

CACM Cost Report of 2021



ALL

NEMO 

COMMITTEE

CACM Cost Report of 2021

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

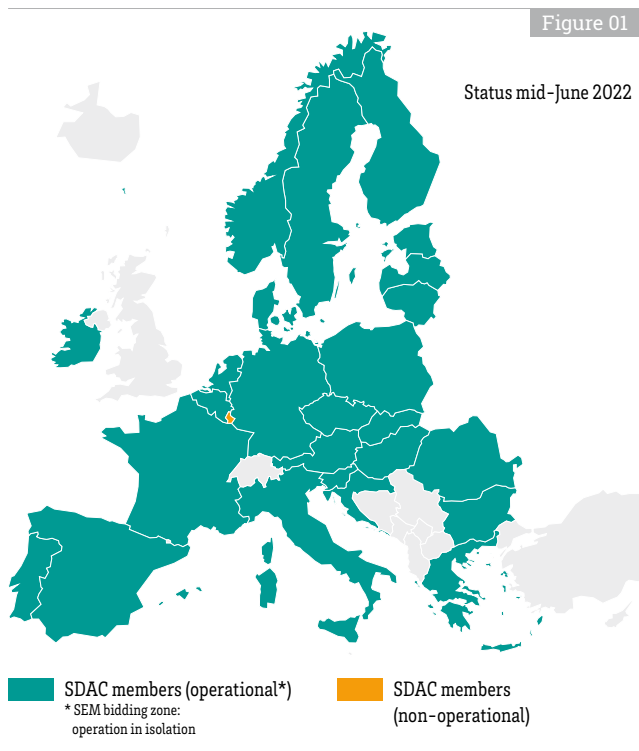
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Introduction

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 and intraday coupling according to Article 80 of the Commission Regulation (EU) 2015/1222 of 24 July 2015 – CACM Regulation. Costs directly related to single day-ahead and intraday coupling shall be clearly and separately identified and auditable. The report shall also provide full details of contributions made to NEMO costs by TSOs in accordance with Article 76(2).

Description of the Single Day-ahead Coupling (SDAC)



The aim of Single Day-ahead Coupling (SDAC) is to create a single pan-European cross zonal day-ahead electricity market. An integrated day-ahead market will increase the overall efficiency of trading by promoting effective competition, increasing liquidity and enabling a more efficient utilisation of generation resources across Europe. SDAC allocates scarce cross-border transmission capacity in the most efficient manner by coupling wholesale electricity markets from different regions through a common algorithm, simultaneously considering cross-border transmission constraints and thereby maximising social welfare. SDAC began as a voluntary initiative from NEMOs and TSOs in 2014 with North-Western Europe (NWE) Price Coupling, South-West Europe (SWE) coupling and 4M MC. In 2022, it covers most of Europe.

The governance of the SDAC consists of three layers:

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

Until end 2021, SDAC was governed by a Joint Steering Committee (JSC) that includes representatives of all the parties involved. The JSC activities are supported by horizontal groups which address the legal, financial and communication aspects of the coupling. Furthermore, there were joint task forces which dealt with Market & System Design, Operation incl. procedures and the Simulation Facility, the latter being established end of 2021. In addition, the 15-minute Market Time Unit (MTU) coordination was established as a temporary project under the JSC.

Joint SDAC NEMOs and TSOs governance structure

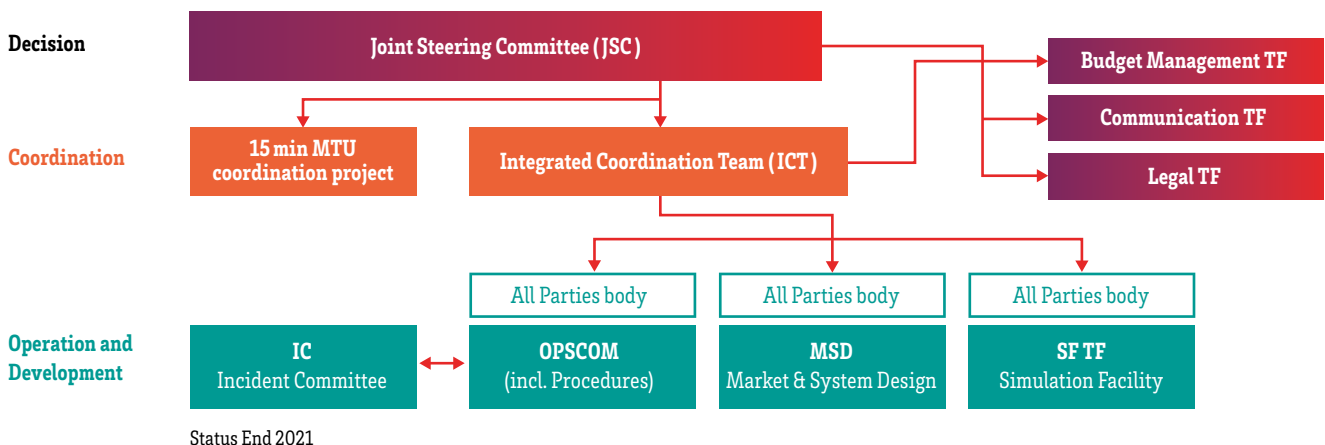
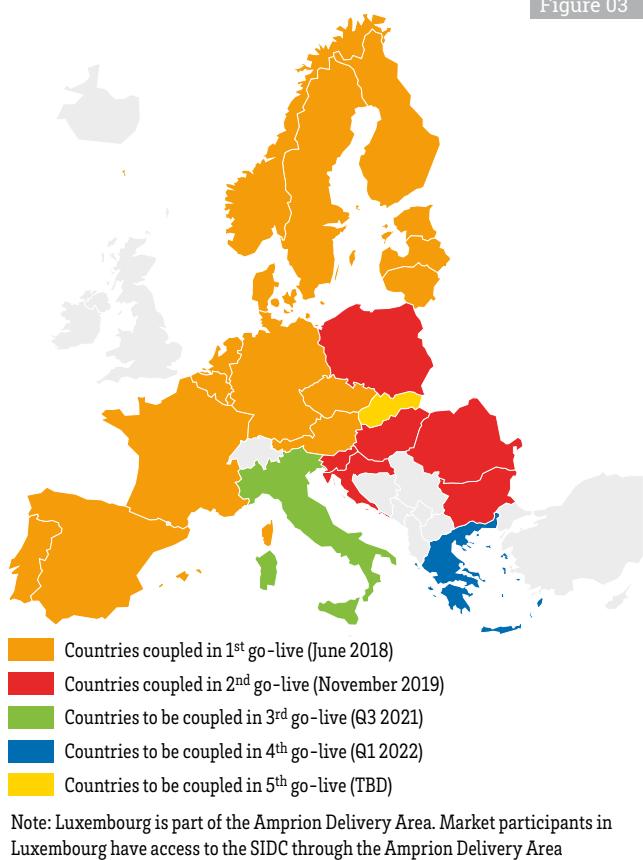


Figure 02

Description of Single Intraday Coupling

Figure 03



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

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

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

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

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

Joint SIDC NEMOs and TSOs governance structure

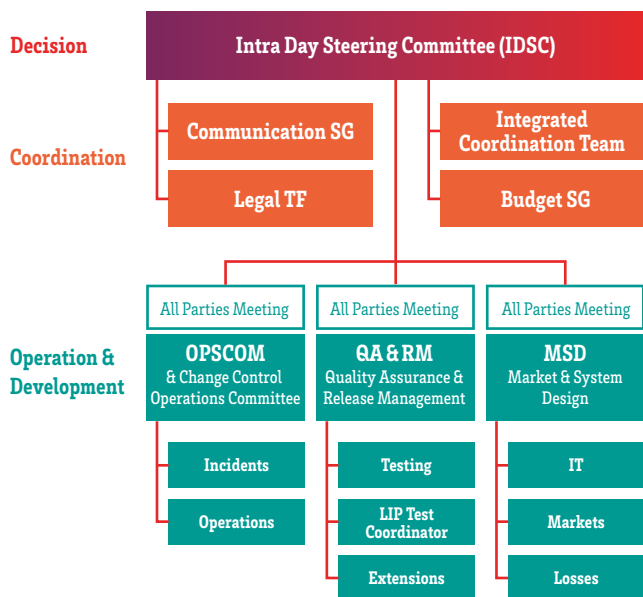


Figure 04

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

SIDC is an initiative between NEMOs and TSOs which enables continuous cross-border trading across Europe. SIDC follows on from the Cross Border Intraday (XBID) Project which delivered, in June 2018, the first go-live of the intraday continuous t rm. 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 governance of SIDC consists of three layers:

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

Until end 2021, SIDC was governed by the Intraday Steering Committee (IDSC) that includes representatives of all the parties involved. The IDSC activities were supported by horizontal supporting groups and task forces which address the legal, financial and communication

aspects of the coupling. Furthermore, there were joint task forces dealing with Operations (OPSCOM), Quality Assurance and Release Management (QARM), and Market and System Design (MSD).

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

Summary

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

Table 2

in K€		2017		2018		2019		2020		2021		2022 forecast	
		E	O	E	O	E	O	E	O	E	O	E	O
SDAC	Joint costs	204	0	902	0	1368	264	2028	346	3240	449	4369	670
	All NEMOs	1315	0	1314	0	1134	446	1149	465	366	761	479	1144
	All TSOs	0	0	22	0	3	0	15	9	44	34	46	36
	Total	1519	0	2238	0	2505	710	3192	820	3650	1244	4894	1850
SIDC	Joint costs	2846	0	4854	959	3780	2135	4674	2571	3944	2448	6651	2805
	All NEMOs	863	0	679	71	472	235	424	847	354	826	440	900
	All TSOs	686	0	768	200	606	374	649	282	729	281	858	314
	Total	4395	0	6301	1230	4858	2744	5747	3700	5027	3555	7949	4019
Regional total	Joint costs	703	592	718	317	1113	645	576	278	1183	139	1556	150
	All NEMOs	6	0	1	0	0	117	0	656	0	397	0	85
	All TSOs	637	378	535	429	918	101	1133	503	893	527	1452	463
	Total	1346	970	1254	746	2031	863	1709	1437	2076	1063	3008	698
Grand Total (common + regional costs)		7260	970	9793	1976	9394	4317	10648	5957	14790	5862	15851	6567
Total cost per year		8231		11769		13711		16605		20652		22418	
Total since 2017		93385											

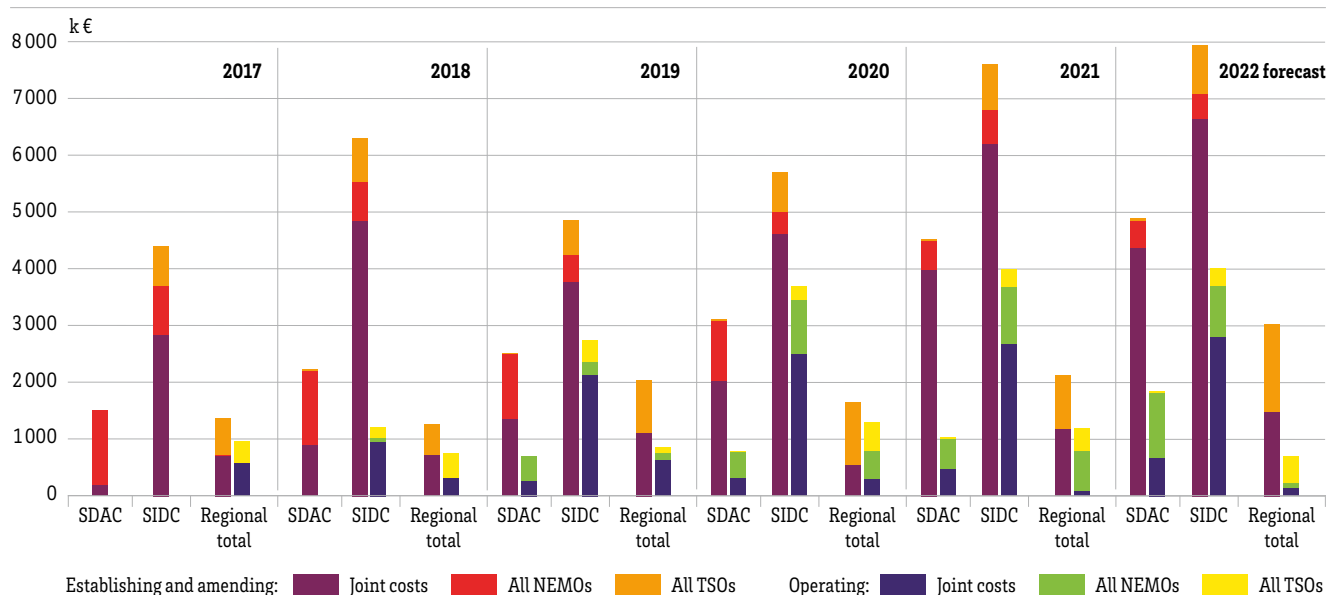


Figure 05

The key points of the evolution of costs in 2021 are the following:

Market Coupling Steering Committee (MCSC) under development in 2021

TSOs and NEMOs have been working incessantly over recent years, and especially in 2021, to achieve a truly integrated European electricity market. This is reflected in the way forward to a new governance structure that entered into force on 14 January 2022. By integrating the decision making for both the day-ahead and intraday timeframe, the new structure will ensure further coordination and foster efficiency, and create a faster decision-making mechanism. Concretely, the joint SDAC and SIDC governance and related agreement updates were discussed and implemented so that the new governance could enter into force in the timeline agreed at the start of the pandemic situation. This represents the implementation of Article 10 of the CACM Regulation.

SDAC key achievements in 2021

2021 marks the completion of the SDAC coupling with (almost) all physical interconnections being part of one coupling: the Multi-Regional Coupling (MRC) and 4M Market Coupling (4M MC) were merged and the loop in SEE by including the borders between Bulgaria, Greece and Romania into SDAC was closed. The new operational timing giving 17 minutes to the Algorithm calculations has been implemented in summer 2021 and a new operational timing to even better cope with the increasing challenges to the Algorithm investigated and agreed for implementation in 2021.

During 2021, one major Euphemia and PCR matcher and broker (PMB) release was launched. It introduced functionalities such as shadow prices for maximum import and export allocation constraints, functionalities to support core flow-based and the calculation of aggregated curves.

A significant part of the SDAC budget is used to research ways to improve the performance of the Algorithm to allow all required change requests, such as the 15 min MTU, to be accommodated. Research was done under the umbrella of the Euphemia Lab programme and shows overall positive results, leading to the industrialisation of promising topics that improve the Algorithm such as the scalable complex launched in December. One option that has been investigated since 2020 is non-uniform pricing. Enabling the Algorithm to cope with future challenges will remain a crucial area of focus in 2022 and 2023.

Governance-wise various changes have been implemented. The Procedures Task Force (TF) was re-integrated under OPSCOM and end 2021 the SDAC Simulation Facility TF was established.

SIDC key achievements in 2021

2021 was another year of continuous progress for SIDC. SIDC was extended to Italy in September 2021 (3rd Go-live wave) through the Northern Italian borders. A new release (R3.1) was successfully deployed in middle of 2021.

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

During 2021, SIDC focussed on the main components of its roadmap:

- Development and start of the tests of the Release 3.2. (focused on the two Software Change Requests, correction of Latent Faults from previous releases and security improvements);
- Negotiations with the IT Provider of a set of measures to increase the performance and the associated Service Level Agreements (SLAs) in order to face the increasing number of orders and trades concluded on the platform;
- Detailed design of the European IDAs, leading to the creation of a new interface module between Intraday Continuous system and Auction algorithm. Detailed specifications have been delivered to the IT providers of the three components of the IDAs;
- Development of the Cross Product Matching (CPM) functionality via a Minimum Viable Product to assess the viability of the concept and its impact on performance;
- Coordination with the Local Implementation Project (LIP 14) aiming to extend the SIDC to Italy.

