %	0.00 %	0.000 %
Belgium	EMCO		1,617		0.00 %	0.000 %	0.00 %	0.000 %
Belgium		80,748	18,227	2.720 %	100.00 %	2.720 %	100.00 %	2.720 %
Bulgaria	ESO		0		100.00 %	1.605 %	100.00 %	1.605 %
Bulgaria	IBEX		25,305		0.00 %	0.000 %	0.00 %	0.000 %
Bulgaria		29,817	25,305	1.605 %	100.00 %	1.605 %	100.00 %	1.605 %
Croatia	HOPS		0		100.00 %	0.939 %	100.00 %	0.939 %
Croatia	CROPEX		5,967		0.00 %	0.000 %	0.00 %	0.000 %
Croatia		15,578	5,967	0.939 %	100.00 %	0.939 %	100.00 %	0.939 %
Czech Republic	CEPS		0		100.00 %	2.199 %	100.00 %	2.199 %
Czech Republic	OTE		19,307		0.00 %	0.000 %	0.00 %	0.000 %
Czech Republic		58,498	19,307	2.199 %	100.00 %	2.199 %	100.00 %	2.199 %
Denmark	Energinet		0		100.00 %	1.714 %	100.00 %	1.714 %
Denmark	EMCO		21,426		0.00 %	0.000 %	0.00 %	0.000 %
Denmark	EPEX		6,065		0.00 %	0.000 %	0.00 %	0.000 %
Denmark	Nasdaq		0		0.00 %	0.000 %	0.00 %	0.000 %
Denmark		32,804	27,491	1.714 %	100.00 %	1.714 %	100.00 %	1.714 %
Estonia	Elering		0		100.00 %	0.755 %	100.00 %	0.755 %
Estonia	EMCO		6,609		0.00 %	0.000 %	0.00 %	0.000 %
Estonia	EPEX		0		0.00 %	0.000 %	0.00 %	0.000 %
Estonia		7,540	6,609	0.755 %	100.00 %	0.755 %	100.00 %	0.755 %
Finland	Fingrid		0		100.00 %	3.311 %	99.50 %	3.294 %
Finland	Kraftnät Åland		0		0.00 %	0.000 %	0.50 %	0.017 %
Finland	EMCO		54,814		0.00 %	0.000 %	0.00 %	0.000 %
Finland	EPEX		2,748		0.00 %	0.000 %	0.00 %	0.000 %
Finland	Nasdaq		0		0.00 %	0.000 %	0.00 %	0.000 %
Finland		78,144	57,562	3.311 %	100.00 %	3.311 %	100.00 %	3.311 %

Table 77

Member State	TSO/NEMO	Final Consumption of 2020 of SDAC Operational MS	Traded volume (TV) 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	Shares MS as used for the costs as of 2022	Share within MS as used for the costs of 1.1.2022 – 30.4.2022	Shares per TSO for the costs as of 1.1.2022 – 30.4.2022	Share within MS as used for the costs of 1.5.2022 – 31.12.2022	Shares per TSO for the costs as of 1.5.2022 – 31.12.2022
France	RTE		0		100.00 %	12.466 %	100.00 %	12.466 %
France	EPEX		105,563		0.00 %	0.000 %	0.00 %	0.000 %
France	EMCO		4,629		0.00 %	0.000 %	0.00 %	0.000 %
France		420,356	110,192	12.466 %	100.00 %	12.466 %	100.00 %	12.466 %
Germany	50Hertz		0		22.06 %	3.508 %	22.06 %	3.508 %
Germany	Amprion		0		31.64 %	5.032 %	31.64 %	5.032 %
Germany	Tennet DE		0		28.04 %	4.459 %	28.04 %	4.459 %
Germany	Transnet		0		17.27 %	2.746 %	17.27 %	2.746 %
Germany	Baltic Cable		0		1.00 %	0.159 %	1.00 %	0.159 %
Germany	EPEX		180,853		0.00 %	0.000 %	0.00 %	0.000 %
Germany	EMCO		19,452		0.00 %	0.000 %	0.00 %	0.000 %
Germany	EXAA		15,189		0.00 %	0.000 %	0.00 %	0.000 %
Germany	Nasdaq		0		0.00 %	0.000 %	0.00 %	0.000 %
Germany		490,054	215,494	15.903 %	100.00 %	15.903 %	100.00 %	15.903 %
Greece	ADMIE		0		100.00 %	2.557 %	100.00 %	2.557 %
Greece	Henex		54,850		0.00 %	0.000 %	0.00 %	0.000 %
Greece		48,847	54,850	2.557 %	100.00 %	2.557 %	100.00 %	2.557 %
Hungary	Mavir		0		100.00 %	1.820 %	100.00 %	1.820 %
Hungary	HUPX		21,847		0.00 %	0.000 %	0.00 %	0.000 %
Hungary		41,083	21,847	1.820 %	100.00 %	1.820 %	100.00 %	1.820 %
Ireland	EirGrid (TSO)		0		100.00 %	1.694 %	100.00 %	1.694 %
Ireland	EirGrid (NEMO)		32,161		0.00 %	0.000 %	0.00 %	0.000 %
Ireland	EMCO		0		0.00 %	0.000 %	0.00 %	0.000 %
Ireland		28,784	32,161	1.694 %	100.00 %	1.694 %	100.00 %	1.694 %
Italy	Terna		0		100.00 %	11.936 %	100.00 %	11.936 %
Italy	GME		277,035		0.00 %	0.000 %	0.00 %	0.000 %
Italy		283,815	277,035	11.936 %	100.00 %	11.936 %	100.00 %	11.936 %
Latvia	AST		0		100.00 %	0.757 %	100.00 %	0.757 %
Latvia	EMCO		7,957		0.00 %	0.000 %	0.00 %	0.000 %
Latvia	EPEX		0		0.00 %	0.000 %	0.00 %	0.000 %
Latvia		6,689	7,957	0.757 %	100.00 %	0.757 %	100.00 %	0.757 %