SIDC has continued to provide strategic orientations and identify solutions for all unresolved issues at the working level. In addition to the monitoring of the roadmap as described above, SIDC contributed to the preparation of the establishment of the new joint governance with SDAC.

Chapter A: Pan European costs

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

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

Table 3

in €		Establishing and amending costs		Operating costs	
SDAC common costs	All NEMOs and all TSOs costs	1.1	3 239 861	1.2	449 413
	All NEMOs costs	1.3	366 519	1.4	761 778
	All TSOs costs	1.5	43 659	1.6	34 302
SIDC common costs	All NEMOs and all TSOs costs	2.1	3 943 851	2.2	2 447 610
	All NEMOs costs	2.3	354 103	2.4	826 081
	All TSOs costs	2.5	729 094	2.6	281 142
Total			8 677 087		4 800 326

The following table provides an overview of the 2022 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	4 368 706	3.2	669 674
	All NEMOs costs	3.3	478 583	3.4	1 143 827
	All TSOs costs	3.5	45 588	3.6	35 588
Intraday related common costs	All NEMOs and all TSOs costs	4.1	6 650 679	4.2	2 805 435
	All NEMOs costs	4.3	439 708	4.4	900 000
	All TSOs costs	4.5	857 700	4.6	313 900
Total			12 840 964		5 868 424

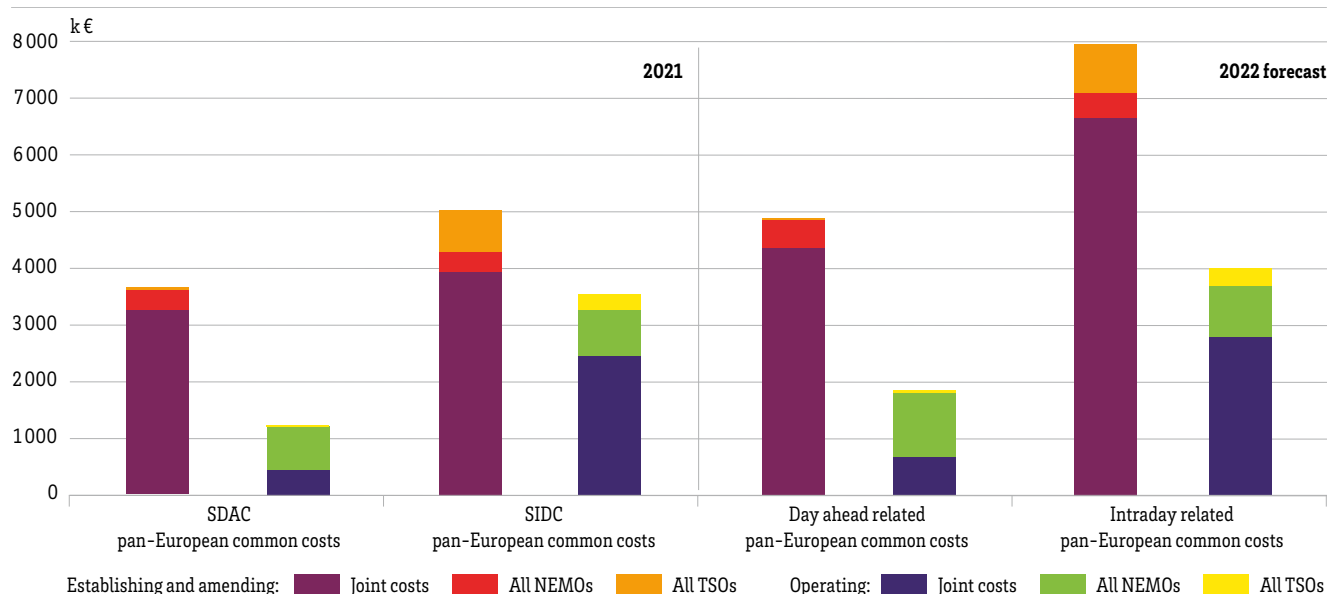


Figure 06

1 Actual SDAC costs of 2021

1.1 The joint all TSOs and all NEMOs costs of establishing and amending the SDAC The amount of 3 239 861 € consists of:

Table 5

Item	Category	Temporary activity	2021 costs (€)
1.1.1	ICG	YES	16 913
1.1.2	Simulation Facility Contingency	NO	4 914
1.1.3	Simulation Facility Adaptation 4MMC	YES	750
1.1.4	Simulation Facility Architecture Update	NO	76 052
1.1.5	Simulation Facility Euphemia Releases	NO	16 052
1.1.6	MSD NEMOs & TSOs co leader (ES)	NO	182 745
1.1.7	MSD PMO	NO	180 745
1.1.8	15min MTU PMO	YES	217 294
1.1.9	SDAC Technical Solution Euphemia Releases	NO	297 392
1.1.10	SDAC Technical Solution Leader Remuneration	NO	219 365
1.1.11	SDAC Technical Solution PMB Releases	NO	318 381
1.1.12	SDAC Technical Solution R&D	NO	679 908
1.1.13	SDAC Technical Solution Support tasks	NO	104 011
1.1.14	Maintenance Contracts	NO	704 567
1.1.15	JSC Secretary	NO	68 391
1.1.16	Project Place Users	NO	1 235
1.1.17	Join Me licenses	YES	408 €
1.1.18	Communications TF Coordination	NO	17 508
1.1.19	Procedures TF Coordination	NO	12 603
1.1.20	Legal TF Coordination	NO	64 974
1.1.21	Central Settlement Entity Fees	NO	55 019
	Total SUM		3 239 861

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

The amount of 449 413 € consists of:

Table 6

Item	Category	Temporary activity	2021 costs (€)
1.2.1	Simulation Facility Operational	NO	22 309
1.2.2	Procedures TF Coordination	NO	30 063
1.2.3	Communications TF Coordination	NO	5 836
1.2.4	Legal TF Coordination	NO	21 658
1.2.5	JSC Secretary	NO	68 391
1.2.6	Secretarial OPSCOM	NO	43 138
1.2.7	Central Settlement Entity Fees	NO	55 019
	Total SUM		449 413

- A rate of 925 €/MD was used for internal resources of NEMOs and TSOs;
- The Budget Management Task Force (BMTF) is responsible for the budgeting, validating and reviewing of costs associated with the JSC, who provides the final cost approval;
- The cost sharing methodology for the 2021 Joint Actual costs is based on the capacity allocation and congestion management (CACM) sharing keys implemented in the DAOA, which entered into force 28 March 2019;
- The TF Leaders provided the split of their cost reporting activities, between the establishment and the operational costs and between TSOs only and Joint NEMOs and TSOs SDAC costs;
- The main events for the year per task force were as below.
- Translate the relevant market design needs into amendments of requirements or new requirements for the Algorithm and the IT systems;
- Provide an assessment of feasibility, costs and benefits of changes, design them to the level of functional specifications in line with the strategic guidance provided by JSC, and ensure that the design phase follows the planning;
- Support the creation of viable release planning with the focus on the analytical and technical deliverables and market design needs;
- Provide the necessary market, technical and functional knowledge base to other bodies and external parties.

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

1.2.1 Market and System Design TF (Items 1.1.6 and 1.1.7)

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;

Due to the frequency of meetings (weekly meetings of 2 h or 3 h) and the documentation required for them, as well as for all other deliverables required under the MSD TF, the support of the MSD PMO was essential.

Costs for the research and development (R&D) programme have been managed by the MSD TF as they are part of the SDAC Joint NEMOs and TSOs cost categories as it concerns development for both NEMOs and TSOs for the SDAC Algorithm. Further progress on the R&D work was carried out by the third party service provider N-Side during 2021.

1.2.2 JSC Secretary and ICT PMO

(Items 1.1.15 and 1.2.5)

- The roles are all performed by an external service provider, E-Bridge Consulting;
- The activities of this role are focused on the facilitation of the JSC meetings and the facilitation of the Integrated Coordination Team (ICT), which is responsible for the co-ordination of all deliverables across all TFs:
 - › Preparation and facilitation of JSC conference calls, including drafting meeting minutes and ensuring the 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-annual strategy meetings. These meetings were held to co-ordinate dependencies and risks across TFs, agree high-level planning, discuss overall strategy and prepare for JSC meetings. Issues were highlighted to the SDAC Co-Chairs and mitigations agreed;
 - › Contract management and taking care of new party adherence;
 - › Single point of contact for requests of JSC members;
 - › Leading implementation of joint SDAC & SIDC governance.

1.2.3 Communications TF (Items 1.1.18 and 1.2.3)

The Communication TF is chaired by an external service provider, E-Bridge Consulting. The Communication TF focuses on the external communication made by SDAC. The major deliverables of 2021 were the following:

- Preparation and coordination of SDAC material for MESC and Pentalateral Coordination Group meetings;
- Maintenance and delivery of SDAC communication plan: draft and publish press releases and communication notes on important events, maintain website.

1.2.4 Procedures TF (Items 1.1.19 and 1.2.2)

The main roles of the Procedures TF consist of the following:

- Draft, update and test relevant MRC operational procedures;
- End-to-end testing of 4MMC procedures;

- Draft, update and test relevant SDAC operational procedures in preparation of the enduring phase;
- Responsible for the end-to-end testing of implementation of local and regional changes due to changes in allocation constraints.

The main milestones and activities for the Procedures TF in 2021 were the following:

- New implementations impacting current MRC procedures (changing into SDAC with implementation of merge of Interim Coupling Project (ICP) + MRC under the SDAC project in mid-June):
 - › Polish MNA –21 January;
 - › Change of Threshold for Second auction for the Iberian Market –21 February;
 - › Procedural regular improvements based on OPSCOM discussions – 21 March;
 - › BG-GR border implementation – 21 June;
 - › New operational timings (full-decoupling deadline shift to 14:00 with Shadow Auction rules revision) – 21 June;
 - › Interim Coupling Project merge with MRC under single Day-Ahead Project – 21 June;
 - › Hansa MNA implementation – 21 June;
 - › BU – RO Market coupling implementation – 21 October;
 - › NO2A + EXAA CCP change – 21 November.
- Maintenance, improvements (Change control procedure adaptation with Algorithm methodology and monitoring), republication of procedures (NEMO Committee website, 1 September) and testing of existing MRC & SDAC operational procedures;
- Joint procedural Testing (32 PCR/MRC Joint Tests in 2021). Organisational tasks, management and reporting:
 - › Hard Brexit + Polish MNA Tests – 18/19/20/21 January;
 - › Procedural NEMO-only test with Service Provider (backups) – 27 January;
 - › Training test (Full decoupling scenario training with Market participants) – 25 February and 03 March;
 - › BG-GR border implementation Tests – 12/13/14/15 April;
 - › New operational timings + ICP merge – 17/18/19/20/25/26 May;

- › Hansa MNA implementation Tests – 14/15/16 June;
 - › Allocation and ramping constraints on the Italian northern borders – 31 August and 01/02 September;
 - › New PCR assets (PMB-Euphemia releases) – 30 September and 04 October;
 - › BU – RO Market coupling Tests – 11/12/13/14 October;
 - › Training test (Full decoupling scenario training with Market participants) – 26 October and 03 November;
 - › NO2A + EXAA CCP Tests – 29 October and 02 November;
 - › Procedural NEMO-only test with Service Provider (backups) – 15 December.
- Analysis, discussion and impact assessment in Market Coupling process, documentation and reporting for extension of algorithm computation from 12 to 17 minutes in 2021 – new operational timings preparations (inherited from last year).

1.2.5 Legal TF Coordination (Items 1.1.20 and 1.2.4)

The main tasks of the Legal TF on SDAC-only topics were the following in 2021:

- Participation in discussions and legal assessment CCP-default related issues;
- Legal preparations and discussions non-uniform pricing;
- Discussions re 15' MTU implementation;
- Question re end of Interim Period & start of Enduring Period (single operation of 4MMC & MRC under SDAC);
- Work re transfer of agreements for NASDAQ;
- Question re CCP amendment linked with Algorithm Methodology.

1.2.6 Central Settlement Entity Fees (Items 1.1.21 and 1.2.7)

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

- Budgeting and monitoring activities;
- Settlements for the SDAC Joint NEMOs and TSOs Common costs;

- Monthly and quarterly documentation and reporting of the project expenses;
- Advise parties concerning critical financial issues: Make suggestions, propose way forwards if deemed necessary;
- Leadership role of the SDAC Budget Management Task Force.

1.2.7 Simulation Facility (Items 1.1.2, 1.1.3, 1.1.4, 1.1.5 and 1.2.1)

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

The main costs involving the Simulation Facility which occurred in 2021 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;
- Inclusion of the 4MMC region;
- SF taskforce Telcos;
- Functional Support Facility Operational (FSFO) activity (support to SF users, Leader role);
- Quarterly remuneration of SDAC Technical Solution NEMOs for Euphemia use.

1.2.8 SDAC Technical Solution (Items 1.1.9, 1.1.10, 1.1.11, 1.1.12 and 1.1.13)

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

1.3 The all NEMOs costs of establishing and amending the SDAC in 2021

The all NEMOs costs of establishing and amending the SDAC in 2021 consist of:

- NEMO Committee costs totalling 146 462 €;
- NEMOs only costs of establishing and amending the SDAC algorithm and DA MCO Function System totalling 220 057 € as further detailed below.

50 % of all costs encountered by the NEMO Committee in its tasks of preparing CACM methodologies and proposals in 2021, totalling 146 462 €

Table 7

Item	Related Task Force	Temporary activity	2021 costs (€)
1.3.1	NEMO Committee	NO	104 237
1.3.2	NEMO Committee - chairman	NO	49 314
1.3.3	Reporting and communication Task Force	NO	36 769
1.3.4	Technical Task Force	NO	50 580
1.3.5	Legal Task Force	NO	14 754
1.3.6	NEMO Committee - support	NO	19 002
1.3.7	Intraday auction Task Force	YES	0
1.3.8	Cost Task Force	NO	18 269
1.3.9	Exceptional contingency	YES	0
	Total SUM		292 925

In 2021, the NEMO Committee (NC) worked on many activities: partly following up from 2020 ones, partly new, and mostly following the responsibilities and tasks given by CACM Regulation, the approved MCO Plan and Algorithm Methodology.

1.3.1 NEMO cooperation

(Items 1.3.1, 1.3.2 and 1.3.6)

The NEMO Committee (NC) addressed some escalations from SDAC and SIDC and streamlined the position of all NEMOs regarding some topics of common interest within the Pentilateral Coordination Group. Furthermore, in 2021 the NC dedicated significant resources to the CACM review process.

1.3.2 NEMO-TSO cooperation

(Items 1.3.1, 1.3.2 and 1.3.6)

The NC and All TSOs continued their cooperation to build a single European internal energy market. Namely, all NEMOs and all TSOs worked on the planning to establish the joint governance for SDAC and SIDC..

1.3.3 Methodologies (Item 1.3.4)

On 23 February the NC published the public description of the Continuous Trading Matching Algorithm according to ACER Decision No 04/2020.

1.3.4 Communication and Stakeholders involvement (Item 1.3.3)

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

The NC together with ENTSO-E worked on their position paper following the consultation on amendments proposed by ACER to the Capacity Allocation and Congestion Management guidelines.

On 29 June the NC, together with Europex, published their answer to the ACER Consultation on the Draft Framework Guideline on sector-specific rules for cybersecurity aspects of cross-border electricity flows

On 01 July 2021, the NC published the 2020 Cost report prepared in cooperation with ENTSO-E and in compliance with CACM Regulation, Article 80.1.