Table 77

Member State	TSO/NEMO	Final Consumption of 2020 of SDAC Operational MS	Traded volume (TV) 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	Shares MS as used for the costs as of 2022	Share within MS as used for the costs of 1.1.2022 – 30.4.2022	Shares per TSO for the costs as of 1.1.2022 – 30.4.2022	Share within MS as used for the costs of 1.5.2022 – 31.12.2022	Shares per TSO for the costs as of 1.5.2022 – 31.12.2022
Lithuania	Litgrid		0		100.00 %	0.885 %	100.00 %	0.885 %
Lithuania	EMCO		9,140		0.00 %	0.000 %	0.00 %	0.000 %
Lithuania	EPEX		0		0.00 %	0.000 %	0.00 %	0.000 %
Lithuania		11,155	9,140	0.885 %	100.00 %	0.885 %	100.00 %	0.885 %
Luxembourg	CREOS		0		100.00 %	0.611 %	100.00 %	0.611 %
Luxembourg	EPEX		0		0.00 %	0.000 %	0.00 %	0.000 %
Luxembourg	EMCO		0		0.00 %	0.000 %	0.00 %	0.000 %
Luxembourg	Nasdaq		0		0.00 %	0.000 %	0.00 %	0.000 %
Luxembourg		6,120	0	0.611 %	100.00 %	0.611 %	100.00 %	0.611 %
Netherlands	Tennet BV		0		100.00 %	3.770 %	100.00 %	3.770 %
Netherlands	EPEX		25,392		0.00 %	0.000 %	0.00 %	0.000 %
Netherlands	EMCO		7,590		0.00 %	0.000 %	0.00 %	0.000 %
Netherlands		113,994	32,982	3.770 %	100.00 %	3.770 %	100.00 %	3.770 %
Poland	PSE		0		100.00 %	4.158 %	100.00 %	4.158 %
Poland	TGE		5,687		0.00 %	0.000 %	0.00 %	0.000 %
Poland	EPEX		782		0.00 %	0.000 %	0.00 %	0.000 %
Poland	EMCO		34		0.00 %	0.000 %	0.00 %	0.000 %
Poland		148,241	6,503	4.158 %	100.00 %	4.158 %	100.00 %	4.158 %
Portugal	REN		0		100.00 %	2.501 %	100.00 %	2.501 %
Portugal	OMIE		53,915		0.00 %	0.000 %	0.00 %	0.000 %
Portugal		47,179	53,915	2.501 %	100.00 %	2.501 %	100.00 %	2.501 %
Romania	Transelectrica		0		100.00 %	2.024 %	100.00 %	2.024 %
Romania	OPCOM		23,937		0.00 %	0.000 %	0.00 %	0.000 %
Romania		48,063	23,937	2.024 %	100.00 %	2.024 %	100.00 %	2.024 %
Slovakia	SEPS		0		100.00 %	1.178 %	100.00 %	1.178 %
Slovakia	OKTE		7,072		0.00 %	0.000 %	0.00 %	0.000 %
Slovakia		24,695	7,072	1.178 %	100.00 %	1.178 %	100.00 %	1.178 %
Slovenia	ELES		0		100.00 %	0.914 %	100.00 %	0.914 %
Slovenia	BSP		8,125		0.00 %	0.000 %	0.00 %	0.000 %
Slovenia		13,047	8,125	0.914 %	100.00 %	0.914 %	100.00 %	0.914 %
Spain	REE		0		100.00 %	8.894 %	100.00 %	8.894 %
Spain	OMIE		176,492		0.00 %	0.000 %	0.00 %	0.000 %
Spain		227,172	176,492	8.894 %	100.00 %	8.894 %	100.00 %	8.894 %

Table 77

Member State	TSO/NEMO	Final Consumption of 2020 of SDAC Operational MS	Traded volume (TV) 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	Shares MS as used for the costs as of 2022	Share within MS as used for the costs of 1.1.2022 – 30.4.2022	Shares per TSO for the costs as of 1.1.2022 – 30.4.2022	Share within MS as used for the costs of 1.5.2022 – 31.12.2022	Shares per TSO for the costs as of 1.5.2022 – 31.12.2022
Sweden	Affärsverket svenska kraftnät		0		100.00 %	5.759 %	100.00 %	5.759 %
Sweden	EMCO		125,821		0.00 %	0.000 %	0.00 %	0.000 %
Sweden	EPEX		9,821		0.00 %	0.000 %	0.00 %	0.000 %
Sweden	Nasdaq		0		0.00 %	0.000 %	0.00 %	0.000 %
Sweden		125,678	135,642	5.759 %	100.00 %	5.759 %	100.00 %	5.759 %
Northern Ireland	EMCO		0		0.00 %	0.000 %	0.00 %	0.000 %
Northern Ireland	SONI (TSO)		0		100.00 %	0.822 %	100.00 %	0.822 %
Northern Ireland	SONI (NEMO)		8,498		0.00 %	0.000 %	0.00 %	0.000 %
Northern Ireland		9,000	8,498	0.822 %	100.00 %	0.822 %	100.00 %	0.822 %
Norway	Statnett		0		100.00 %	5.771 %	100.00 %	5.771 %
Norway	EPEX		5,781		0.00 %	0.000 %	0.00 %	0.000 %
Norway	EMCO		135,476		0.00 %	0.000 %	0.00 %	0.000 %
Norway		122,325	141,257	5.771 %	100.00 %	5.771 %	100.00 %	5.771 %

1.6 The following sharing key was used for sharing of all TSOs costs of Operating the SDAC in 2022

Table 78

Member State	TSO/NEMO	Final Consumption of 2020 of SDAC Operational MS	Traded volume (TV) 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	Shares MS as used for the costs as of 2022	Share within MS as used for the costs of 1.1.2022 – 30.4.2022	Shares per TSO for the costs as of 1.1.2022 – 30.4.2022
Austria	APG		0		100.00 %	2.360 %
Austria	EPEX		14,404		0.00 %	0.000 %
Austria	EXAA		5,133		0.00 %	0.000 %
Austria	EMCO		778		0.00 %	0.000 %
Austria		63,577	20,316	2.360 %	100.00 %	2.360 %
Belgium	ELIA		0		100.00 %	2.742 %
Belgium	EPEX		16,611		0.00 %	0.000 %
Belgium	EMCO		1,617		0.00 %	0.000 %
Belgium		80,748	18,227	2.742 %	100.00 %	2.742 %
Bulgaria	ESO		0		100.00 %	1.625 %
Bulgaria	IBEX		25,305		0.00 %	0.000 %
Bulgaria		29,817	25,305	1.625 %	100.00 %	1.625 %
Croatia	HOPS		0		100.00 %	0.958 %
Croatia	CROPEX		5,967		0.00 %	0.000 %
Croatia		15,578	5,967	0.958 %	100.00 %	0.958 %
Czech Republic	CEPS		0		100.00 %	2.221 %
Czech Republic	OTE		19,307		0.00 %	0.000 %
Czech Republic		58,498	19,307	2.221 %	100.00 %	2.221 %
Denmark	Energinet		0		100.00 %	1.733 %
Denmark	EMCO		21,426		0.00 %	0.000 %
Denmark	EPEX		6,065		0.00 %	0.000 %
Denmark	Nasdaq		0		0.00 %	0.000 %
Denmark		32,804	27,491	1.733 %	100.00 %	1.733 %
Estonia	Elering		0		100.00 %	0.774 %
Estonia	EMCO		6,609		0.00 %	0.000 %
Estonia	EPEX		0		0.00 %	0.000 %
Estonia		7,540	6,609	0.774 %	100.00 %	0.774 %
Finland	Fingrid		0		99.50 %	3.316 %
Finland	Kraftnät Åland		0		0.50 %	0.017 %
Finland	EMCO		54,814		0.00 %	0.000 %
Finland	EPEX		2,748		0.00 %	0.000 %
Finland	Nasdaq		0		0.00 %	0.000 %
Finland		78,144	57,562	3.333 %	100.00 %	3.333 %