On 01 July 2021, the NC published on its website the CACM Annual Report 2020, a report on operations, monitoring and development of the SDAC and SIDC prepared in cooperation with ENTSO-E and in compliance with provisions under the 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 14 October 2021, the NC facilitated access to market participants, through its website, to all NEMO aggregated bid curves for the SDAC auction, also in multi-NEMO areas

On 14 October 2021, the NC organised a webinar to provide market participants and stakeholders information on the published "CACM Annual Report 2020" with detailed information on intraday and day-ahead coupling operations and developments.

On 25 October 2021, the NC and ENTSO-E organised a joint workshop with Natural Regulatory Authorities (NRAs) to present the so called Option 3 (also known as "evolutionary proposal") for CACM in the context of the amendment proposal from ACER.

- 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) consist of costs of the Chairman of the NEMO Committee, 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 3 TFs operating in 2017, namely the Algorithm and product TF, DA Algorithm TF and ID Algorithm TF, in order to deal with all technical methodologies in a centralised approach under the CACM Regulation;
- The Legal TF (item 1.3.5) 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 220 057 €

Table 8

Item	Category	Temporary activity	2021 costs (€)
1.3.11	PMO – General Support	NO	78 083
1.3.12	Support Tasks	NO	62 998
1.3.13	Leader Remuneration	NO	59 639
1.3.14	Facilities	NO	19 337
	Total SUM		220 057

Compared to 2020, the Maintenance costs (totalling roughly 650 K€) were considered as joint NEMO-TSO common cost for the establishment and amendment of SDAC, based on the ongoing strengthening of the joint governance of SDAC (including its systems). These costs refers to part of the cost related to the maintenance contracts for Algorithm and PMB which is not related to production operational support and therefore refers to basic maintenance (so-called "offline maintenance") and change release management.

- 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 the 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 by Indra Czech Republic s.r.o. as of 06 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 PWG (Procedural Working Group) and LTF (formerly Governance Working Group) leadership provided by the internal resources of NEMOs;
- Support tasks (item 1.3.12) refer to minor ad-hoc tasks performed for the benefit of all NEMOs such as their representation in specific joint WGs or TFs or in external forums or update of materials such as presentations and documentation. These tasks are provided either internally by the NEMOs or externally by the PMO;
- Facilities (item 1.3.14) refer to costs of the document management system provided by Project place International AB and to the costs of the Incident committee conf call lines used as the main line for daily operational calls and incident committee calls.

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

1.4 NEMOs only costs of operating the SDAC

Respective costs attributable to all NEMOs for operating the SDAC algorithm totalling 761 778 €

Table 9

Item	Category	Temporary activity	2021 costs (€)
1.4.1	Maintenance Contracts	NO	367 484
1.4.2	Leader Remuneration	NO	81 169
1.4.3	Facilities	NO	39 381
1.4.4	PMO – General Support	NO	13 345
1.4.5	Support Tasks	NO	1 070
1.4.6	PMB Release testing	YES	14 800
1.4.7	Operation Fees	NO	244 530
	Total SUM		761 778

As of mid-2021, the MRC and 4M MC regions were merged and an enduring solution for SDAC was implemented, making operation fees (cost of day-to-day operation of single coupling) a joint NEMO costs and increasing slightly the costs of online maintenance:

- 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;
- Maintenance costs (item 1.4.1) refer 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");
- Leader Remuneration (item 1.4.2) refers to the remuneration of the PWG, Algorithm Working Group and LTF (formerly Governance Working Group) leadership provided by the internal resources of NEMOs for the benefit of the operation of SDAC;
- Facilities (item 1.4.3) refers to the usage of several on-line tools such as projectplace and conferencing tools used by NEMOs for SDAC;
- PMO- General Support (item 1.4.4) costs consist of the costs of the external support related to project management services provided by Indra Czech Republic s.r.o. as of 06 May 2020;
- Support tasks (item 1.4.5) costs refer to the costs of the ACER study performed by NEMOs on a yearly basis;
- PMB Release testing (item 1.4.6) refers to testing of new versions of PMB system;
- Operation Fee (item 1.4.7) refers to the 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 TSO only costs of establishing and amending the SDAC

The amount of 43 659 € consists of:

Table 10

Item	Category	Temporary activity	2021 costs (€)
1.5.1	Legal Support TCDA	NO	9 357
1.5.2	TSO JSC Secretary	NO	13 430
1.5.3	Central Settlement Entity Fees	NO	20 872
	Total SUM		43 659

- 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 JSC (E-Bridge Consulting) and the Central Settlement Entity (JAO SA);
- The external legal services have been provided based on the direct assignment, as a continuity of the selected service providers, by the SDAC TSOs JSC;
- The cost-sharing methodology for the 2021 Joint Actual costs is based on the CACM sharing keys implemented in the TSO Cooperation Agreement for TCDA, which entered into force as of 28 March 2019.

1.6 The TSO only costs of operating the SDAC

The amount of 34 302 € consists of:

Table 11

Item	Category	Temporary activity	2021 costs (€)
1.6.1	TSO JSC Secretary	NO	13 430
1.6.2	Central Settlement Entity Fees	NO	20 872
	Total SUM		34 302

1.6.1 JSC 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 Steering Committee meetings.
 - › Preparation and facilitation of the TSO JSC 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 requests of TSOs' JSC members;
 - › Implementation of joint SDAC & SIDC TSO governance.

1.6.1 Central Settlement Entity Fees (Items 1.5.3 and 1.6.2)

- This role is performed by an external service, JAO SA. The following tasks are included in these Central Settlement Entity Fees:
 - Budgeting and monitoring activities;
 - Settlements for the SDAC TSOs-only common costs;
 - Monthly and quarterly documentation and reporting of the SDAC project expenses;
 - Advise parties concerning critical financial issues: Make suggestions, propose ways forward if deemed necessary.

2 Actual SIDC costs of 2021

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

SIDC algorithm and ID MCO Function System totalling 3 943 851 € as further detailed below. The costs consist of:

Table 12

Item	Category	Temporary activity	Total costs of 2021 (€)
2.1.1	Hosting & Maintenance of SIDC Technical solution	NO	1 677 376
2.1.2	Further development of SIDC technical solution	NO	1 494 648
2.1.3	XBID Testing Group - XTG	NO	204 690
2.1.4	Market System Design - MSD	NO	138 273
2.1.5	Quality Assurance and Release Management Q&ARM	NO	117 589
2.1.6	Intraday auctions - IDA		75 338
2.1.7	Other expenses	NO	21 541
2.1.8	LIP Testing Coordinator - LTC	YES	39 359
2.1.9	Intraday Steering Committee - IDSC	NO	46 264
2.1.10	Legal Task Force - LTF	NO	47 052
2.1.11	Budget Management Subgroup - BMSG	NO	24 837
2.1.12	Integrated Co-ordination Team - ICT	NO	15 248
2.1.13	Communications Subgroup - COMSG	NO	22 563
2.1.14	OTF	NO	19 072
	Total SUM		3 943 851

The actuals in 2021 were considerably lower compared to expected budget (6,25 M EUR), where the main difference is caused by significantly lower spending related to:

- Further development of SIDC continuous solution (difference of 1.1 M), where major change requests were postponed into 2022;
- Development of IDA solution (difference of nearly 0.5 M), where the development itself was completely shifted into 2022;
- Associated cost related to project management (difference of 0.5 M).

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

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 3 049 413 €, of which 1 661 376 € represent the costs of establishing and amending the SIDC and 1 372 037 € represents operating costs
 - › This consists of elements such as:
 - Cost of hosting the solution in two data centres;
 - Cost of security services;
 - Cost of providing the solution's environments

- (productions, production-like, test environments) and the infrastructure;
 - Cost of providing continuous IT support and operation;
 - Cost of the availability of the failover mechanism;
 - Cost of software licences;
 - Cost of corrective and preventive software corrections;
 - Cost of 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.
 - › 3rd party support totalling 27 678 €, which is a specific support from the XBID Service Provider DBAG to each NEMO primarily for solving obstacles during the setup of LTS connectivity to the SIDC technical solution (hence considered as the costs of establishing and amending the SIDC).
- **New functionality or service in totalling 1 494 648 €:**
 - CR100 – CPM – Minimum Valuable product: 901 116 € – With this CR the project parties agreed on the R&D of the CPM Basic functionalities to understand the implementation and performance aspect. The 50 percent of R&D was covered from the 2021 budget (**450 558 €**).
 - CR101 – Release 3.2: **103 277 €** – The CR was primarily focused on the improvement of the technical components of the XBID Solution as well as the functional modification and corrections in the following areas:
 - › Cross border trading halt impact to OCC files (XBID-5410);
 - › ATC after ramp rate improvement (XBID-5606);
 - › FIXIT of JIRAs from previous releases, IMTs;
 - › Third party software upgrades.
 - CR102 – Topology Updates Flexibility: **86 076 €** – The CR introduces better flexibility in the topology which involves removing any undesirable effects preventing the use of all the parallel interconnectors in the configuration for both implicit and explicit allocations.
 - CR103 – Release 3.3: 686 888 € for SW changes & 357 143 € – This introduces an update of the technical components, improvement of the performance optimisation to extend the system boundaries of the XBID and functional changes which are considered critical. The following points are in the scope:
 - › CR102 Topology Flexibility Updates (XBID-5611) – R3.3 is just a vehicle for the delivery of CR102 which has its own record/price;
 - › 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 optimisation) and infrastructure (Server upgrade, Storage size increase) enhancements necessary for uplifting the Service Boundaries in order for the XBID Solution to handle 10 million daily Order Transactions;
 - › Update of SLA reporting;
 - › FIXIT of JIRAs from previous releases, IMTs;
 - › Third party software upgrades;
 - › The cost attributed to 2021 is 70 % of the infrastructure cost (**250 000 €**).
- ASR019: **67 272 €** – The ASR was necessary to cover the involvement of DBAG in the activities associated with the 3rd wave production launch strategy and readiness of the XBID Solution.
 - ASR020 – DBAG test Client: **63 252 €** – with this ASR, DBAG updated a tool which is used by the testing specialists for the validation of certain parts of XBID functionalities.
 - ASR021 – IMT Severity Tracking: **12 000 €** with this ASR, the parties are getting improved efficiency in the use of the incident management tool, which contributes to the more efficient processing of the operational incidents.
 - ASR022 – DBAG's supporting services for refinement of agreed CRs: **60 156 €** – the ASR was needed to clarify the impact of the items below listed on the XBID system:
 - › Common ATC/NTC for Bidding Zone borders (XBID-4936);
 - › Scheduled Service Halt (XBID-5408);
 - › Cross border trading halt impact to OCC files (XBID-5410);
 - › Shipping Module (SM) late files alarm (XBID-5419).

- ASRO23 Support Services for XBID 3rd Wave Trial Period and Go-live: **62 355 €** - with this ASR, the parties get the package of support and consultancy services for XBID 3rd wave production launch strategy and the readiness of the XBID Solution.
- ASRO24 Analysis for RTS4 Slice A: **144 576 €** - with this ASR, NEMOs and TSOs arranged with DBAG a set of services for the design, execution and validation of new testing scenarios to explore additional measures for XBID performance optimisation.

2.1.3 XBID Testing Group (XTG) (Item 2.1.3) Co-chaired by representatives from ELES (as of February), TTN and OMIE

In 2021, there were four main activities performed by XTG. These activities are described below, with the main elements and the corresponding dates.

- **R3.1:** this release started already in 2020 and continued in 2021, and was deployed in the production environment on 28 April 2021. The overall UAT consisted of the following phases:
 - › UAT I/III/R – Functional and Regression tests: from 03 September 2020 until 01 February 2021;
 - › UAT II – Performance tests: from 02 February 2021 until 01 March 2021;
 - › UAT V – Failover Tests: from 01 March 2021 until 19 March 2021;
 - › Final bug retesting period: from 22 March 2021 until 25 March 2021.
- **PROD DST SCC:** the DST short clock change has been tested by XTG on behalf of OPSCOM. Those tests have been performed in 2 runs:
 - › Run 1: from 22 February 2021 until 05 March 2021;
 - › Run 2: from 08 March 2021 until 26 March 2021.
- **R3.2:** R3.2 was a maintenance release which has been deployed in the production environment on 31 January 2022. XTG only executed one testing phase for this release, as follows:
 - › UAT I/III/R phase: 01 October 2021 until 25 November 2021.
- **PROD DST LCC:** the DST long clock change has been tested by XTG on behalf of OPSCOM. Those tests have been performed in 2 runs:
 - › Run 1: from 27 September 2021 until 15 October 2021.
 - › Run 2: from 18 October 2021 until 29 October 2021

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

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

Major MSD R&D activity was design work regarding cross-product matching features, representing the continuation of work started in 2020 addressing more detailed questions regarding the impact on files generated by XBID Solution and their specific attributes, configurations, routing and specific corner cases assessment. Detailed design work was completed at the end of Q3 2021. In addition, the impact to ACER/REMIT reporting and calculation of rounding residuals was addressed under a separate ASR.

Another R&D activity under MSD responsibility via the Flow-based Subgroup was a preparation of high-level design for flow-based support implementation. The high-level design provides a basic introduction to the topic, assessment of impacts to capacity constraints validation, several alternatives for related shipping changes and also indications regarding changes to the inbound files structure. Work on high-level design was completed in May 2021 and put on hold as further work required DBAG involvement, which was not possible due to resources constraints. The impact of flow-based design was also considered within QA&RM/TSSG work on enduring shipping cost benefit analysis.

Major Change Requests prepared by MSD and further detailed with DBAG addressed topology updates flexibility and ATC ramp rate limit consideration improvement.

Concerning the work overseen by the MSD with regards to losses on DC cables, the adjusted concept considering the local rounding solution discussed in 2020 was rejected due to various unacceptable impacts. A new central solution was suggested. Work was put on hold as further work required DBAG involvement, which was not possible due to resources constraints.

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

- The budgeted cost for QA&RM-related activities for 2021 was 179 309 € (attributed to the establishment cost). The real cost was 132 k€.
- QA&RM represents several types of activities focused on Quality Assurance and Release Management. In practical terms 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 which cause a deviation from the project plan and planned quality;
 - › establishment and management of the processes associated with the geographical extension of SIDC cooperation (preparation for the 3rd wave of go live).
- The main leading drivers of the cost attributed in 2021 were mainly services associated with:
 - › Finalisation of the elaboration on detailed study related to the enduring shipping solution as well as clarification activities associated with the resolution of the short-term situation;
 - › Implementation of Release 3.2;
 - › Planning activities for the new releases including planning for CPM and IDAs;
 - › Managing of the inputs for the CACM report and for the JET-A cooperation;
 - › Clarification of the business and project topics with the XBID system provider;
 - › Coordination of the planning and activities and execution of the 3rd wave of SIDC geographical extension;
 - › Preliminary planning of the 4th wave activities.

2.1.6 IDA (Item 2.1.6) Chaired by representative from E-Bridge (PMO provided by INDRA)

IDA SG manages the preparation of technical requirements regarding IDA implementation and also overall coordination. In 2021 this included: completion of work on high-level design, including description and assessment of various XBID-PMB/EUPHEMIA integration options; elaboration of detailed process/technical design for selected integration option and preparation of change requests/functional requirements for (modification of) existing and new IT solutions. First, clarifications regarding functional requirements with IT providers were triggered in 2021. The activities plan, responsibilities sharing and governance of the project were reviewed to ensure efficient cooperation among SIDC and SDAC, central project and Regional Implementation Projects and also internally within SIDC. IDA SG also prepared a testing approach proposal clarifying which test phases should be foreseen and their dependencies, and which body is responsible for a specific test phase.

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

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

All activities were related to 3rd Wave LIP testing completion and 4th Wave LIP testing preparation focusing on the incorporation of Greek borders. These activities included for 3rd Wave Run 2 of the Functional tests and Run 1 to Run 3 of Simulation tests with 3rd wave parties in the period January to May.

Work was organised with weekly calls of 3rd wave parties focusing on alignment concerning testing preparations and planning. During an active test phase (usual duration 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.