Table 78

Member State	TSO/NEMO	Final Consumption of 2020 of SDAC Operational MS	Traded volume (TV) 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	Shares MS as used for the costs as of 2022	Share within MS as used for the costs of 1.1.2022 – 30.4.2022	Shares per TSO for the costs as of 1.1.2022 – 30.4.2022
France	RTE		0		100.00 %	12.508 %
France	EPEX		105,563		0.00 %	0.000 %
France	EMCO		4,629		0.00 %	0.000 %
France		420,356	110,192	12.508 %	100.00 %	12.508 %
Germany	50Hertz		0		22.06 %	3.518 %
Germany	Amprion		0		31.64 %	5.046 %
Germany	Tennet DE		0		28.04 %	4.472 %
Germany	Transnet		0		17.27 %	2.754 %
Germany	Baltic Cable		0		1.00 %	0.159 %
Germany	EPEX		180,853		0.00 %	0.000 %
Germany	EMCO		19,452		0.00 %	0.000 %
Germany	EXAA		15,189		0.00 %	0.000 %
Germany	Nasdaq		0		0.00 %	0.000 %
Germany		490,054	215,494	15.949 %	100.00 %	15.949 %
Greece	ADMIE		0		100.00 %	2.577 %
Greece	Henex		54,850		0.00 %	0.000 %
Greece		48,847	54,850	2.577 %	100.00 %	2.577 %
Hungary	Mavir		0		100.00 %	1.840 %
Hungary	HUPX		21,847		0.00 %	0.000 %
Hungary		41,083	21,847	1.840 %	100.00 %	1.840 %
Ireland	EirGrid (TSO)		0		100.00 %	1.714 %
Ireland	EirGrid (NEMO)		32,161		0 %	0.000 %
Ireland	EMCO		0		0 %	0.000 %
Ireland		28,784	32,161	1.714 %	100.00 %	1.714 %
Italy	Terna		0		100.00 %	11.970 %
Italy	GME		277,035		0.00 %	0.000 %
Italy		283,815	277,035	11.970 %	100.00 %	11.970 %
Latvia	AST		0		100.00 %	0.775 %
Latvia	EMCO		7,957		0.00 %	0.000 %
Latvia	EPEX		0		0.00 %	0.000 %
Latvia		6,689	7,957	0.775 %	100.00 %	0.775 %
Lithuania	Litgrid		0		100.00 %	0.903 %
Lithuania	EMCO		9,140		0.00 %	0.000 %
Lithuania	EPEX		0		0.00 %	0.000 %
Lithuania		11,155	9,140	0.903 %	100.00 %	0.903 %

Table 78

Member State	TSO/NEMO	Final Consumption of 2020 of SDAC Operational MS	Traded volume (TV) 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	Shares MS as used for the costs as of 2022	Share within MS as used for the costs of 1.1.2022 – 30.4.2022	Shares per TSO for the costs as of 1.1.2022 – 30.4.2022
Luxembourg	CREOS					
Luxembourg	EPEX					
Luxembourg	EMCO					
Luxembourg	Nasdaq					
Luxembourg						
Netherlands	Tennet BV		0		100.00 %	3.794 %
Netherlands	EPEX		25,392		0.00 %	0.000 %
Netherlands	EMCO		7,590		0.00 %	0.000 %
Netherlands		113,994	32,982	3.794 %	100.00 %	3.794 %
Poland	PSE		0		100.00 %	4.184 %
Poland	TGE		5,687		0.00 %	0.000 %
Poland	EPEX		782		0.00 %	0.000 %
Poland	EMCO		34		0.00 %	0.000 %
Poland		148,241	6,503	4.184 %	100.00 %	4.184 %
Portugal	REN		0		100.00 %	2.521 %
Portugal	OMIE		53,915		0.00 %	0.000 %
Portugal		47,179	53,915	2.521 %	100.00 %	2.521 %
Romania	Transelectrica		0		100.00 %	2.044 %
Romania	OPCOM		23,937		0.00 %	0.000 %
Romania		48,063	23,937	2.044 %	100.00 %	2.044 %
Slovakia	SEPS		0		100.00 %	1.197 %
Slovakia	OKTE		7,072		0.00 %	0.000 %
Slovakia		24,695	7,072	1.197 %	100.00 %	1.197 %
Slovenia	ELES		0		100.00 %	0.932 %
Slovenia	BSP		8,125		0.00 %	0.000 %
Slovenia		13,047	8,125	0.932 %	100.00 %	0.932 %
Spain	REE		0		100.00 %	8.925 %
Spain	OMIE		176,492		0.00 %	0.000 %
Spain		227,172	176,492	8.925 %	100.00 %	8.925 %
Sweden	Affärsverket svenska kraftnät		0		100.00 %	5.784 %
Sweden	EMCO		125,821		0.00 %	0.000 %
Sweden	EPEX		9,821		0.00 %	0.000 %
Sweden	Nasdaq		0		0.00 %	0.000 %
Sweden		125,678	135,642	5.784 %	100.00 %	5.784 %

Table 78

Member State	TSO/NEMO	Final Consumption of 2020 of SDAC Operational MS	Traded volume (TV) 2021 DA (GWh) to be used for sharing of SDAC costs in 2022	Shares MS as used for the costs as of 2022	Share within MS as used for the costs of 1.1.2022 – 30.4.2022	Shares per TSO for the costs as of 1.1.2022 – 30.4.2022
Northern Ireland	EMCO		0		0.00 %	0.000 %
Northern Ireland	SONI (TSO)		0		100.00 %	0.840 %
Northern Ireland	SONI (NEMO)		8,498		0.00 %	0.000 %
Northern Ireland		9,000	8,498	0.840 %	100.00 %	0.840 %
Norway	Statnett		0		100.00 %	5.796 %
Norway	EPEX		5,781		0.00 %	0.000 %
Norway	EMCO		135,476		0.00 %	0.000 %
Norway		122,325	141,257	5.796 %	100.00 %	5.796 %

2.1 The following sharing key was used for sharing of all TSOs and NEMOs costs of establishing and amending the SIDC in 2022

Table 79

Member State	Final consumption in 2020 according to Report nrg_cb_e (31.03.21) in GWh	MS share	Entity	Share within MS	NEMO share within MS	2021 Trading Data for 2022 CSK	CACM Share
Austria	63,577	2.6167%	APG	50.0000 %			1.3083 %
			EPEX	37.9293 %	75.86 %	3398405,24	0.9925 %
			NP	12.0707 %	24.14 %	429151,15	0.3158 %
Belgium	80,748	3.1983%	ELIA	50.0000 %			1.5992 %
			EPEX	40.3804 %	80.76 %	2518563,20	1.2915 %
			NP	9.6196 %	19.24 %	328849,94	0.3077 %
Bulgaria	29,817	1.4730%	ESO	50.0000 %			0.7365 %
			IBEX	50.0000 %	100.00 %		0.7365 %
Croatia	15,578	0.9907%	HOPS	50.0000 %			0.4953 %
			CROPEX	50.0000 %	100.00 %		0.4953 %
Czech Republic	58,498	2.4446%	CEPS	50.0000 %			1.2223 %
			OTE	50.0000 %	100.00 %		1.2223 %
Denmark	32,804	1.5742%	ENDK	50.0000 %			0.7871 %
			NP	20.7080 %	41.42 %	1267193,90	0.3260 %
			EPEX	29.2920 %	58.58 %	2146204,85	0.4611 %
Estonia	7,540	0.7184%	Elering	50.0000 %			0.3592 %
			NP	41.6667 %	83.33 %		0.2993 %
			EPEX	8.3333 %	16.67 %	0,00	0.0599 %

Table 79

Member State	Final consumption in 2020 according to Report nrg_cb_e (31.03.21) in GWh	MS share	Entity	Share within MS	NEMO share within MS	2021 Trading Data for 2022 CSK	CACM Share
Finland	78,144	3.1101%	Fingrid	50.0000 %			1.5551 %
			NP	38.5865 %	77.17 %	1092820,75	1.2001 %
			EPEX	11.4135 %	22.83 %	111264,85	0.3550 %
France	420,356	14.7026%	RTE	50.0000 %			7.3513 %
			EPEX	25.0000 %	50.00 %	10075567,13	3.6757 %
			NP	25.0000 %	50.00 %	623992,23	3.6757 %
Germany	490,054	17.0637%	50Hzt	22.2800 %			3.8018 %
			Amprion	31.9600 %			5.4536 %
			Tennet	28.3200 %			4.8324 %
			TransnetBW	17.4400 %			2.9759 %
			EPEX	0.0000 %	0.00 %		0.0000 %
			NP	0.0000 %	0.00 %		0.0000 %
Greece	48,847	2.1177%	ADMIE	50.0000 %			1.0588 %
			HENEX	50.0000 %	100.00 %		1.0588 %
Hungary	41,083	1.8547%	MAVIR	50.0000 %			0.9273 %
			HUPX	50.0000 %	100.00 %		0.9273 %
Ireland	28,784	1.4380%	EirGRID N	50.0000 %			0.7190 %
			EirGRID T	50.0000 %	100.00 %		0.7190 %
			NP	0.0000 %	0.00 %		0.0000 %
Italy	283,815	10.0773%	Terna	50.0000 %			5.0386 %
			GME	50.0000 %	100.0000 %		5.0386 %
Latvia	6,689	0.6896%	AST	50.0000 %			0.3448 %
			NP	41.6667 %	83.3333 %		0.2873 %
			EPEX	8.3333 %	16.6667 %	0,00	0.0575 %
Lithuania	11,155	0.8408%	LITGRID	50.0000 %			0.4204 %
			NP	41.6667 %	83.3333 %		0.3504 %
			EPEX	8.3333 %	16.6667 %	0,00	0.0701 %
Luxembourg	6,120	0.6703%	Creos	100.0000 %			0.6703 %
			EPEX	0.0000 %	0.0000 %		0.0000 %
			NP	0.0000 %	0.0000 %		0.0000 %
Netherlands	113,994	4.3245%	Tennet BV	50.0000 %			2.1623 %
			EPEX	48.0821 %	96.1643 %	5101141,00	2.0793 %
			NP	1.9179 %	3.8357 %	203470,10	0.0829 %

Table 79

Member State	Final consumption in 2020 according to Report nrg_cb_e (31.03.21) in GWh	MS share	Entity	Share within MS	NEMO share within MS	2021 Trading Data for 2022 CSK	CACM Share
Poland	148,241	5.4847%	PSE	50.0000 %			2.7423 %
			TGE	33.9012 %	67.8025 %	1418798,10	1.8594 %
			EPEX	5.5556 %	11.1111 %	0,00	0.3047 %
			NP	10.5432 %	21.0864 %	249648,90	0.5783 %
Portugal	47,179	2.0612%	REN	50.0000 %			1.0306 %
			OMIE	50.0000 %	100.0000 %		1.0306 %
Romania	48,063	2.0911%	TEL	50.0000 %			1.0455 %
			OPCOM	50.0000 %	100.0000 %		1.0455 %
Slovakia	24,695	1.2995%	SEPS	50.0000 %			0.6498 %
			OKTE	50.0000 %	100.0000 %		0.6498 %
Slovenia	13,047	0.9049%	ELES	50.0000 %			0.4525 %
			BSP	50.0000 %	100.0000 %		0.4525 %
Spain	227,172	8.1585%	REE	50.0000 %			4.0792 %
			OMIE	50.0000 %	100.0000 %		4.0792 %
Sweden	125,678	4.7203%	SVK	50.0000 %			2.3602 %
			NP	32.8044 %	65.61 %	2271105,35	1.5485 %
			EPEX	17.1956 %	34.39 %	822492,65	0.8117 %
Northern Ireland	9,000	0.7678%	SONI	100.0000 %			0.7678 %
Norway	122,325	4.6068%	Statnett	50.0000 %			2.3034 %
			NP	37.4316 %	74.86 %	1242483,40	1.7244 %
			EPEX	12.5684 %	25.14 %	180833,45	0.5790 %
Total/Checksum	2.583.002	100.0000 %					100.0000 %

All parties in table 78 are IDOA parties.

2.2 The following sharing key was used for sharing of all TSOs and NEMOs costs of operating the SIDC in 2022

Table 80

Member State	Final consumption in 2019 according to Report nrg_cb_e (31.03.21) in GWh	MS share	Entity	Share within MS	NEMO share within MS	2021 Trading Data for 2022 CSK	CACM Share	IDOA Share
Austria	63,577	2.8245 %	APG	50.0000 %			1.4122 %	1.4122 %
			EPEX	37.9293 %	75.8586 %	3,398,405.24	1.0713 %	1.0713 %
			NP	12.0707 %	24.14 %	429,151.15	0.3409 %	0.3409 %
Belgium	80,748	3.4339 %	ELIA	50.0000 %			1.7169 %	1.7169 %
			EPEX	40.3804 %	80.76 %	2,518,563.20	1.3866 %	1.3866 %
			NP	9.6196 %	19.24 %	328,849.94	0.3303 %	0.3303 %
Bulgaria	29,817	1.6264 %	ESO	50.0000 %			0.8132 %	0.8132 %
			IBEX	50.0000 %	100.00 %		0.8132 %	0.8132 %
Croatia	15,578	1.1210 %	HOPS	50.0000 %			0.5605 %	0.5605 %
			CROPEX	50.0000 %	100.00 %		0.5605 %	0.5605 %
Czech Republic	58,498	2.6442 %	CEPS	50.0000 %			1.3221 %	1.3221 %
			OTE	50.0000 %	100.00 %		1.3221 %	1.3221 %
Denmark	32,804	1.7324 %	ENDK	50.0000 %			0.8662 %	0.8662 %
			NP	20.7080 %	41.4161 %	1,267,193.90	0.3587 %	0.3587 %
			EPEX	29.2920 %	58.58 %	2,146,204.85	0.5074 %	0.5074 %
Estonia	7,540	0.8358 %	Elering	50.0000 %			0.4179 %	0.4179 %
			NP	50.0000 %	83.33 %		0.4179 %	0.4179 %
			EPEX	0.0000 %	16.67 %		0.0000 %	0.0000 %
Finland	78,144	3.3414 %	Fingrid	50.0000 %			1.6707 %	1.6707 %
			NP	38.5865 %	77.1729 %	1,092,820.75	1.2893 %	1.2893 %
			EPEX	11.4135 %	22.83 %	111,264.85	0.3814 %	0.3814 %
France	420,356	15.4862 %	RTE	50.0000 %			7.7431 %	7.7431 %
			EPEX	47.0840 %	94.17 %	10,075,567.13	7.2915 %	7.2915 %
			NP	2.9160 %	5.83 %	623,992.23	0.4516 %	0.4516 %
Germany	490,054	17.9597 %	50Hzt	22.2800 %			4.0014 %	4.0014 %
			Amprion	31.9600 %			5.7399 %	5.7399 %
			Tennet	28.3200 %			5.0862 %	5.0862 %
			TransnetBW	17.4400 %			3.1322 %	3.1322 %
			EPEX	0.0000 %	0.00 %	38,260,534.53	0.0000 %	0.0000 %
			NP	0.0000 %	0.00 %	4,887,011.11	0.0000 %	0.0000 %
Greece			ADMIE	50.0000 %			0.0000 %	0.0000 %
			HENEX	50.0000 %	100.00 %		0.0000 %	0.0000 %