Activities related to 4th Wave LIP testing included the configuration of test environment, and preparations for Integration tests and Run1 of the Functional in the period August – September.

Work was organised with weekly calls of selected 4th Wave parties and was put on hold in September due to local preparations delay and the consequent replanning of the 4th wave scope and timeline.

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

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

- Implementation joint governance : implementation principles in IDOA, negotiations on amendments, QMV implementation (determination of principles);
- Ad hoc questions related to DBAG contract (including Deposix);
- Ad hoc question e - signing;
- Ad hoc question related to observership status (Serbian parties), accession (Baltic Cable), Nasdaq transfer;
- PMO / LTF Co-convenor tasks (follow-up mails, input to ID SC, participation to IDSC, participation ICT telco budget reporting, organisation LTF telco; etc.).

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

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

The BMSG managed financial reporting and validation monthly.

The resettlement of the cost among all SIDC parties takes places quarterly.

In 2021 the costs were split using the:

- Sharing Key for Establishing and Amending Cost;
- 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 2022 and financial roadmap for 2023–2025 was developed and approved according to the IDOA process.

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

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.

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

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

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

SIDC algorithm and ID MCO Function System operation totalling 2 447 610 € as further detailed below.
The costs consist of:

Table 13

Item	Category	Temporary activity	Total costs of 2021 (€)
2.2.1	Hosting & Maintenance of SIDC Technical solution	NO	1 372 036
2.2.2	Incident Committee single point of contact - IC SPOC	NO	586 008
2.2.3	Operational Committee - OPSCOM	NO	304 005
2.2.4	MPLS	NO	60 059
2.2.5	Budget Management Subgroup - BMSG	NO	24 837
2.2.6	Other expenses	NO	22 054
2.2.7	Intraday Steering Committee - IDSC	NO	15 269
2.2.8	OTF	NO	19 072
2.2.9	Legal Task Force - LTF	NO	15 684
2.2.10	Integrated Co-ordination Team - ICT	NO	6 137
2.2.11	Communications Subgroup - COMSG	NO	7 630
2.2.12	QA & RM	NO	14 819
	Total SUM		2 447 610 €

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

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

The importance of the IC SPOC is to ensure the necessary coordination of all parties during a critical incident. With the involvement of so many parties in a joint project such as SIDC, it is crucial to have a dedicated individual to ensure the necessary actions are taken and ensure the 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.

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

The key role of OPSCOM is to ensure the continued stable operation of the SIDC system. This is achieved by the standardised operating procedures created, which are continually improved and executed by OPSCOM members internally. Another vital task of OPSCOM is the management production incidents, which members investigate and review to identify 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 maintenance, new version releases and go-lives.

2.2.3 Costs of MPLS (Item 2.2.4)

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

2.3 The all NEMOs costs of establishing and amending the SIDC

NEMO Committee costs totalling 146 462 €, NEMOs only costs of establishing and amending the SIDC totalling 207 641 € as further detailed below. The costs consist of:

50 % of all costs encountered by NEMO Committee in its tasks of preparation of CACM methodologies and proposals in 2021 totalling 146 462 €

Table 14

Item	Category	Temporary activity	Total costs of 2021 (€)
2.3.1	NEMO Committee	NO	104 237
2.3.2	NEMO Committee - chairman	NO	49 314
2.3.3	Reporting and communication TF	NO	36 769
2.3.4	Technical TF	NO	50 580
2.3.5	Legal TF	NO	14 754
2.3.6	NEMO Committee - support	NO	19 002
2.3.7	IDA TF	YES	0
2.3.8	Cost TF	NO	18 269
2.3.9	Exceptional contingency	YES	0
	Total SUM		292 925

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 207 641 €.

Table 15

Item	Category	Temporary activity	Total costs of 2021 (€)
2.3.10	Project Management (PM)	NO	126 899
2.3.11	Technical WG (TWG)	NO	41 741
2.3.12	Expenses	YES	0
2.3.13	Legal WG (LWG)	NO	34 034
2.3.14	Procedures WG (PWG)	NO	2 246
2.3.15	Cost Management WG (CMG)	NO	2 721
	Total SUM		207 641

- 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 and TWG and by MODO Advocaten for LWG;
- The external support for PMO services was selected based on a competitive tender;

- The external support for LWG services was selected based on a direct assignment prior to CACM's entry into force;
- Project Management is responsible for the project management of NEMOs-only bodies under the SIDC project;
- The TWG is responsible for the review of the technical and functional specifications of the SIDC MCO Function System;
- Expenses relate mostly to the costs of the Public Message Interface (PMI) and traveling/meeting place expenses;
- The LWG is responsible for the delivery of the contractual framework required by NEMOs to establish and operate the SIDC;
- The PWG is responsible for establishing the NEMOs-only procedures of SIDC and NEMOs activities (drafting and review) related to joint NEMOs and TSOs procedures;
- PM costs includes the costs of IDA SG PMO in the amount of nearly 12 K € which will be resettled as joint NEMOs-TSOs costs in course of 2022.

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

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

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

The main drivers associated with the costs attributed in 2021 were mainly services associated with:

- Negotiation and implementation of the Release 3.2;
- Negotiation of ASR and contractual implications for the performance implementation measures, including finalisation of the Amendment 6 to Maintenance and Support Agreement (MSA);

- Clarifications regarding the implementation of the Cross Product Matching – Minimum Valuable Product;
- Management of the process and activities for the 3rd 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);
- Clarification and implementation of the change within the scope of REMIT reporting, finalisation of the scope for implementation;
- Regular clarifications on the project status with NRAs via JET platform;
- Resolution of different escalations from working level.

2.3.2 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.

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

List of activities from January until December 2021:

- Technical solution for monitoring accesses to PMI logs files – analysis and CR preparation;
- ACER REMIT Reporting – collecting of requirements, analysis and clarification with ACER;
- 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 twice a year to OPSCOM/AM TF;
- BBPs/SMs review for XBID R3.2, Losses;
- Amendment 6 to MSA – review and contribution from technical perspective;
- CPM impact to ACER reporting – analysis started;
- XBID R3.3 open software components upgrade assessment, need for performance and failover tests assessment;
- Monthly SLA Performance monitoring, analysis and managerial summaries preparation, evolution of the reports;
- Future XBID system performance needs analysis;
- XBID R3.1 Performance tests preparation, execution with LTSs connected, results and reports analysis;
- RTS4 performance tests preparation, dataset and scenarios definition, proposed improvements analysis started;
- PMI log analysis tool – clarification with the third party service provider Minsait, support and bug report tickets resolution;
- Support and organisation of the recurring training of operators;
- Amendments and enhancement of procedures according to findings from operations;
- Preparation of operator's certification.

2.4 The all NEMOs costs of operating the SIDC

The amount of 826 081 € consists of:

Table 16

Item	Category	Temporary activity	Total costs of 2021 (€)
2.4.1	Central Administrator	NO	730 000
2.4.2	Expenses	YES	25 828
2.4.3	Technical WG (TWG)	NO	42 972
2.4.4	Project Management (PM)	NO	6 024
2.4.5	Legal WG (LWG)	NO	11 345
2.4.6	Procedures WG (PWG)	NO	7 126
2.4.7	Cost Management WG (CMG)	NO	2 786
	Total SUM		826 081

- The rate for the Central Administrator role was set up to 2 000 €/24 hours;
- A rate of 925 €/MD was used for the internal resources of NEMOs;
- The external costs were included at cost without any surplus or commercial benefit for the contracting party;
- The Central Administrator role rotates among the NEMOs who volunteered to perform this role;
- The resources for the NEMOs - only part of the SIDC project were secured through external providers support by Indra Czech Republic s.r.o. for Cost TF, PM, PWG and TWG and by MODO Advocaten for LWG;
- The external support for PMO services was selected based on a competitive tender;
- The external support for LWG services was selected based on a direct assignment prior to CACM's entry into force;
- The Central Administrator is responsible for the operation of the central system (XBID Solution) and for the performance of all procedures in 24/7 regime;

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

2.5 The all TSOs costs of establishing and amending the SIDC

All TSOs PMO and WG support totalling 729 094 € as further detailed below. The costs consist of:

Table 17

Item	Category	Temporary activity	Total costs of 2021 (€)
2.5.1	Costs for project management	NO	312 876
2.5.2	Costs related to information and communication channels	NO	65 441
2.5.3	External administration costs related to SIDC Solution	NO	5 890
2.5.4	Cost for testing	NO	331 500
2.5.5	Contingency	YES	13 387
	Total SUM		729 094

The following activities were undertaken under these categories:

2.5.1 Costs for project management (Item 2.5.1)

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

- APG (and for December also ČEPS) for the role of the TSO project manager;
- Artelys for the role of the TSO chair;
- BEA for the legal support;
- E-Bridge for PMO support;
- Magnus Red for expert/PMO support for the ECP4 upgrade.

The following activities were undertaken:

- Attendance of IDSC (and facilitation in the case of the TSO chair), MESCC, PCG and JET meetings, DBAG JSC, 1-1 calls with joint TF leaders, etc. including preparations/follow-ups;
- Support in risk and issue management of the joint NEMO and TSO SIDC. In 2021, amongst others, the following important deliverables were the focus of the TSO project management team:
 - › Implementing intraday auctions: agreement of the Terms of Reference, setting-up the project structure (including SDAC), deciding on integration option and identifying the provider of the required module for data exchange (including various TSO-only calls to align TSO position and way forward);
 - › Implementation of the joint SDAC & SIDC governance;
 - › Implementation of cross-product matching;

- › Designing the new stakeholder reporting, including managing of the reporting subgroup lead by TSOs;
- › Preparation and LIP testing for 3rd wave go-live;
- › Transit shipping: cost-benefit-analysis provided to NRAs;
- › Work on FB concept for continuous trading;
- Preparation for, running of and follow-up for TSO SC;
- Budgeting, reporting, and managing the quarterly resettlement of TSO-only common costs; input for 2020 NRA reporting;
- Drafting input for the ENTSO-E market report;
- Amending the TCID to reflect the joint SDAC and SIDC governance and signature;
- Review on how to strengthen TSO participation and decision-making during IC calls;
- Preparations for a TSO knowledge sharing workshop;
- Identification and appointment of one new TSO XTG co-convener and TSO project manager;
- Trigger and conduct the work on ECP version upgrade i.e., create dedicated group and contract PMO support for the new group.

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

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

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

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

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

2.5.4 Cost for testing (Item 2.5.4)

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

2.5.5 Contingency (Item 2.5.5)

E-Bridge expert costs for supporting the R&D work on flow-based intraday capacity allocation.

2.6 The all TSOs costs of operating the SIDC

All TSOs PMO and WG support totalling 281 142 € as further detailed below. The costs consist of:

Table 18

Item	Category	Temporary activity	Total costs of 2021 (€)
2.6.1	Costs for project management	NO	32 975
2.6.2	Costs related to information and communication channels	NO	65 441
2.6.3	External administration costs related to SIDC Solution	NO	156 471
2.6.4	External costs related to reporting to EMFIP	NO	22 092
2.6.5	Costs for operational reporting	YES	4 163
2.6.6	Contingency	YES	0
	Total SUM		281 142

The following activities were undertaken under these categories:

2.6.1 Costs for project management (Item 2.6.1)

Under this category, the remaining 10% of the costs for project management activities are summarised. See chapter 2.5.1 for details.

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

Under this category, 50% of the costs for providing and maintaining the ECP/MPLS communication channel are summarised. See chapter 2.5.2 for details.

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

- The external service provider, JAO, serves as central administrator.
- This cost category summarises JAO's costs for
 - › Configuring the CMM and SM part of operational environments;
 - › Fee for 24/7 general availability and the on-call service fee.

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

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

2.6.5 Costs for operational reporting (Item 2.6.5)

Costs of ČEPS for preparing monthly operational indicators.

2.6.6 Contingency (Item 2.6.6)

No contingency was utilised.

3 Forecast of SDAC costs for 2022

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

The amount of 4 368 706 € consists of:

Table 19

Item	Category	Temporary activity	Budget 2022 (€)
3.1.1	Simulation Facility Knowledge Sharing	NO	5 000
3.1.2	Simulation Facility CR Contingency	NO	30 000
3.1.3	Simulation Facility Monitoring & Improvements	NO	30 000
3.1.4	Simulation Facility Adaption for Euphemia releases	NO	40 000
3.1.5	Simulation Facility Platform Hardware Renewal	NO	5 000
3.1.6	Simulation Facility Euphemia Hardware Renewal	NO	30 000
3.1.7	Simulation Facility Internal Software Optimisation	NO	5 000
3.1.8	Simulation Facility V4 General Improvements	NO	22 000
3.1.9	Simulation Facility TF Leaders costs	NO	71 825
3.1.10	MSD TF budget for support of TF members	NO	14 800
3.1.11	SDAC Technical Solution R&D	NO	751 000
3.1.12	Non-uniform Pricing Developments	NO	60 000
3.1.13	MSD NEMOs & TSOs co leader	NO	212 750
3.1.14	MSD PMO + organizational aspects	NO	212 000
3.1.15	MSD TF general contingency	NO	50 000
3.1.16	15 min MTU PCR R&D + Diagnosis	NO	78 000
3.1.17	15min MTU PMO	NO	235 100
3.1.18	Dedicated Budget on MSD Deliverables	NO	122 125
3.1.19	Co-optimisation Roadmap Study	NO	124 000
3.1.20	MCSC Secretary	NO	65 000
3.1.21	Meeting Arrangements	NO	27 000
3.1.22	Communication TF Leader	NO	21 094
3.1.23	Legal TF Leaders	NO	54 188
3.1.24	SDAC Technical Solution Euphemia Releases	NO	301 000
3.1.25	SDAC Technical Solution Leader Remuneration	NO	189 700
3.1.26	SDAC Technical Solution PMB Releases	NO	465 600
3.1.27	SDAC Technical Solution ALWG Training	NO	31 100
3.1.28	SDAC Technical Solution Support Tasks	NO	52 700
3.1.29	Maintenance Contracts	NO	781 700
3.1.30	DisCo Daily Fee	NO	108 962
3.1.31	Project Place Users	NO	1 300
3.1.32	Central Settlement Entity Fees	NO	70 763
3.1.33	Contingency	NO	100 000
	Total SUM		4 368 706

- The budget of 2022 establishing and amending costs was calculated based on the Joint NEMOs and TSOs SDAC costs in 2021;
- The total of the 2022 budget was increased by 1 128 845 € for the Joint SDAC establishment costs, compared to the 2021 actuals. This variance was caused by:
 - › A large underspending in 2021 caused by a delay in costs related to new version releases of the SDAC Technical Solution, which were initially expected to occur in 2021 but were moved to 2022;
 - › The establishment of a dedicated Simulation Facility TF Leader role;
 - › Newly introduced costs such as Co-optimisation Roadmap Study (3a.19) and the DisCo Daily Fee (3a.30). This fee was introduced to reimburse the PCR Co-owners for their hardware costs related to the Distributed Computing "DisCo", relevant to the implementation of 15' MTU functionalities.

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

The amount of 669 674 € consists of:

Table 20

Item	Category	Temporary activity	Budget 2022 (€)
3.2.1	Legal TF Leaders	NO	18 063
3.2.2	SF Operational	NO	314 418
3.2.3	MCSC Secretary	NO	65 000
3.2.4	Travel and Meeting Arrangements	NO	27 000
3.2.5	Communication TF Leader	NO	7 031
3.2.6	Creation of SDAC Marketing Slides	NO	7 400
3.2.7	SDAC OPSCOM	NO	110 000
3.2.8	Central Settlement Entity Fees	NO	70 763
3.2.9	Contingency	NO	50 000
	Total SUM		669 674

- The total of the 2021 budget was increased by 220 261 € for the Joint NEMOs and TSOs operating costs, compared to the 2021 actuals;
- To align the costs in the best manner to the appropriate groups, the TF Leaders provided the split of their cost reporting activities between the establishment and the operational costs;
- The main reason for this increase is that higher maintenance, support and hosting costs are expected for the Simulation Facility (covered under SF Operational, 3b.2).