Table 80

Member State	Final consumption in 2019 according to Report nrg_cb_e (31.03.21) in GWh	MS share	Entity	Share within MS	NEMO share within MS	2021 Trading Data for 2022 CSK	CACM Share	IDOA Share
Hungary	41,083	2.0262 %	MAVIR	50.0000 %			1.0131 %	1.0131 %
			HUPX	50.0000 %	100.00 %		1.0131 %	1.0131 %
Ireland			EirGRID	50.0000 %			0.0000 %	0.0000 %
			EirGRID	50.0000 %	100.00 %		0.0000 %	0.0000 %
			NP	0.0000 %	0.00 %		0.0000 %	0.0000 %
Italy	283,815	10.6405 %	Terna	50.0000 %			5.3202 %	5.3202 %
			GME	50.0000 %	100.0000 %		5.3202 %	5.3202 %
Latvia	6,689	0.8056 %	AST	50.0000 %			0.4028 %	0.4028 %
			NP	50.0000 %	83.3333 %		0.4028 %	0.4028 %
			EPEX	0.0000 %	16.6667 %		0.0000 %	0.0000 %
Lithuania	11,155	0.9641 %	LITGRID	50.0000 %			0.4820 %	0.4820 %
			NP	50.0000 %	83.3333 %		0.4820 %	0.4820 %
			EPEX	0.0000 %	16.6667 %		0.0000 %	0.0000 %
Luxembourg			Creos	100.0000 %			0.0000 %	0.0000 %
			EPEX	0.0000 %	0.0000 %		0.0000 %	0.0000 %
			NP	0.0000 %	0.0000 %		0.0000 %	0.0000 %
Netherlands	113,994	4.6137 %	Tennet BV	50.0000 %			2.3068 %	2.3068 %
			EPEX	48.0821 %	96.1643 %	5,101,141.00	2.2184 %	2.2184 %
			NP	1.9179 %	3.8357 %	203,470.10	0.0885 %	0.0885 %
Poland	148,241	5.8291 %	PSE	50.0000 %			2.9146 %	2.9146 %
			TGE	33.9012 %	67.8025 %	1,418,798.10	1.9761 %	1.9761 %
			EPEX	5.5556 %	11.1111 %	0.00	0.3238 %	0.3238 %
			NP	10.5432 %	21.0864 %	249,648.90	0.6146 %	0.6146 %
Portugal	47,179	2.2425 %	REN	50.0000 %			1.1213 %	1.1213 %
			OMIE	50.0000 %	100.0000 %		1.1213 %	1.1213 %
Romania	48,063	2.2739 %	TEL	50.0000 %			1.1369 %	1.1369 %
			OPCOM	50.0000 %	100.0000 %		1.1369 %	1.1369 %
Slovakia			SEPS	50.0000 %			0.0000 %	0.0000 %
			OKTE	50.0000 %	100.0000 %		0.0000 %	0.0000 %
Slovenia	13,047	1.0312 %	ELES	50.0000 %			0.5156 %	0.5156 %
			BSP	50.0000 %	100.0000 %		0.5156 %	0.5156 %
Spain	227,172	8.6303 %	REE	50.0000 %			4.3151 %	4.3151 %
			OMIE	50.0000 %	100.0000 %		4.3151 %	4.3151 %
Sweden	125,678	5.0284 %	SVK	50.0000 %			2.5142 %	2.5142 %
			NP	32.8044 %	65.6087 %	2,271,105.35	1.6495 %	1.6495 %
			EPEX	17.1956 %	34.39 %	822,492.65	0.8647 %	0.8647 %

Table 80

Member State	Final consumption in 2019 according to Report nrg_cb_e (31.03.21) in GWh	MS share	Entity	Share within MS	NEMO share within MS	2021 Trading Data for 2022 CSK	CACM Share	IDOA Share
Northern Ireland			NationalGrid				0.0000 %	0.0000 %
			BritNed				0.0000 %	0.0000 %
			EPEX				0.0000 %	0.0000 %
			NP				0.0000 %	0.0000 %
			SONI				0.0000 %	0.0000 %
Norway	122,325	4.6068 %	Statnett	50.0000 %			2.4547 %	2.4547 %
			NP	37.4316 %	74.8633 %	1,242,483.40	1.8377 %	1.8377 %
			EPEX	12.5684 %	25.14 %	180,833.45	0.6170 %	0.6170 %

2.3 The following sharing key was used for the sharing of all NEMOs costs of establishing and amending the SIDC in 2022

Table 81

Member State	Final consumption in 2020 according to Report nrg_cb_e (10/03/2022) in GWh	MS share	Entity	Share within MS	2022 NEMO share within MS	2021 Trading Data for 2022 CSK	CACM Share
Austria	63,577	2.6167 %	EPEX	75.8586 %	75.86 %	3,398,405.24	1.9850 %
			NP	24.1414 %	24.14 %	429,151.15	0.6317 %
Belgium	80,748	3.1983 %	EPEX	80.7607 %	80.76 %	2,518,563.20	2.5830 %
			NP	19.2393 %	19.24 %	328,849.94	0.6153 %
Bulgaria	29,817	1.4730 %	IBEX	100.0000 %	100.00 %		1.4730 %
Croatia	15,578	0.9907 %	CROPEX	100.0000 %	100.00 %		0.9907 %
Czech Republic	58,498	2.4446 %	OTE	100.0000 %	100.00 %		2.4446 %
Denmark	32,804	1.5742 %	NP	41.4161 %	41.4161 %	1,267,193.90	0.6520 %
			EPEX	58.5839 %	58.5839 %	2,146,204.85	0.9222 %
Estonia	7,540	0.7184 %	NP	83.3333 %	83.33 %		0.5987 %
			EPEX	16.6667 %	16.67 %	0.00	0.1197 %
Finland	78,144	3.1101 %	NP	77.1729 %	77.1729 %	1,092,820.75	2.4002 %
			EPEX	22.8271 %	22.8271 %	111,264.85	0.7099 %
France	420,356	14.7026 %	EPEX	50.0000 %	50.00 %	10,075,567.13	7.3513 %
			NP	50.0000 %	50.00 %	623,992.23	7.3513 %
Germany	490,054	17.0637 %	EPEX	50.0000 %	0.00 %		8.5318 %
			NP	50.0000 %	0.00 %		8.5318 %
Greece	48,847	2.1177 %	HENEX	100.0000 %	100.00 %		2.1177 %