3.3 The all NEMOs forecast of establishing and amending the SDAC

All NEMO Committee costs totalling 195 708 € and all NEMOs PMO and WG support totalling 282 875 € as further detailed below. The costs consist of:

50% of all costs forecasted for the All NEMO Committee in its tasks of preparation of CACM methodologies and proposals totalling 195 708 €.

Table 21

Item	Category	Temporary activity	Budget 2022 (€)
3.3.1	Chairman	NO	54 450
3.3.2	PMO and administrative costs	NO	128 400
3.3.3	Legal TF	NO	20 341
3.3.4	Cost TF	NO	25 850
3.3.5	Reporting and communication TF	NO	51 425
3.3.6	Technical TF	NO	70 950
3.3.7	Exceptional contingency	YES	40 000
	Total SUM		391 416

Compared to actuals of 2021:

- There is an expected increase related to the Reporting and Communication TF based on the additional communication and reporting requirements;
- There is an expected increase for the Technical TF based on the workload linked with co-optimisation, 15min resolution introduction 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;
- The exceptional contingency of 40 K € is included to cover the unexpected tasks in 2022, 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 282 875 €

Table 22

Item	Category	Temporary activity	Budget 2022 (€)
3.3.8	PMO – General Support	NO	65 162
3.3.9	Leader Remuneration Fee	NO	71 325
3.3.10	Facilities	NO	17 813
3.3.11	Support tasks	YES	128 577
	Total SUM		282 875

- The budget of 2022 corresponds with actuals of 2021 based on the fact that majority of development activities are carried out under joint NEMO-TSO management.

3.4 The all NEMOs forecast of operating the SDAC

The amount of 1 143 827 € consists of:

Table 23

Item	Category	Temporary activity	Budget 2022 (€)
3.4.1	Online Maintenance	NO	495 736
3.4.2	Leader Remuneration	NO	96 663
3.4.3	PMB release	NO	0
3.4.4	PMO – General Support	NO	22 573
3.4.5	Support tasks	YES	25 208
3.4.6	Facilities	NO	45 372
3.4.7	Maintenance Costs	YES	7 500
3.4.8	Operation Fees	NO	450 775
	Total SUM		1 143 827

The forecasted costs of 2022 represent a significant increase (of 100 K €) compared to the actuals of 2021 due to the following aspects:

- As of mid-2021, both regions (MRC and 4M MC) are coupled operationally – meaning that regional costs for operation became joint costs of all operational NEMOs;
- The nature of the operational costs (an increase mostly of maintenance costs);
- Increase in activities of leaders/PMO connected to the extension of SDAC and its functionalities.

3.5 The all TSOs forecast of establishing and amending the SDAC

The amount of 45 588 € consists of:

Table 24

Item	Category	Temporary activity	Budget 2022 (€)
3.5.1	TSO Legal TF Support	NO	10 000
3.5.2	TSO MCSC Secretary	NO	12 000
3.5.3	Central Settlement Entity Fees	NO	23 588
	Total SUM		45 588

3.6 The all TSOs forecast of operating the SDAC

The amount of 35 588 € consists of:

Table 25

Item	Category	Temporary activity	Budget 2022 (€)
3.6.1	TSO JSC Secretary	NO	12 000
3.6.2	Central Settlement Entity Fees	NO	23 588
	Total SUM		35 588

- The budget for 2022 was calculated based on the TSOs-only 2021 SDAC actuals costs.
- The budget for cost elements TSO JSC Secretary and Central Settlement Entity Fees has been split equally between categorisation establishing and amending the SDAC and operating the SDAC.

4 Forecast of SIDC costs for 2022

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

Costs related to establishing and amending the SIDC in 2022 totalling 6 650 679 €. The costs consist of:

Table 26

Item	Category	Temporary activity	Budget 2022 (€)
4.1.1	Aggregated Project Management costs	NO	1 030 321
4.1.2	Technical support tools (ProjectPlace, ReQTest)	NO	26 356
4.1.3	DBAG costs - related to future Local implementation projects	YES	183 333
4.1.4	DBAG costs - development + Change requests	NO	2 915 389
4.1.5	DBAG costs - hosting/maintenance ongoing	NO	1 575 000
4.1.6	DBAG costs - hosting/maintenance increase with Change requests	NO	68 000
4.1.7	Intraday Auctions implementation	YES	852 336
	Total SUM		6 650 679

In 2022, the Joint all TSOs' and all NEMOs' budget for Establishing and Amending the SIDC is 6.65 m€. This is an increase of around 2.65 m€ compared with the actual figure in 2021 of 4 m€ (which was a significant underspend against budget due to a delay in release 3.3 delivery and IDA solution delivery). The 2022 cost drivers include an increase for the development of the SIDC Solution due to:

- finalisation in implementation of Release 3.3;
- increased budget for IDA implementation (an increase by more than 100 %);
- an increase in the Hosting & Maintenance costs.

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

Costs related to operation of SIDC in 2022 totalling 2 805 435 €. The costs consist of:

Table 27

Item	Category	Temporary activity	Budget 2022 (€)
4.2.1	Aggregated Project Management Costs	NO	471 377
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	1 492 434
4.2.5	DBAG costs - hosting/maintenance increase with Change Requests	NO	117 761
4.2.6	IC SPOC	NO	586 008
4.2.7	DBAG costs - hosting/maintenance contingency	YES	50 000
	Total SUM		2 805 435

In 2022, the Joint all TSOs' and all NEMOs' budget for Operating the SIDC is 2.8 m€. This is a 15 % increase over the 2021 actuals of 2.45 m€. The increase is a corresponding increase in Hosting & Maintenance, which is increased by each development.

4.3 The all NEMOs forecast of establishing and amending the SIDC

50 % of all costs forecasted for the All NEMO Committee in its tasks of preparation of CACM methodologies and proposals totalling 195 708 €. The costs consist of:

Table 28

Item	Category	Temporary activity	Budget 2022 (€)
4.3.1	Chairman	NO	54 450
4.3.2	PMO and administrative costs	NO	128 400
4.3.3	Legal TF	NO	20 341
4.3.4	Cost TF	NO	25 850
4.3.5	Reporting and communication TF	NO	51 425
4.3.6	Technical TF	NO	70 950
4.3.7	Exceptional contingency	YES	40 000
	Total SUM		391 416

Respective costs attributable to all NEMOs for the establishment and amendment of SIDC totalling 244 000 € related to:

Table 29

Item	Category	Temporary activity	Budget 2022 (€)
4.3.8	NEMOs organisation	NO	234 000
4.3.9	Other costs and contingency	YES	10 000
	Total SUM		244 000

The NEMOs organisation budget for 2022 is expected to be slightly higher compared to 2021 due to the increased workload related to IDA topics..

4.4 The all NEMOs forecast of operating the SIDC

The costs consist of:

Table 30

Item	Category	Temporary activity	Budget 2022 (€)
4.4.1	Central Admin (NEMOs rotation)	NO	730 000
4.4.2	NEMOs organisation	NO	112 000
4.4.3	Other costs and contingency	YES	58 000
	Total SUM		900 000

- The main task of NEMO Central Admin is predicted to be the same amount as 2021;
- For the NEMOs organisation, there is a slight increase compared to the 2021 amount.

4.5 The all TSOs forecast of establishing and amending the SIDC

The costs consist of:

Table 31

Item	Category	Temporary activity	Budget 2022 (€)
4.5.1	Costs for project management	NO	359 100
4.5.2	Costs related to information and communication channels	NO	70 000
4.5.3	External administration costs related to SIDC Solution	NO	8 000
4.5.4	Costs for external testing support	NO	304 000
4.5.5	PMO support ECP upgrade	YES	36 800
4.5.6	Flow-based expert	YES	19 600
4.5.7	Knowledge sharing WS	YES	20 300
4.5.8	Contingency	YES	40 000
	Total SUM		857 700

- The budget for 2022 is slightly lower compared to 2021;
- Main differences are related to:
 - › Costs for the external testing support (4.5.4) are forecasted to decrease by 25 % compared to 2021 as the investment in test automation should pay-off;
 - › New cost categories 4.5.5 to 4.5.7 have been added.

4.6 The all TSOs forecast of operating the SIDC

The costs consist of:

Table 32

Item	Category	Temporary activity	Budget 2022 (€)
4.6.1	Costs for project management	NO	39 900
4.6.2	Costs related to information and communication channels	NO	70 000
4.6.3	External administration costs related to SIDC Solution	NO	162 000
4.6.4	External costs related to reporting to EMFIP	NO	22 000
4.6.5	Contingency	YES	20 000
	Total SUM		313 900

- The budget for 2022 is slightly lower compared to 2021;
- Compared to 2021, no budget for operational reporting is foreseen as these costs have been defined as joint NEMO- and TSO costs.

Chapter B: Regional costs

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

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

Table 33

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

Overview of total actual common regional costs in 2021

Table 34

in K€		Establishing and amending costs		Operating costs	
Day ahead related common costs	All NEMOs and all TSOs costs	1.1	1 152	1.2	139
	All NEMOs costs	1.3	-	1.4	397
	All TSOs costs	1.5	893	1.6	527
Intraday related common costs	All NEMOs and all TSOs costs	2.1	32	2.2	-
	All NEMOs costs	2.3	-	2.4	-
	All TSOs costs	2.5	-	2.6	-
Total			2 075		1 063

The following table provides an overview of the forecast of common regional costs for 2022

Table 35

in K€		Establishing and amending costs		Operating costs	
Day ahead related common costs	All NEMOs and all TSOs costs	3.1	1 490	3.2	150
	All NEMOs costs	3.3	-	3.4	85
	All TSOs costs	3.5	1 452	3.6	463
Intraday related common costs	All NEMOs and all TSOs costs	4.1	66	4.2	-
	All NEMOs costs	4.3	-	4.4	-
	All TSOs costs	4.5	-	4.6	-
Total			3 008		698

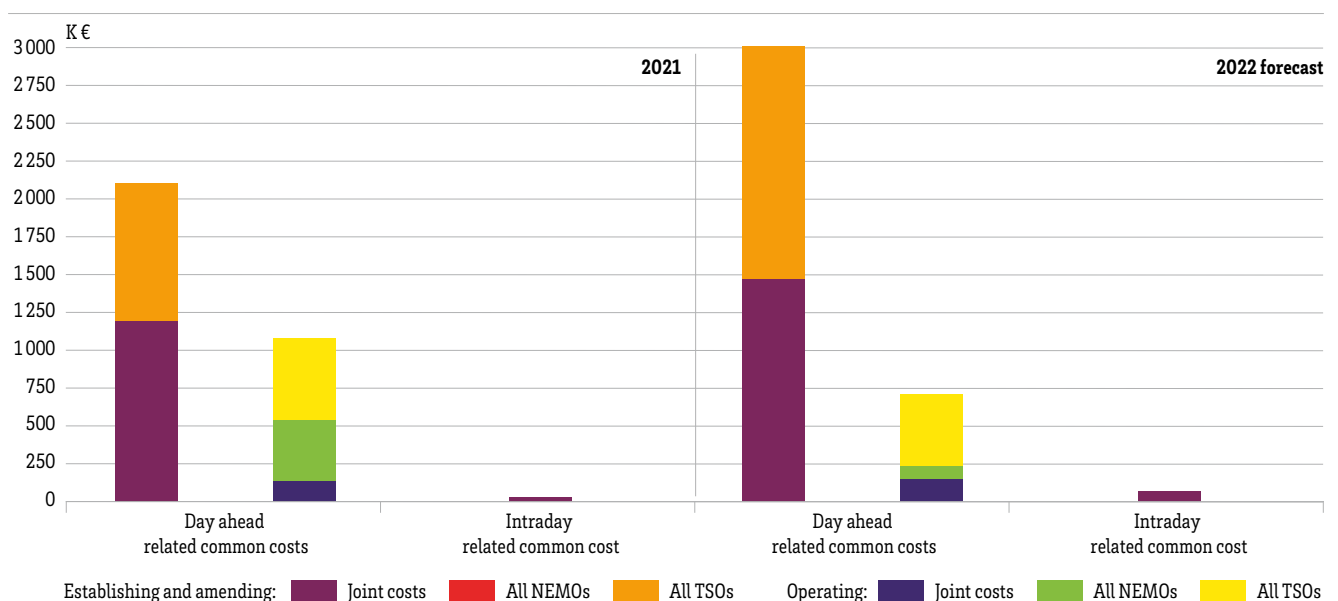


Figure 07

1 Regional projects of the Day-Ahead Timeframe

1.1 Costs of CWE project (DA) – including CWE and DE-AT-LU MNA projects

The Central Western Europe (CWE) market coupling project ensures the market coupling in the CWE region with a Flow Based Capacity Calculation Flow, which means that the result of the market coupling must be found within the provided constraints of a Flow-Based domain. The CWE project is developing a Multiple NEMO configuration in the CWE region, allowing designated or

passport European NEMOs to enter into competition, as foreseen by the CACM Guideline. This Multiple NEMO configuration in CWE went live as of July 2019.

The default CACM sharing key applies for the CWE project.

1.1.1 Actual costs for 2021

The following table provides an overview of the total actual regional common costs in 2021:

Regional costs (€)	2021 establishing and amending costs	2021 operating costs
NEMOs costs	0	169 531
TSOs costs	0	39 996
NEMOs and TSOs costs	345 600	35 975

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

Details	Temporary activity	2021 costs (€)
CIP costs	YES	169 531
Total SUM		169 531

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

The **TSOs only costs** of operational costs totalling 39 996 € consist of:

Details	Temporary activity	2021 costs (€)
MPLS costs	YES	39 996
Total SUM		39 996

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

The **joint TSOs and NEMOs costs** of establishing and amending totalling 345 600 € consist of:

Details	Temporary activity	2021 costs (€)
Joint PMO	YES	184 550
Target Governance	YES	161 050
Total SUM		345 600

The **joint NEMOs and TSOs operational costs** totalling 35 975 € consist of:

Table 40

Details	Temporary activity	2021 costs (€)
CWE OPSCOM	YES	8 152
JLG	YES	58
JSC PMO	YES	15 378
BME	YES	10 587
Q&A Site	YES	1 800
Total SUM		35 975

- A rate of 925 €/MD was used for CWE internal resources;
- CWE OPSCOM is responsible for the operation of the CWE Market Coupling. In particular but not limited to the update of CWE procedures and organisation of testing activities;
- The Joint Legal Group (JLG) provides support to the Joint CWE project;
- The Budget Management Entity shall provide services for the process of sharing, budgeting, monitoring, providing resettlement calculations and reporting on CWE Regional NEMOs and TSOs.

1.1.2 Forecasts for 2022

The following table provides an overview of the forecast of regional common costs for 2022:

Table 40

Regional costs (€)	2022 establishing and amending costs	2022 operating costs
NEMOs costs	0	84 765
TSOs costs	0	19 998
NEMOs and TSOs costs	99 700	34 797

The budgeted **NEMOs only costs** of operating totalling 84 765 € consist of:

Table 41

Details	Temporary activity	Budget 2022 (€)
CIP costs	YES	84 765
Total SUM		84 765

The budgeted **TSOs only costs** of operating totalling 19 998 € consist of:

Table 42

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

The budgeted **joint TSOs and NEMOs costs of establishing and amending** totalling 99 700 € consist of:

Table 43

Details	Temporary activity	Budget 2022 (€)
Joint PMO	YES	78 300
Target Governance	YES	21 400
Total SUM		99 700

The budgeted **joint TSOs and NEMOs establishing and amending costs** totalling 34 797 € consist of:

Table 44

Details	Temporary activity	Budget 2022 (€)
Joint PMO	YES	11 100
SC WG	YES	2 775
CWE OPSCOM	YES	5 700
Joint Legal Group	YES	1 822
BME	YES	12 500
Questions & Answers site	YES	900
Total SUM		34 797

1.2 Costs of CORE FB MC project (DA)

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

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

The **joint TSOs and NEMOs costs¹ of establishing and amending and costs** of operating Core FB MC totalling 553 058 € consist of:

Details	Temporary activity	2021 costs (€)
PMO	YES	354 025
Cost of flow based user Group & Market Training	YES	7 644
Convenorships	YES	87 326
Specific common deliverables	YES	0
PCR algorithm/ PMB modification costs	YES	5 550
Operational costs of simulations	YES	98 513
Total SUM		553 058

- The external support for PMO services as of January 2018 was selected based on a competitive tender finalised mid 2017;
- A rate of 925 €/MD was used for the JWG, Algorithm & Flow-based validation 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;
- PCR / PMB modification costs are budgeted for simulations to be run for SDAC approval.

- JWG is the central working body where parties are designing and implementing all required assets for project go-live. JWG is also responsible for the coordination of work on all other specific WGs and the delivery of all deliverables for JSC approval.

1.2.1 Forecasts for 2022

The **joint TSOs and NEMOs costs¹** of establishing and amending and costs of operating Core FB MC totalling 460 876 € as further detailed below.

Details	Temporary activity	Budget 2022 (€)
PMO	YES	270 372
Cost of flow based user Group & Market Training	YES	39 900
Convenorships	YES	81 534
Specific common deliverables	YES	9 944
PCR algorithm/ PMB modification costs	YES	10 101
Operational costs of simulations	YES	49 025
Total SUM		460 876

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

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

1.3 Nordic projects (DA)

This Chapter focuses on the Nordic FB project and the Nordic 15 min MTU project, which do not include any operating costs. Costs of operations and other projects are captured in Chapter B7) Nordic operations.

Nordic Flow Based project

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

1.3.1 Actual costs for 2021

Following table provides overview of total actual regional common costs in 2021:

Regional costs (€)	2021 establishing and amending costs	2021 operating costs
NEMOs costs	0	0
TSOs costs	416 552	0
NEMOs and TSOs costs	0	0

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

Details	Temporary activity	2021 total costs (€)
PMO costs	YES	249 931
Other administrative costs	YES	0
System development costs	YES	166 621
Total SUM		416 552

- 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 project;
- The administrative costs concern the ProjectPlace licenses;
- System Development costs are not shared, but handled on an individual party basis.

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

Details	Temporary activity	2021 total costs (€)
PMO costs	YES	0
Other administrative costs	YES	0
System development costs	YES	0
Total SUM		0

- No joint NEMO and TSO costs in 2021.

1.3.2 Forecasts for 2022

The following table provides an overview of the forecast of regional common costs for 2022:

Regional costs (€)	2022 establishing and amending costs	2022 operating costs
NEMOs costs	0	0
TSOs costs	1 342 228	0
NEMOs and TSOs costs	0	0

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

Details	Temporary activity	2022 total costs (€)
PMO costs	YES	250 000
Other administrative costs	YES	0
System development costs	YES	1 092 282
Total SUM		1 342 282

- 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 FB project;
- The system development costs cover the development and implementation of the FB 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;

- There is an increase of the forecasted budget as the project has been postponed a few times for various reasons. This means that costs that were expected in 2021 are now expected in 2022. This applies for the share of the development costs that are included in the forecast for 2022. In addition, the solution has become more complex than originally foreseen, due to encompassing a larger scope than the Nordic CCR. It also includes SwePol, NordBalt and KonTek that need to continue to be handled in the same way as today, which was originally not anticipated. The project is still within the original budget of just over 2100 000€.

Nordic 15 min MTU project

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

1.3.3 Actual costs for 2021

Following table provides overview of total actual regional common costs in 2021:

Regional costs (€)	2021 establishing and amending costs	2021 operating costs
NEMOs costs	0	0
TSOs costs	0	0
NEMOs and TSOs costs	217932	0

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

Details	Temporary activity	2021 total costs (€)
PMO costs	YES	0
Other administrative costs	YES	0
System development costs	YES	0
Total SUM		0

- No joint NEMO and TSO costs in 2021.

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

Details	Temporary activity	2021 total costs (€)
PMO costs	YES	217932
System development costs	YES	0
Total SUM		0

- 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 project;
- The administrative costs concern the ProjectPlace licenses;
- System Development costs are not shared, but handled on an individual party basis.

1.3.4 Forecasts for 2022

The following table provides an overview of the forecast of regional common costs for 2022:

Regional costs (€)	2022 establishing and amending costs	2022 operating costs
NEMOs costs	0	0
TSOs costs	0	0
NEMOs and TSOs costs	905520	0

The Nordic 15min MTU project was launched in May 2021, which means the initial focus was on the initiation of the project, followed by a summer period.

The project was fully initiated with all groups and extension of the scope to Intraday Auctions at the end of 2021. This year (2022), the project works on all relevant deliverables with all groups and scope and therefore the full year and the complete scope results in a higher forecast.

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

Table 56

Details	Temporary activity	2022 total costs (€)
PMO costs	YES	0
Other administrative costs	YES	0
System development costs	YES	0
Total SUM		0

- No joint TSO costs in 2022.

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

Table 57

Details	Temporary activity	2022 total costs (€)
PMO costs + administrative costs	YES	905 520
System development costs	YES	0
Total SUM		905 520

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

1.4 Italian Borders Working Table (IBWT) project for Day-Ahead Market

The main objective of the IBWT 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. ("HEEnEx"), Independent Bulgarian Energy Exchange ("IBEX"),

A specific regional sharing key applies for this project.

1.4.1 Actual costs for 2021

Following table provides overview of total actual regional common costs in 2021:

Table 58

Regional costs (€)	2021 establishing and amending costs	2021 operating costs
NEMOs costs	0	0
TSOs costs	0	0
NEMOs and TSOs costs	35 010	0

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

Table 59

Details	Temporary activity	2021 total costs (€)
IPT Convener for MNA implementation and GR – BC MC implementation	YES	7 985
PMO support for MNA implementation	YES	27 025
Total SUM		35 010

- The common costs stated above were covered by parties requesting the change. As the IBWT project is working on the GR–BG border, MNA implementation on AT–IT and FR–IT borders and finalised the imple-

mentation on GR–IT border, HenEx, IPTO, APG, RTE, EPEX SPOT, NordPool, EXAA, IBEX and ESO were the parties covering the costs with the usage of the equal sharing key.

1.4.2 Forecasts for 2022

The following table provides an overview of the forecast of regional common costs for 2022:

Table 60

Regional costs (€)	2021 establishing and amending costs	2021 operating costs
NEMOs costs	0	0
TSOs costs	0	0
NEMOs and TSOs costs	24 100	0

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

Table 61

Details	Temporary activity	2022 total costs (€)
IPT Convener and PMO	YES	24 100
Total SUM		24 100

- The common costs stated above will be covered by the parties requesting the change.

1.5 MRC project for Day-Ahead Market

The MRC project is the day ahead MC through a common algorithm (PCR) between Belgium, Denmark, Estonia, Finland, France, Germany, Austria, United Kingdom (excluded as of 31 December 2020), Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Italy, Ireland, Slovenia, Croatia, Greece, Poland, Sweden, Portugal and Spain.

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

1.5.1 Actual costs for 2021

Following table provides overview of total actual regional common costs in 2021:

Regional costs (€)	2021 establishing and amending costs	2021 operating costs
NEMOs costs	0	226 555
TSOs costs	0	0
NEMOs and TSOs costs	0	37 788

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

Details	Temporary activity	2021 costs (€)
Secretarial OPSCOM	YES*	35 706
Procedures TF Coordination (MRC)	YES*	2 081
Total SUM		37 788

* The costs are considered temporary as these activities will be performed at SDAC level after Interim Coupling Project go-live (01 July 2021). As of July 2021, all Joint NEMOs and TSOs MRC Regional costs have been closed.

Secretarial OPSCOM

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

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

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

Details	Temporary activity	2021 costs (€)
Coordinator/ Hot Backup Remuneration	NO	206 245
Incident committee conference call lines	NO	19 501
Technical support from WGs	YES	809
Total SUM		226 555

As of mid-2021, the MRC and 4M MC regions were merged and an enduring solution for SDAC was implemented, making Coordinator/Hot Backup Remuneration a joint NEMO costs.

Coordinator/Hot Backup

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

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

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

No TSOs-only costs occurred for the Regional MRC project in 2021

1.5.2 Forecasts for 2022

As of completion of SDAC by merge of 4M MC and MRC, there are no MRC-specific costs projected for 2022.

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

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

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

1.6.1 Actual costs for 2021

Following table provides overview of total regional common costs in 2021:

Regional costs (€)	2021 establishing and amending costs	2021 operating costs
NEMOs costs*	0	0
TSOs costs	0	16 323 without VAT**
NEMOs and TSOs costs*	0	0

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

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

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

Details	Temporary activity	2021 costs (€)
Administrative and hosting fees	YES	16 323 without VAT
Total SUM		16 323

- Daily operation of the mTMF TSO module

1.6.2 Forecasts for 2022*

The following table provides an overview of the forecast of regional common costs for 2022:

Regional costs (€)	2021 establishing and amending costs	2021 operating costs
NEMOs costs	0	0
TSOs costs	0	0
NEMOs and TSOs costs	0	0

* The project ceased operation with the go-live of the ICP project.

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

Details	Temporary activity	2022 costs (€)
Administrative and hosting fees	YES	0
Total SUM		0

1.7 Nordic MNA

In addition to the costs related to projects as captured in Chapter 1.3 Nordic projects (DA), in this Chapter, an overview of the costs of operating and the costs of establishing and amending is presented.

1.7.1 Actual costs for 2021

Following table provides overview of total actual regional common regional costs in 2021:

Regional costs (€)	2021 establishing and amending costs	2021 operating costs
NEMOs costs	0	0
TSOs costs	49 533	33 210
NEMOs and TSOs costs	0	65 444

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

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

Table 70

Details	Temporary activity	2021 total costs (€)
PMO costs	YES	0
Other administrative costs	YES	0
System development costs	YES	49 533
Total SUM		49 533

- The other administrative costs cover the Project Place licenses for the Nordic DA operations;
- The system development costs encompass the development costs of an IT solution for the data exchange of the results of the SDAC.

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

Table 71

Details	Temporary activity	2021 total costs (€)
Operational	No	332 100
Administrative	No	0
Total SUM		332 100

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

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

Table 72

Details	Temporary activity	2021 total costs (€)
PMO costs	NO	75 656
Other administrative costs	NO	5 776
System costs	NO	0
Total SUM		81 432

- The PMO costs 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);

- The other administrative costs cover the Project Place licenses for the Nordic DA operations in Q1 2021. Subsequently, another license construction has been implemented that avoids costs in this category;
- The System costs encompass the costs related to operating and hosting the IT solution for the data exchange of the results of the SDAC. As these costs are born by the Nordic TSOs (see above for the specification of the TSOs costs of establishing and amending and costs of operating), there are no costs in this category.

1.7.2 Forecasts for 2022

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

Table 73

Regional costs (€)	2022 establishing and amending costs	2022 operating costs
NEMOs costs	0	0
TSOs costs	110 000	330 000
NEMOs and TSOs costs	0	115 000

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

Table 74

Details	Temporary activity	2022 total costs (€)
PMO costs	YES	115 000
Other administrative costs	YES	0
System costs	YES	0
Total SUM		115 000

- The PMO costs in the above table encompass the costs 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).

1.8 Baltic MNA

This project concerns the regional costs for amending and establishing the Baltic day-ahead and intraday solutions to become MNA compatible. 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 SPOT.

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 2021 nor budgeted costs in 2022 for this project as project parties are waiting for a second NEMO to become operational in the area.

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

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 implementing SDAC. The project intends to be a stepwise transition on the afore-mentioned borders from current NTC-based explicit allocation towards the FB implicit allocation which is to be implemented in the framework of the Core FB MC Project as a target solution required by regulation. The Interim Coupling Project successfully went live on 17 June 2021 (with delivery day 18 June 2021).

A specific regional sharing key is used for the project. This sharing key was approved by the competent national authorities of each Member State in the region on 04 June 2019.

1.9.1 Actual costs for 2021

There were no common regional costs for 2021.

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

Details	Temporary activity	2021 total costs (€)
Joint TSO system development costs*	YES	426 432
Total SUM		426 432

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

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

Details	Temporary activity	2021 total costs (€)
Joint TSO system operational fee*	YES	139 437
Total SUM		139 437

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

1.9.2 Forecasts for 2022

There are no budgeted common TSOs and NEMOs regional costs for 2022.

There are no TSOs costs for establishing and amending budgeted for 2022.

The **TSO-only operational costs** budgeted for 2022 consist of:

Details	Temporary activity	2022 total costs (€)**
Joint TSO system operational fee	YES	113 592
Total SUM		113 592

** The operational costs related to the operation of the joint TSO system shall be paid by the TSOs as a monthly fee, starting from the go live of the Project (17 June 2021) until go live of Core DA FB MC Project, which is currently foreseen on 08 June 2022.

2 Regional projects of the Intraday Timeframe

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

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 also used 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 involved borders and parties in addition to the manner in which 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 three 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 the respective Go-live group.

The Go live of group A was organised on 21 September 2021. The organisation of Go live of group B is currently under preparation and is foreseen in the period November–December 2022.

The actual 2021 costs consist purely of the PMO support cost, with one exception of a one-off expense of administration cost in November 2021 (postage of the First Amendment). There are no special deliverables prepared by PMO other than the documents supporting the meetings of LIP 14 working groups (agenda, MoM, ...).

2.1.1 Actual costs for 2021 until 1.4.2021

Table 78

Details	Temporary activity	2021 total costs (€) until 1.4.2021
Costs for project management	YES	5 870
Total SUM		5 870

2.1.2 Actual costs for 2021 after 1.4.2021

Table 79

Details	Temporary activity	2021 total costs (€) after 1.4.2021
Costs for project management applicable to all LIP 14 parties	YES	3 241
Costs for project management applicable to group A parties	YES	2 098
Costs for project management applicable to group B parties	YES	5 339
Costs for administration applicable to all LIP 14 parties	YES	104
Total SUM		10 782

- 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 refers to the one-time cost of the postage for distribution of signed copies of First Amendment to the LIP 14 Cooperation Agreement.

2.1.3 Forecasts for 2022

Table 80

Details	Temporary activity	2022 total costs (€)
Costs for project management applicable to group B parties	YES	5 600
Total SUM		5 600

2.2 LIP 17

The LIP 17 project aims to couple intraday electricity markets under SIDC covering borders between Slovakia – the Czech Republic, Slovakia – Hungary and Slovakia – Poland and was established on 07 July 2020. The currently expected go-live of the project is Q4 2022.

The involved parties are:

TSOs: ČEPS, SEPS, MAVIR, PSE

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

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

Governance structure:

LIP 17 Steering Committee: Acts as the governing body of 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 LIP17 Steering Committee.

2.2.1 Actual costs for 2021

Table 81

Details	Temporary activity	2021 total costs (€)
Costs for project management	YES	14 662
Total SUM		14 662

2.2.2 Forecasts for 2022

The cost forecast for 2022 is 60 000 €, and costs will be shared among the parties based on the attached CACM-based cost sharing key.

Chapter C: National costs

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

1 TSOs' national costs

TSOs, as agreed with All NRAs, report on the 2021 national costs as currently reported at national level. When analysing the national costs, it should be taken into account that the methodology of their calculation has not yet been standardised amongst TSOs, and consequently, they should not be directly compared. As of 2023 (cost of 2022), the TSOs will report 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.