Table 81

Member State	Final consumption in 2020 according to Report nrg_cb_e (10/03/2022) in GWh	MS share	Entity	Share within MS	2022 NEMO share within MS	2021 Trading Data for 2022 CSK	CACM Share
Hungary	41,083	1.8547 %	HUPX	100.0000 %	100.00 %		1.8547 %
Ireland	28,784	1.4380 %	EirGRID	100.0000 %	100.00 %		1.4380 %
			NP	0.0000 %	0.00 %		0.0000 %
Italy	283,815	10.0773 %	GME	100.0000 %	100.0000 %		10.0773 %
Latvia	6,689	0.6896 %	NP	83.3333 %	83.3333 %		0.5746 %
			EPEX	16.6667 %	16.6667 %	0.00	0.1149 %
Lithuania	11,155	0.8408 %	NP	83.3333 %	83.3333 %		0.7007 %
			EPEX	16.6667 %	16.6667 %	0.00	0.1401 %
Luxembourg	6,120	0.6703 %	EPEX	50.0000 %	50.0000 %		0.3351 %
			NP	50.0000 %	50.0000 %		0.3351 %
Netherlands	113,994	4.3245 %	EPEX	96.1643 %	96.1643 %	5,101,141.00	4.1587 %
			NP	3.8357 %	3.8357 %	203,470.10	0.1659 %
Poland	148,241	5.4847 %	TGE	67.8025 %	67.8025 %	1,418,798.10	3.7187 %
			EPEX	11.1111 %	11.1111 %	0.00	0.6094 %
			NP	21.0864 %	21.0864 %	249,648.90	1.1565 %
Portugal	47,179	2.0612 %	OMIE	100.0000 %	100.0000 %		2.0612 %
Romania	48,063	2.0911 %	OPCOM	100.0000 %	100.0000 %		2.0911 %
Slovakia	24,695	1.2995 %	OKTE	100.0000 %	100.0000 %		1.2995 %
Slovenia	13,047	0.9049 %	BSP	100.0000 %	100.0000 %		0.9049 %
Spain	227,172	8.1585 %	OMIE	100.0000 %	100.0000 %		8.1585 %
Sweden	125,678	4.7203 %	NP	65.6087 %	65.6087 %	2,271,105.35	3.0970 %
			EPEX	34.3913 %	34.3913 %	822,492.65	1.6234 %
Northern Ireland (calculated as part of 9 TWh of UK)	9,000	0.7678 %	SONI	100.0000 %			0.7678 %
Norway	122,325	4.6068 %	NP	74.8633 %	74.8633 %	1,242,483.40	3.4488 %
			EPEX	25.1367 %	25.1367 %	180,833.45	1.1580 %
Total/Checksum	2,583,002	100.0000 %					100.0000 %

2.4 The following sharing key was used for the sharing of all NEMOs costs of operating the SIDC in 2022

Table 82

Member State	Final consumption in 2020 according to Report nrg_cb_e (14/02/2022) in GWh	MS share	Entity	Share within MS	NEMO share within MS	2021 Trading Data for 2022 CSK	CACM Share
Austria	63,577	2.8245 %	EPEX	75.8586 %	75.86 %	3,398,405.24	2.1426 %
			NP	24.1414 %	24.14 %	429,151.15	0.6819 %
Belgium	80,748	3.4339 %	EPEX	80.7607 %	80.76 %	2,518,563.20	2.7732 %
			NP	19.2393 %	19.24 %	328,849.94	0.6606 %
Bulgaria	29,817	1.6264 %	IBEX	100.0000 %	100.00 %		1.6264 %
Croatia	15,578	1.1210 %	CROPEX	100.0000 %	100.00 %		1.1210 %
Czech Republic	58,498	2.6442 %	OTE	100.0000 %	100.00 %		2.6442 %
Denmark	32,804	1.7324 %	NP	41.4161 %	41.42 %	1,267,193.90	0.7175 %
			EPEX	58.5839 %	58.58 %	2,146,204.85	1.0149 %
Estonia	7,540	0.8358 %	NP	83.3333 %	83.33 %		0.6965 %
			EPEX	16.6667 %	16.67 %	0.00	0.1393 %
Finland	78,144	3.3414 %	NP	77.1729 %	77.17 %	1,092,820.75	2.5787 %
			EPEX	22.8271 %	22.83 %	111,264.85	0.7628 %
France	420,356	15.4862 %	EPEX	94.1681 %	94.17 %	10,075,567.13	14.5830 %
			NP	5.8319 %	5.83 %	623,992.23	0.9031 %
Germany	490,054	17.9597 %	EPEX	50.0000 %	50.00 %		8.9798 %
			NP	50.0000 %	50.00 %		8.9798 %
Greece			HENEX	100.0000 %	100.00 %		0.0000 %
Hungary	41,083	2.0262 %	HUPX	100.0000 %	100.00 %		1.8547 %
Ireland			EirGRID	100.0000 %	100.00 %		1.4380 %
			NP	0.0000 %	0.00 %		0.0000 %
Italy	283,815	10.6405 %	GME	100.0000 %	100.0000 %		10.0773 %
Latvia	6,689	0.8056 %	NP	83.3333 %	83.3333 %		0.5746 %
			EPEX	16.6667 %	16.6667 %	0.00	0.1149 %
Lithuania	11,155	0.9641 %	NP	83.3333 %	83.3333 %		0.7007 %
			EPEX	16.6667 %	16.6667 %	0.00	0.1401 %
Luxembourg			EPEX	50.0000 %	50.0000 %		0.3351 %
			NP	50.0000 %	50.0000 %		0.3351 %
Netherlands	113,994	4.6137 %	EPEX	96.1643 %	96.1643 %	5,101,141.00	4.1587 %
			NP	3.8357 %	3.8357 %	203,470.10	0.1659 %
Poland	148,241	5.8291 %	TGE	67.8025 %	67.8025 %	1,418,798.10	3.7187 %
			EPEX	11.1111 %	11.1111 %	0.00	0.6094 %
			NP	21.0864 %	21.0864 %	249,648.90	1.1565 %

Table 82

Member State	Final consumption in 2020 according to Report nrg_cb_e (14/02/2022) in GWh	MS share	Entity	Share within MS	NEMO share within MS	2021 Trading Data for 2022 CSK	CACM Share
Portugal	47,179	2.2425 %	OMIE	100.0000 %	100.0000 %		2.0612 %
Romania	48,063	2.2739 %	OPCOM	100.0000 %	100.0000 %		2.0911 %
Slovakia			OKTE	100.0000 %	100.0000 %		1.2995 %
Slovenia	13,047	1.0312 %	BSP	100.0000 %	100.0000 %		0.9049 %
Spain	227,172	8.6303 %	OMIE	100.0000 %	100.0000 %		8.1585 %
Sweden	125,678	5.0284 %	NP	65.6087 %	65.6087 %	2,271,105.35	3.0970 %
			EPEX	34.3913 %	34.3913 %	822,492.65	1.6234 %
Norway	122,325	4.9094 %	NP	74.8633 %	74.8633 %	1,242,483.40	3.6753 %
			EPEX	25.1367 %	25.1367 %	180,833.45	1.2341 %
Total/Checksum	2,583,002	100.0000 %					100.0000 %

Related to 2.5 and 2.6. the following sharing key was used for the sharing of all TSOs costs of the SIDC in 2022