Table 82

Member State	TSO	National costs related to SDAC	National costs related to SIDC
Austria	APG	-	-
Belgium	Elia	-	-
Bulgaria	ESO	164 209	30 394
Croatia	HOPS	171 979	73 041
Czech Republic	ČEPS	859 494	
Denmark	Energinet/ELSO	-	-
Estonia	Elering	54 435	12 598
Finland	Fingrid	175 000	211 400
France	RTE	114 000	37 000
Germany	50 Hertz	237 299	300 662
	Amprion	354 789	284 165
	TTG	635 879	264 655
	TransnetBW	60 416	14 464
Greece	ADMIE	-	-
Hungary	MAVIR	271 092	
Ireland	EirGrid	-	-
Italy	Terna	22 917	568 426
Latvia	AST	22 222	22 222
Lithuania	Litgrid	-	-
Luxembourg	CREOS	12 449	7 941
Netherlands	TTN	32 252	808 857
Norway	Statnett	351 683	184 758
Poland	PSE	842 965	
Portugal	REN	152 000	
Romania	Transelectrica	23 700	
Slovakia	SEPS	-	-
Slovenia	ELES	-	-
Spain	REE	21 484	97 518
Sweden	Svenska kraftnät	220 979	479 059

2 NEMOs' national costs

For 2021, 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.

As of 2023 (cost of 2022), the NEMOs will report 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.

Glossary

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

GOWG	Governance WG	MAVIR	Magyar Villamosenergia-ipari Átviteli Rendszerirányító Zártkörűen Működő Részvénytársaság
GR	Greece	MC	Market Coupling
HOPS	Croatian Transmission System Operator Ltd.	MCO	Market Coupling Operator
HR	Croatia	MCSC	Market Coupling Steering Committee
HU	Hungary	ME	Montenegro
HVDC	High Voltage Direct Current	MESC	Market Stakeholder Committee
IAT	Integration Acceptance Test	MEPSO	Macedonian Transmission System Operator AD
IBWT	Italian Borders Working Table	MK	Macedonia
IC	Incident Committee	MNA	Multiple NEMOs Arrangements
ICG	Implementation Coordination Group	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.
ICP	Interim Coupling Project (coupling 4MMC and SDAC area on NTC-based approach)	MRC	Multi Regional Coupling
ICT	Integrated Coordination Team	MSA	Maintenance and Support Agreement
IDA	Intraday Auction	MSD	Market and System Design
IDOA	Intraday Operational Agreement	MTU	Market Time Unit
IDSC	Intraday Steering Committee	NC	NEMO Committee
IFA	Interconnexion France - Angleterre	NEMO	Nominated Electricity Market Operator or Power Exchange
IE	Ireland	NL	Netherlands
INCA	Interim NEMO cooperation Agreement	NO	Norway
IPTO	Independent Power Transmission Operator S.A.	NOS	BiH Nezavisni operator sustava u Bosni i Hercegovini
I-SEM	Integrated Single Electricity Market	NRA	National Regulatory Authority
IT	Italy	NTC	Net Transmission Capacity
JAO	Joint Allocation Office	NWE	North Western Europe
JLG	Joint Legal Group	OPSCOM	Operational Committee
JSC	Joint Steering Committee	OST	OST sh.a – Albanian Transmission System Operator
JWG	Joint Working Group	OTF	Operational Task Force
KOSTT	Kosovo Electricity Transmission System and Market Operator	PCR	Price Coupling of Regions
LIP	Local Implementation Project		
LTA	Long Term Allocation		
LTC	LIP Testing Coordinator		
LTF	Legal Task Force		
LU	Luxembourg		
LWG	Legal Working Group		

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

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

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 83

Member State	Entity	Final Consumption of 2019 (GWh) used for the costs of 2021	Traded volume (TV) 2020 DA (GWh) used for the costs of 2021	Shares MS used for the costs of 2021	Share within MS as used for the costs of 2021	Shares per Party used for the costs of 2021
Austria	APG		0		50.00 %	1.197 %
Austria	EPEX SPOT		17 547		31.57 %	0.756 %
Austria	EXAA		2 743		9.62 %	0.230 %
Austria	EMCO		2195		8.81 %	0.211 %
Austria		66 028	22 485	2.39 %	100.00 %	2.395 %
Belgium	ELIA		0		50.00 %	1.357 %
Belgium	EPEX SPOT		16 384		41.57 %	1.129 %
Belgium	EMCO		1 535		8.43 %	0.229 %
Belgium		83 284	17 919	2.71 %	100.00 %	2.715 %
Bulgaria	ESO		0		50.00 %	0.730 %
Bulgaria	IBEX		15 452		50.00 %	0.730 %
Bulgaria		31 120	15 452	1.46 %	100.00 %	1.460 %
Croatia	HOPS		0		50.00 %	0.462 %
Croatia	Cropex		4 346		50.00 %	0.462 %
Croatia		16 572	4 346	0.92 %	100.00 %	0.925 %
Czech Republic	ČEPS		0		50.00 %	1.109 %
Czech Republic	OTE		18 878		50.00 %	1.109 %
Czech Republic		61 189	18 878	2.22 %	100.00 %	2.219 %
Denmark	ELSO		0		50.00 %	0.851 %
Denmark	EMCO		26 772		38.17 %	0.650 %
Denmark	EPEX SPOT		593 061		6.28 %	0.107 %
Denmark	Nasdaq		0		5.56 %	0.095 %
Denmark		32 460	27 365	1.70 %	100.00 %	1.702 %

Member State	Entity	Final Consumption of 2019 (GWh) used for the costs of 2021	Traded volume (TV) 2020 DA (GWh) used for the costs of 2021	Shares MS used for the costs of 2021	Share within MS as used for the costs of 2021	Shares per Party used for the costs of 2021
Estonia	Elering		0		50.00%	0.373%
Estonia	EMCO		5 160		41.67%	0.311%
Estonia	EPEX SPOT		0		8.34%	0.062%
Estonia		8 257	5 160	0.75%	100.00%	0.746%
Finland	Fingrid		0		50.00%	1.656%
Finland	EMCO		50 553		37.92%	1.256%
Finland	EPEX SPOT		1 516		6.53%	0.216%
Finland	Nasdaq		0		5.56%	0.184%
Finland		82 981	52 070	3.31%	100.00%	3.313%
France	RTE		0		50.00%	6.347%
France	EPEX SPOT		103 585		16.67%	2.116%
France	EMCO		3 795		16.67%	2.116%
France	Nasdaq		0		16.67%	2.116%
France		444 680	107 380	12.69%	100.00%	12.694%
Germany	50 Hertz		0		21.96%	3.605%
Germany	Amprion		0		32.07%	5.265%
Germany	TenneT DE		0		28.44%	4.669%
Germany	Transnet		0		17.53%	2.878%
Germany	EPEX SPOT		197 550		0.00%	0.000%
Germany	EMCO		18 295		0.00%	0.000%
Germany	EXAA		15 365		0.00%	0.000%
Germany	Nasdaq		0		0.00%	0.000%
Germany		510 542	231 210	16.42%	100.00%	16.418%
Greece	ADMIE		0		50.00%	1.279%
Greece	Henex		50 396		50.00%	1.279%
Greece		51 735	50 396	2.56%	100.00%	2.558%
Hungary	Mavir		0		50.00%	0.902%
Hungary	HUPX		21 581		50.00%	0.902%
Hungary		41 282	21 581	1.80%	100.00%	1.804%
Ireland	EirGrid (TSO)		0		50.00%	0.840%
Ireland	EirGrid (NEMO)		31 849		50.00%	0.840%
Ireland	EMCO		0		0.00%	0.000%
Ireland		28 102	31 849	1.68%	100.00%	1.680%

Member State	Entity	Final Consumption of 2019 (GWh) used for the costs of 2021	Traded volume (TV) 2020 DA (GWh) used for the costs of 2021	Shares MS used for the costs of 2021	Share within MS as used for the costs of 2021	Shares per Party used for the costs of 2021
Italy	Terna		0		50.00 %	5.596 %
Italy	GME		209 833		50.00 %	5.596 %
Italy		301 804	209 833	11.19 %	100.00 %	11.191 %
Latvia	AST		0		50.00 %	0.366 %
Latvia	EMCO		6 415		41.67 %	0.305 %
Latvia	EPEX SPOT		0		8.33 %	0.061 %
Latvia		6 652	6 415	0.73 %	100.00 %	0.731 %
Lithuania	Litgrid		0		50.00 %	0.455 %
Lithuania	EMCO		10 310		41.67 %	0.379 %
Lithuania	EPEX SPOT		0		8.33 %	0.076 %
Lithuania		11 409	10 310	0.91 %	100.00 %	0.911 %
Luxembourg	CREOS		0		100.00 %	0.612 %
Luxembourg	EPEX SPOT		0		0.00 %	0.000 %
Luxembourg	EMCO		0		0.00 %	0.000 %
Luxembourg	Nasdaq		0		0.00 %	0.000 %
Luxembourg		6 396	0	0.61 %	100.00 %	0.612 %
Netherlands	TenneT BV		0		50.00 %	1.858 %
Netherlands	EPEX SPOT		23 999		34.33 %	1.276 %
Netherlands	EMCO		10 950		15.67 %	0.582 %
Netherlands		113 368	34 949	3.72 %	100.00 %	3.715 %
Poland	PSE		0		50.00 %	2.042 %
Poland	TGE		5 091		38.89 %	1.588 %
Poland	EPEX SPOT		0		5.56 %	0.227 %
Poland	EMCO		0		5.56 %	0.227 %
Poland		152 002	5 091	4.08 %	100.00 %	4.084 %
Portugal	REN		0		50.00 %	1.277 %
Portugal	OMIE		54 072		50.00 %	1.277 %
Portugal		48 810	54 072	2.55 %	100.00 %	2.555 %
Romania	Transelectrica		0		50.00 %	1.017 %
Romania	OPCOM		23 628		50.00 %	1.017 %
Romania		49 641	23 628	2.03 %	100.00 %	2.035 %
Slovakia	SEPS		0		50.00 %	0.590 %
Slovakia	OKTE		6 355		50.00 %	0.590 %
Slovakia		26 016	6 355	1.18 %	100.00 %	1.180 %

Table 83

Member State	Entity	Final Consumption of 2019 (GWh) used for the costs of 2021	Traded volume (TV) 2020 DA (GWh) used for the costs of 2021	Shares MS used for the costs of 2021	Share within MS as used for the costs of 2021	Shares per Party used for the costs of 2021
Slovenia	ELES		0		50.00 %	0.459 %
Slovenia	BSP		7 614		50.00 %	0.459 %
Slovenia		13 776	7 614	0.92 %	100.00 %	0.918 %
Spain	REE		0		50.00 %	4.601 %
Spain	OMIE		174 812		50.00 %	4.601 %
Spain		242 843	174 812	9.20 %	100.00 %	9.201 %
Sweden	Affärsverket svenska kraftnät		0		50.00 %	2.844 %
Sweden	EMCO		126 477		38.51 %	2.190 %
Sweden	EPEX SPOT		1 471 344		5.94 %	0.338 %
Sweden	Nasdaq		0		5.56 %	0.316 %
Sweden		127 372	127 948	5.69 %	100.00 %	5.689 %
Northern Ireland	EMCO		0		0.00 %	0.000 %
Northern Ireland	SONI (TSO)		0		100.00 %	0.810 %
Northern Ireland	SONI (NEMO)		7 794		0.00 %	0.000 %
Northern Ireland		9 000	7 794	0.81 %	100.00 %	0.810 %
Norway	Statnett		0		50.00 %	2.871 %
Norway	EPEX SPOT		2 647 077		8.98 %	0.516 %
Norway	EMCO		133 271		41.02 %	2.355 %
Norway		123 587	135 918	5.74 %	100.00 %	5.742 %

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

Table 84

Member State	Entity	Final Consumption of 2019 of SDAC (GWh) used for the costs of 2021	Traded volume (TV) 2020 DA (GWh) used for the costs of 2021	Shares MS Used for the costs of 2021	Share within MS as used for the costs of 01.01.2021 until 11.05.2021	Share within MS as used for the costs of 12.05.2021 until 31.12.2021	Share per party as used for the costs of 01.01.2021 until 11.05.2021	Share per party as used for the costs of 12.05.2021 until 31.12.2021
Austria	APG		0		50.00 %	50.00 %	1.208 %	1.208 %
Austria	EPEX SPOT		17 547		31.57 %	31.57 %	0.763 %	0.763 %
Austria	EXAA		2 743		9.62 %	9.62 %	0.233 %	0.233 %
Austria	EMCO		2 195		8.81 %	8.81 %	0.213 %	0.213 %
Austria		66 028	22 485	2.42 %	100.00 %	100.00 %	2.416 %	2.416 %
Belgium	ELIA		0		50.00 %	50.00 %	1.369 %	1.369 %
Belgium	EPEX SPOT		16 384		41.57 %	41.57 %	1.138 %	1.138 %
Belgium	EMCO		1 535		8.43 %	8.43 %	0.231 %	0.231 %
Belgium		83 284	17 919	2.74 %	100.00 %	100.00 %	2.737 %	2.737 %
Bulgaria	ESO		0		0.00 %	50.00 %	0.000 %	0.740 %
Bulgaria	IBEX		15 452		100.00 %	50.00 %	1.479 %	0.740 %
Bulgaria		31 120	15 452	1.48 %	100.00 %	100.00 %	1.479 %	1.479 %
Croatia	HOPS		0		50.00 %	50.00 %	0.472 %	0.472 %
Croatia	Cropex		4 346		50.00 %	50.00 %	0.472 %	0.472 %
Croatia		16 572	4 346	0.94 %	100.00 %	100.00 %	0.944 %	0.944 %
Czech Republic	ČEPS		0		50.00 %	50.00 %	1.120 %	1.120 %
Czech Republic	OTE		18 878		50.00 %	50.00 %	1.120 %	1.120 %
Czech Republic		61 189	18 878	2.24 %	100.00 %	100.00 %	2.240 %	2.240 %
Denmark	ELSO		0		50.00 %	50.00 %	0.861 %	0.861 %
Denmark	EMCO		26 772		40.94 %	40.94 %	0.705 %	0.705 %
Denmark	EPEX SPOT		593.061		9.06 %	9.06 %	0.156 %	0.156 %
Denmark	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
Denmark		32 460	27 365	1.72 %	100.00 %	100.00 %	1.721 %	1.721 %
Estonia	Elering		0		50.00 %	50.00 %	0.382 %	0.382 %
Estonia	EMCO		5 160		50.00 %	50.00 %	0.382 %	0.382 %
Estonia	EPEX SPOT		0		0.00 %	0.00 %	0.000 %	0.000 %
Estonia		8 257	5 160	0.76 %	100.00 %	100.00 %	0.764 %	0.764 %