Table 83

Member State	Final consumption in 2020 according to Report nrg_cb_e (data from 14.02.2022) (GWh)	MS share	TSO	Establishment and amendment Share within MS	Establishment and amendment Share per TSO	Operating Share within MS	Operating Share per TSO
Austria	63,577	2.617 %	APG	100.000 %	2.616658 %	100.000 %	2.82447 %
Belgium	80,748	3.198 %	Elia	100.000 %	3.198340 %	100.000 %	3.43386 %
Bulgaria	29,817	1.473 %	ESO	100.000 %	1.473024 %	100.000 %	1.62636 %
Croatia	15,578	0.991 %	HOPS	100.000 %	0.990673 %	100.000 %	1.12103 %
Czech Republic	58,498	2.445 %	ČEPS	100.000 %	2.444600 %	100.000 %	2.64421 %
Denmark	32,804	1.574 %	Energinet	100.000 %	1.574203 %	100.000 %	1.73236 %
Estonia	7,540	0.718 %	Elering	100.000 %	0.718385 %	100.000 %	0.83577 %
Finland	78,144	3.110 %	Fingrid	100.000 %	3.110115 %	100.000 %	3.34143 %
France	420,356	14.703 %	RTE	100.000 %	14.702649 %	100.000 %	15.48617 %
Germany	490,054	17.064 %	50 Hertz	22.280 %	3.801791 %	22.280 %	4.00142 %
			Amprion	31.960 %	5.453557 %	31.960 %	5.73991 %
			TTG	28.320 %	4.832438 %	28.320 %	5.08618 %
			TransnetBW	17.440 %	2.975908 %	17.440 %	3.13217 %

Table 83

Member State	Final consumption in 2020 according to Report nrg_cb_e (data from 14.02.2022) (GWh)	MS share	TSO	Establishment and amendment Share within MS	Establishment and amendment Share per TSO	Operating Share within MS	Operating Share per TSO
Greece	48,847	2.118 %	ADMIE	100.000 %	2.117683 %	0.000 %	0.00000 %
Hungary	41,083	1.855 %	MAVIR	100.000 %	1.854662 %	100.000 %	2.02617 %
Ireland	28,784	1.438 %	EirGrid	100.000 %	1.438029 %	0.000 %	0.00000 %
Italy	283,815	10.077 %	Terna	100.000 %	10.077268 %	100.000 %	10.64046 %
Latvia	6,689	0.690 %	AST	100.000 %	0.689551 %	100.000 %	0.80556 %
Lithuania	11,155	0.841 %	Litgrid	100.000 %	0.840842 %	100.000 %	0.96406 %
Luxembourg	6,120	0.670 %	CREOS	100.000 %	0.670263 %	0.000 %	0.00000 %
Netherlands	113,994	4.325 %	TTN	100.000 %	4.324528 %	100.000 %	4.61369 %
Poland	148,241	5.485 %	PSE	100.000 %	5.484677 %	100.000 %	5.82910 %
Portugal	47,179	2.061 %	REN	100.000 %	2.061176 %	100.000 %	2.24252 %
Romania	48,063	2.091 %	Trans-electrica	100.000 %	2.091100 %	100.000 %	2.27387 %
Slovakia	24,695	1.300 %	SEPS	100.000 %	1.299514 %	0.000 %	0.00000 %
Slovenia	13,047	0.905 %	ELES	100.000 %	0.904931 %	100.000 %	1.03120 %
Spain	227,172	8.158 %	REE	100.000 %	8.158485 %	100.000 %	8.63028 %
Sweden	125,678	4.720 %	Svk	100.000 %	4.720344 %	100.000 %	5.02836 %
Northern Ireland	9,000	0.768 %	SONI	100.000 %	0.767841 %	0.000 %	0.00000 %
Norway	122,325	4.607 %	Statnett	100.000 %	4.606765 %	100.000 %	4.90937 %

Regional CWE sharing key

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

Establishing and amending costs

Table 84

Member state	Entity	Share MS used for the costs of 2022	Share within MS used for the costs of 2022	Shares per party as used for the costs of 2022
Austria	APG		50.00 %	3.37 %
Austria	EPEX		29.19 %	1.97 %
Austria	EXAA		13.98 %	0.94 %
Austria	NP		6.83 %	0.46 %
Austria		6.744 %	100.00 %	
Belgium	ELIA		50.00 %	3.76 %
Belgium	EPEX		41.45 %	3.12 %
Belgium	NP		8.55 %	0.64 %
Belgium		7.526 %	100.00 %	
France	RTE		50.00 %	15.69 %
France	EPEX		25.00 %	7.85 %
France	NP		25.00 %	7.85 %
France		31.381 %	100.00 %	
Germany	Amprion		41.12 %	17.15 %
Germany	Tennet Gmbh		36.44 %	15.20 %
Germany	TransnetBW		22.44 %	9.36 %
Germany	EPEX		0.00 %	0.00 %
Germany	EXAA		0.00 %	0.00 %
Germany	NP		0.00 %	0.00 %
Germany		41.716 %	100.00 %	
Luxembourg	Creos		100.00 %	2.41 %
Luxembourg	EPEX		0.00 %	0.00 %
Luxembourg	NP		0.00 %	0.00 %
Luxembourg		2.409 %	100.00 %	
The Netherlands	Tennet BV		50.00 %	5.11 %
The Netherlands	EPEX		38.49 %	3.94 %
The Netherlands	NP		11.51 %	1.18 %
The Netherlands		10.223 %	100.00 %	

Operating costs

Table 85

Member state	Entity	Share MS used for the costs of 2022	Share within MS used for the costs of 2022	Shares per party as used for the costs of 2022
Austria	APG		50.00 %	3.59 %
Austria	EPEX		29.19 %	2.10 %
Austria	EXAA		13.98 %	1.00 %
Austria	NP		6.83 %	0.49 %
Austria		7.179 %	100.00 %	
Belgium	ELIA		50.00 %	3.98 %
Belgium	EPEX		41.45 %	3.30 %
Belgium	NP		8.55 %	0.68 %
Belgium		7.965 %	100.00 %	
France	RTE		50.00 %	15.96 %
France	EPEX		47.90 %	15.29 %
France	NP		2.10 %	0.67 %
France		31.915 %	100.00 %	
Germany	Amprion		41.12 %	17.38 %
Germany	Tennet Gmbh		36.44 %	15.40 %
Germany	TransnetBW		22.44 %	9.49 %
Germany	EPEX		0.00 %	0.00 %
Germany	EXAA		0.00 %	0.00 %
Germany	NP		0.00 %	0.00 %
Germany		42.270 %	100.00 %	
The Netherlands	Tennet BV		50.00 %	5.34 %
The Netherlands	EPEX		38.49 %	4.11 %
The Netherlands	NP		11.51 %	1.23 %
The Netherlands		10.672 %	100.00 %	

Regional Core FB MC Sharing keys until Core FB MC go-live in June 2022

Table 86

Party	Total Share Per Party	Party	Total Share Per Party
EPEX	10.8316 %	OKTE	3.0858 %
50Hertz	8.2043 %	SEPS	3.0858 %
Tennet	8.2043 %	PSE	4.1240 %
APG	3.2653 %	TGE	4.1240 %
EXAA	3.2653 %	OPCOM	3.5139 %
BSP	2.7347 %	Transelectrica	3.5139 %
ELES	2.7347 %	HOPS	2.8045 %
CEPS	3.9740 %	CROPEX	2.8045 %
OTE	3.9740 %	Nord Pool	10.8316 %
HUPX	3.3598 %	Nasdaq	8.2043 %
MAVIR	3.3598 %	Total/Checksum	100.0000 %

Table 87

Project Country	Final electricity consumption 2013 (GWh) based on Eurostat table nrg_105**	Share per Project Country	Share per Project Country	Project Parties
Austria	62,940	7.07 %	3.54 %	APG, EPEX, EXAA, Nord Pool
Czech Republic	56,691	6.37 %	3.19 %	CEPS, OTE
Germany	518,089	58.23 %	29.12 %	50Hertz, Tennet, EPEX, Nord Pool, Nasdaq
Hungary	34,836	3.92 %	1.96 %	MAVIR, HUPX
Poland	124,059	13.94 %	6.97 %	PSE, TGE, EPEX, Nord Pool
Slovakia	25,084	2.82 %	1.41 %	SEPS, OKTE
Slovenia	12,590	1.42 %	0.71 %	ELES, BSP
Romania	40,317	4.53 %	2.27 %	Transelectrica, OPCOM
Croatia	15,072	1.69 %	0.85 %	HOPS, CROPEX
Total/Checksum	889,678	100.00 %	50.00 %	

Project Party	Equal Share	National Common Cost Sharing Key (NCCSK)	Total Share per Project Party
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 %
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 %
Slovenia			
BSP	2.3810 %	0.3538 %	2.7347 %
ELES	2.3810 %	0.3538 %	2.7347 %
Czech Republic			
CEPS	2.3810 %	1.5930 %	3.9740 %
OTE	2.3810 %	1.5930 %	3.9740 %
Hungary			
HUPX	2.3810 %	0.9789 %	3.3598 %
MAVIR	2.3810 %	0.9789 %	3.3598 %
Slovakia			
OKTE	2.3810 %	0.7049 %	3.0858 %
SEPS	2.3810 %	0.7049 %	3.0858 %
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 %
Croatia			
HOPS	2.3810 %	0.4235 %	2.8045 %
CROPEX	2.3810 %	0.4235 %	2.8045 %
Total/Checksum	50.0000 %	50.0000 %	50.0000 %

Regional Core FB MC Sharing keys from Core FB MC go-live in June 2022

Table 89

Party	CORE DA Operational CSK	CORE IDA CSK
50Hertz	7.1768 %	7.1768 %
Amprion	10.2957 %	10.2957 %
APG	2.3479 %	2.3479 %
BSP	0.9970 %	0.9970 %
CEPS	2.2179 %	2.2179 %
CROPEX	0.9940 %	0.9940 %
ELES	0.9970 %	0.9970 %
ELIA	2.6479 %	2.6479 %
EPEX	18.6195 %	18.8364 %
EXAA	0.6560 %	0.0000 %
HOPS	0.9940 %	0.9940 %
HUPX	1.9239 %	1.9240 %
Mavir	1.9239 %	1.9240 %
Nasdaq	0.0000 %	0.0000 %
EMCO	2.5599 %	2.9989 %
OKTE	1.2100 %	1.2100 %
OPCOM	2.1209 %	2.1209 %
OTE	2.2179 %	2.2179 %
PSE	3.7389 %	3.7389 %
RTE	11.9857 %	11.9856 %
SEPS	1.2100 %	1.2100 %
Tennet BV	3.7089 %	3.7089 %
Tennet DE	9.1227 %	9.1227 %
TGE	2.5949 %	2.5949 %
Transelectrica	2.1209 %	2.1209 %
Transnet	5.6178 %	5.6178 %
Total/Checksum	100.0000 %	100.0000 %

Table 89

Member State	Parties	Operational Party in 2022	Share per party as used for the costs of 2023
Austria	APG	YES	2.35 %
Austria	EPEX	YES	1.37 %
Austria	EXAA	YES	0.66 %
Austria	EMCO	YES	0.32 %
Austria		YES	4.70 %
Belgium	ELIA	YES	2.65 %
Belgium	EPEX	YES	2.20 %
Belgium	EMCO	YES	0.45 %
Belgium		YES	5.30 %
Croatia	HOPS	YES	0.99 %
Croatia	CROPEX	YES	0.99 %
Croatia		YES	1.99 %
Czech Republic	CEPS	YES	2.22 %
Czech Republic	OTE	YES	2.22 %
Czech Republic		YES	4.44 %
France	RTE	YES	11.99 %
France	EPEX	YES	11.48 %
France	EMCO	YES	0.50 %
France	Nasdaq	NO	0.00 %
France		YES	23.97 %
Germany	50Hertz	YES	7.19 %
Germany	Amprion	YES	10.30 %
Germany	Tennet DE	YES	9.12 %
Germany	Transnet	YES	5.62 %
Germany	EPEX	YES	0.00 %
Germany	EMCO	YES	0.00 %
Germany	EXAA	YES	0.00 %
Germany	Nasdaq	NO	0.00 %
Germany		YES	32.22 %
Hungary	Mavir	YES	1.92 %
Hungary	HUPX	YES	1.92 %
Hungary		YES	3.85 %

Table 89

Member State	Parties	Operational Party in 2022	Share per party as used for the costs of 2023
Netherlands	Tennet BV	YES	3.71 %
Netherlands	EPEX	YES	2.86 %
Netherlands	EMCO	YES	0.85 %
Netherlands		YES	7.42 %
Poland	PSE	YES	3.74 %
Poland	TGE	YES	2.60 %
Poland	EPEX	YES	0.72 %
Poland	EMCO	YES	0.43 %
Poland		YES	7.48 %
Romania	Transelectrica	YES	2.12 %
Romania	OPCOM	YES	2.12 %
Romania		YES	4.24 %
Slovakia	SEPS	YES	1.21 %
Slovakia	OKTE	YES	1.21 %
Slovakia		YES	2.42 %
Slovenia	ELES	YES	1.00 %
Slovenia	BSP	YES	1.00 %
Slovenia		YES	1.99 %
Total/Checksum			100.00 %

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

Table 90

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 %
	EXAA	12.8800 %	0.6437 %
	EMCO	11.2800 %	0.5637 %
Belgium	EPEX	90.0000 %	4.5516 %
	EMCO	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 %

LIP 14 Sharing Key

Table 91

Entity	LIP 14 cost sharing key applicable for costs of all LIP 14 parties	LIP 14 cost sharing key applicable for costs of group A parties	LIP 14 cost sharing key applicable for costs of group B parties
APG	8.33 %	12.5 %	0 %
BSP	8.33 %	12.5 %	0 %
ELES	8.33 %	12.5 %	0 %
EMCO	8.33 %	12.5 %	0 %
EPEX SPOT	8.33 %	12.5 %	0 %
ESO	8.33 %	0 %	16.66 %
GME	8.33 %	12.5 %	16.66 %
HENEX	8.33 %	0 %	16.66 %
IBEX	8.33 %	0 %	16.66 %
IPTO	8.33 %	0 %	16.66 %
RTE	8.33 %	12.5 %	0 %
Terna	8.33 %	12.5 %	16.66 %

LIP 17 Sharing Key

Table 92

Member State	Entity	Share within MS	LIP 17 – share within MS	LIP 17 cost sharing key
Czech Republic	ČEPS	50.00 %	50.00 %	11.07 %
Czech Republic	OTE	50.00 %	50.00 %	11.07 %
Hungary	MAVIR	50.00 %	50.00 %	8.24 %
Hungary	HUPX	50.00 %	50.00 %	8.24 %
Poland	PSE	50.00 %	50.00 %	25.16 %
Poland	TGE	37.89 %	37.89 %	19.04 %
Poland	EPEX SPOT	5.56 %	5.56 %	2.79 %
Poland	NORDPOOL	6.56 %	6.56 %	3.30 %
Slovakia	SEPS	50.00 %	50.00 %	5.56 %
Slovakia	OKTE	50.00 %	50.00 %	5.56 %

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