Table 84

Member State	Entity	Final Consumption of 2019 of SDAC (GWh) used for the costs of 2021	Traded volume (TV) 2020 DA (GWh) used for the costs of 2021	Shares MS Used for the costs of 2021	Share within MS as used for the costs of 01.01.2021 until 11.05.2021	Share within MS as used for the costs of 12.05.2021 until 31.12.2021	Share per party as used for the costs of 01.01.2021 until 11.05.2021	Share per party as used for the costs of 12.05.2021 until 31.12.2021
Finland	Fingrid		0		50.00 %	50.00 %	1.668 %	1.668 %
Finland	EMCO		50553		40.70 %	40.70 %	1.357 %	1.357 %
Finland	EPEX SPOT		1 516.501		9.30 %	9.30 %	0.310 %	0.310 %
Finland	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
Finland		82 981	52 070	3.34 %	100.00 %	100.00 %	3.335 %	3.335 %
France	RTE		0		50.00 %	50.00 %	6.368 %	6.368 %
France	EPEX SPOT		103 585		48.23 %	48.23 %	6.143 %	6.143 %
France	EMCO		3 795		1.77 %	1.77 %	0.225 %	0.225 %
France	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
France		444 680	107 380	12.74 %	100.00 %	100.00 %	12.736 %	12.736 %
Germany	50 Hertz		0		21.96 %	21.96 %	3.616 %	3.616 %
Germany	Amprion		0		32.07 %	32.07 %	5.280 %	5.280 %
Germany	TenneT DE		0		28.44 %	28.44 %	4.682 %	4.682 %
Germany	Transnet		0		17.53 %	17.53 %	2.886 %	2.886 %
Germany	EPEX SPOT		197 550		0.00 %	0.00 %	0.000 %	0.000 %
Germany	EMCO		18 295		0.00 %	0.00 %	0.000 %	0.000 %
Germany	EXAA		15 365		0.00 %	0.00 %	0.000 %	0.000 %
Germany	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
Germany		510 542	231 210	16.46 %	100.00 %	100.00 %	16.464 %	16.464 %
Greece	ADMIE		0		0.5 %	50.00 %	1.289 %	1.289 %
Greece	Henex		50 396		0.5 %	50.00 %	1.289 %	1.289 %
Greece		51 735	50 396	2.58 %	100.00 %	100.00 %	2.578 %	2.578 %
Hungary	Mavir		0		50.00 %	50.00 %	0.912 %	0.912 %
Hungary	HUPX		21 581		50.00 %	50.00 %	0.912 %	0.912 %
Hungary		41 282	21 581	1.82 %	100.00 %	100.00 %	1.824 %	1.824 %
Ireland	EirGrid (TSO)		0		50.00 %	50.00 %	0.850 %	0.850 %
Ireland	EirGrid (NEMO)		31 849		50.00 %	50.00 %	0.850 %	0.850 %
Ireland	EMCO		0		0.00 %	0.00 %	0.000 %	0.000 %
Ireland		28 102	31 849	1.70 %	100.00 %	100.00 %	1.699 %	1.699 %

Table 84

Member State	Entity	Final Consumption of 2019 of SDAC (GWh) used for the costs of 2021	Traded volume (TV) 2020 DA (GWh) used for the costs of 2021	Shares MS Used for the costs of 2021	Share within MS as used for the costs of 01.01.2021 until 11.05.2021	Share within MS as used for the costs of 12.05.2021 until 31.12.2021	Share per party as used for the costs of 01.01.2021 until 11.05.2021	Share per party as used for the costs of 12.05.2021 until 31.12.2021
Italy	Terna		0		50.00%	50.00%	5.613%	5.613%
Italy	GME		209833		50.00%	50.00%	5.613%	5.613%
Italy		301804	209833	11.23%	100.00%	100.00%	11.226%	11.226%
Latvia	AST		0		50.00%	50.00%	0.375%	0.375%
Latvia	EMCO		6415		50.00%	50.00%	0.375%	0.375%
Latvia	EPEX SPOT		0		0.00%	0.00%	0.000%	0.000%
Latvia		6652	6415	0.75%	100.00%	100.00%	0.749%	0.749%
Lithuania	Litgrid		0		50.00%	50.00%	0.465%	0.465%
Lithuania	EMCO		10310		50.00%	50.00%	0.465%	0.465%
Lithuania	EPEX SPOT		0		0.00%	0.00%	0.000%	0.000%
Lithuania		11409	10310	0.93%	100.00%	100.00%	0.929%	0.929%
Luxembourg	CREOS							
Luxembourg	EPEX SPOT							
Luxembourg	EMCO							
Luxembourg	Nasdaq							
Luxembourg								
Netherlands	TenneT BV		0		50.00%	50.00%	1.870%	1.870%
Netherlands	EPEX SPOT		23999		34.33%	34.33%	1.284%	1.284%
Netherlands	EMCO		10950		15.67%	15.67%	0.586%	0.586%
Netherlands		113368	34949	3.74%	100.00%	100.00%	3.739%	3.739%
Poland	PSE		0		50.00%	50.00%	2.055%	2.055%
Poland	TGE		5091		38.89%	38.89%	1.598%	1.598%
Poland	EPEX SPOT		0		5.56%	5.56%	0.228%	0.228%
Poland	EMCO		0		5.56%	5.56%	0.228%	0.228%
Poland		152002	5091	4.11%	100.00%	100.00%	4.110%	4.110%
Portugal	REN		0		50.00%	50.00%	1.288%	1.288%
Portugal	OMIE		54072		50.00%	50.00%	1.288%	1.288%
Portugal		48810	54072	2.58%	100.00%	100.00%	2.575%	2.575%
Romania	Trans-electrica		0		50.00%	50.00%	1.028%	1.028%
Romania	OPCOM		23628		50.00%	50.00%	1.028%	1.028%
Romania		49641	23628	2.06%	100.00%	100.00%	2.055%	2.055%

Table 84

Member State	Entity	Final Consumption of 2019 of SDAC (GWh) used for the costs of 2021	Traded volume (TV) 2020 DA (GWh) used for the costs of 2021	Shares MS Used for the costs of 2021	Share within MS as used for the costs of 01.01.2021 until 11.05.2021	Share within MS as used for the costs of 12.05.2021 until 31.12.2021	Share per party as used for the costs of 01.01.2021 until 11.05.2021	Share per party as used for the costs of 12.05.2021 until 31.12.2021
Slovakia	SEPS		0		50.00 %	50.00 %	0.600 %	0.600 %
Slovakia	OKTE		6 355		50.00 %	50.00 %	0.600 %	0.600 %
Slovakia		26 016	6 355	1.20 %	100.00 %	100.00 %	1.199 %	1.199 %
Slovenia	ELES		0		50.00 %	50.00 %	0.468 %	0.468 %
Slovenia	BSP		7 614		50.00 %	50.00 %	0.468 %	0.468 %
Slovenia		13 776	7 614	0.94 %	100.00 %	100.00 %	0.936 %	0.936 %
Spain	REE		0		50.00 %	50.00 %	4.616 %	4.616 %
Spain	OMIE		174 812		50.00 %	50.00 %	4.616 %	4.616 %
Spain		242 843	174 812	9.23 %	100.00 %	100.00 %	9.232 %	9.232 %
Sweden	Affärs- verket svenska kraftnät		0		50.00 %	50.00 %	2.857 %	2.857 %
Sweden	EMCO		126 477		41.28 %	41.28 %	2.359 %	2.359 %
Sweden	EPEX SPOT		1 471.344		8.72 %	8.72 %	0.498 %	0.498 %
Sweden	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
Sweden		127 372	127 948	5.71 %	100.00 %	100.00 %	5.713 %	5.713 %
Northern Ireland	EMCO		0		0.00 %	0.00 %	0.000 %	0.000 %
Northern Ireland	SONI (TSO)		0		100.00 %	100.00 %	0.828 %	0.828 %
Northern Ireland	SONI (NEMO)		7 794		0.00 %	0.00 %	0.000 %	0.000 %
Northern Ireland		9 000	7 794	0.83 %	100.00 %	100.00 %	0.828 %	0.828 %
Norway	Statnett		0		50.00 %	50.00 %	2.883 %	2.883 %
Norway	EPEX SPOT		2 647.077		8.98 %	8.98 %	0.518 %	0.518 %
Norway	EMCO		133 271		41.02 %	41.02 %	2.365 %	2.365 %
Norway		123 587	135 918	5.77 %	100.00 %	100.00 %	5.767 %	5.767 %

1.3 The following sharing key was used for the sharing of all NEMOs costs of establishing and amending the SDAC in 2021

Table 85

Member State	Final consumption in 2019 (GWh)	Traded volume 2020 DA (GWh) to be used for sharing of SDAC costs in 2021	MS share to be used for sharing of SDAC costs in 2021	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2021	CACM Share - SDAC to be used for sharing of SDAC costs in 2021
Austria	66027.9300	17547	2.3967%	EPEX SPOT	63.137%	1.5132%
		2743		EXAA	19.244%	0.4612%
		2195		NP EMCO	17.619%	0.4223%
Belgium	83708.9000	16384	2.7269%	EPEX SPOT	83.147%	2.2673%
		1535		NP EMCO	16.853%	0.4596%
Bulgaria	31600.2120	15452	1.4715%	IBEX	100.000%	1.4715%
Croatia	16572.0000	4346	0.9253%	CROPEX	100.000%	0.9253%
Czech Republic	60056.8960	18878	2.1939%	OTE	100.000%	2.1939%
Denmark	32442.2740	26772	1.7022%	NP EMCO	76.333%	1.2994%
		593		EPEX SPOT	12.556%	0.2137%
		N/A		NASDAQ	11.111%	0.1891%
Estonia	7786.9400	5160	0.7355%	NP EMCO	83.330%	0.6129%
		0		EPEX SPOT	16.670%	0.1226%
Finland	82980.0000	50553	3.3151%	NP EMCO	75.836%	2.5140%
		1517		EPEX SPOT	13.053%	0.4327%
		N/A		NASDAQ	11.111%	0.3683%
France	440688.0240	103585	12.6126%	EPEX SPOT	33.333%	4.2042%
		N/A		NASDAQ	33.333%	4.2042%
		3795		NP EMCO	33.333%	4.2042%
Germany	510542.0000	197550	16.4312%	EPEX SPOT	25.000%	4.1078%
		18295		NP EMCO	25.000%	4.1078%
		N/A		NASDAQ	25.000%	4.1078%
		15365		EXAA	25.000%	4.1078%
Greece	51735.3040	50396	2.5589%	HENEX	100.000%	2.5589%
Hungary	41477.0000	21581	1.8098%	HUPX	100.000%	1.8098%
Ireland	28559.9190	31849	1.6914%	EirGRID	100.000%	1.6914%
Italy	301803.5650	209833	11.1988%	GME	100.000%	11.1988%
Latvia	6651.8640	6415	0.7313%	NP EMCO	83.330%	0.6094%
		0		EPEX SPOT	16.670%	0.1219%
Lithuania	11409.3000	10310	0.9109%	NP EMCO	83.330%	0.7591%
		0		EPEX SPOT	16.670%	0.1519%

Table 85

Member State	Final consumption in 2019 (GWh)	Traded volume 2020 DA (GWh) to be used for sharing of SDAC costs in 2021	MS share to be used for sharing of SDAC costs in 2021	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2021	CACM Share - SDAC to be used for sharing of SDAC costs in 2021
Luxembourg	6 396.4980	0	0.6117%	EPEX SPOT	33.333%	0.2039%
		N/A		NASDAQ	33.333%	0.2039%
		0		NP EMCO	33.333%	0.2039%
Netherlands	115 153.1360	23 999	3.7598%	EPEX SPOT	68.669%	2.5818%
		10 950		NP EMCO	31.331%	1.1780%
Poland	152 001.9830	5 091	4.0875%	TGE	77.778%	3.1792%
		0		EPEX SPOT	11.111%	0.4542%
		0		NP EMCO	11.111%	0.4542%
Portugal	48 810.4980	54 072	2.5561%	OMIE	100.000%	2.5561%
Romania	49 619.0830	23 628	2.0354%	OPCOM	100.000%	2.0354%
Slovakia	26 016.0000	6 355	1.1805%	OKTE	100.000%	1.1805%
Slovenia	13 775.6810	7 614	0.9182%	BSP	100.000%	0.9182%
Spain	242 165.0000	174 812	9.1915%	OMIE	100.000%	9.1915%
Sweden	127 372.0000	126 477	5.6919%	NP EMCO	77.011%	4.3834%
		1 471		EPEX SPOT	11.878%	0.6761%
		N/A		NASDAQ	11.111%	0.6324%
Northern Ireland	9 000.0000	7 794	0.8103%	SONI	100.000%	0.8103%
Norway	123 587.2640	2 647	5.7451%	EPEX SPOT	17.965%	1.0321%
		133 271		NP EMCO	82.035%	4.7130%

1.4 The following sharing key was used for sharing of all NEMOs costs of operating the SDAC in 2021

Table 86

Member State	Final consumption in 2019 (GWh)	Traded volume 2020 DA (GWh) to be used for sharing of SDAC costs in 2021	MS share to be used for sharing of SDAC costs in 2021	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2021	CACM Share - SDAC to be used for sharing of SDAC costs in 2021
Austria	66027.9300	17547	2.4182%	EPEX SPOT	63.137%	1.5268%
		2743		EXAA	19.244%	0.4653%
		2195		EMCO	17.619%	0.4261%
Belgium	83708.9000	16384	2.7493%	EPEX SPOT	83.147%	2.2860%
		1535		EMCO	16.853%	0.4633%
Bulgaria	31600.2120	15452	1.4911%	IBEX	100.000%	1.4911%
Croatia	16572.0000	4346	0.9440%	CROPEX	100.000%	0.9440%
Czech Republic	60056.8960	18878	2.2151%	OTE	100.000%	2.2151%
Denmark	32442.2740	26772	1.7218%	EMCO	81.889%	1.4100%
		593		EPEX SPOT	18.111%	0.3118%
		N/A		NASDAQ	0.000%	0.0000%
Estonia	7786.9400	5160	0.7537%	EMCO	83.330%	0.6281%
		0		EPEX SPOT	16.670%	0.1256%
Finland	82980.0000	50553	3.3375%	EMCO	81.392%	2.7164%
		1517		EPEX SPOT	18.608%	0.6211%
		N/A		NASDAQ	0.000%	0.0000%
France	440688.0240	103585	12.6549%	EPEX SPOT	96.466%	12.2076%
		N/A		NASDAQ	0.000%	0.0000%
		3795		EMCO	3.534%	0.4472%
Germany	510542.0000	197550	16.4773%	EPEX SPOT	33.333%	5.4924%
		18295		EMCO	33.333%	5.4924%
		N/A		NASDAQ	0.000%	0.0000%
		15365		EXAA	33.333%	5.4924%
Greece	51735.3040	50396	2.5796%	HENEX	100.000%	2.5796%
Hungary	41477.0000	21581	1.8299%	HUPX	100.000%	1.8299%
Ireland	28559.9190	31849	1.7108%	EirGRID	100.000%	1.7108%
Italy	301803.5650	209833	11.2333%	GME	100.000%	11.2333%
Latvia	6651.8640	6415	0.7495%	EMCO	83.330%	0.6245%
		0		EPEX SPOT	16.670%	0.1249%
Lithuania	11409.3000	10310	0.9294%	EMCO	83.330%	0.7745%
		0		EPEX SPOT	16.670%	0.1549%

Table 86

Member State	Final consumption in 2019 (GWh)	Traded volume 2020 DA (GWh) to be used for sharing of SDAC costs in 2021	MS share to be used for sharing of SDAC costs in 2021	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2021	CACM Share - SDAC to be used for sharing of SDAC costs in 2021
Luxembourg	6 396.4980	0		EPEX SPOT	0.000%	0.0000%
		N/A		NASDAQ	0.000%	0.0000%
		0		EMCO	0.000%	0.0000%
Netherlands	115 153.1360	23 999	3.7840%	EPEX SPOT	68.669%	2.5984%
		10 950		EMCO	31.331%	1.1856%
Poland	152 001.9830	5 091	4.1138%	TGE	77.778%	3.1996%
		0		EPEX SPOT	11.111%	0.4571%
		0		EMCO	11.111%	0.4571%
Portugal	48 810.4980	54 072	2.5766%	OMIE	100.000%	2.5766%
Romania	49 619.0830	23 628	2.0559%	OPCOM	100.000%	2.0559%
Slovakia	26 016.0000	6 355	1.1998%	OKTE	100.000%	1.1998%
Slovenia	13 775.6810	7 614	0.9368%	BSP	100.000%	0.9368%
Spain	242 165.0000	174 812	9.2227%	OMIE	100.000%	9.2227%
Sweden	127 372.0000	126 477	5.7167%	EMCO	82.567%	4.7201%
		1 471		EPEX SPOT	17.433%	0.9966%
		N/A		NASDAQ	0.000%	0.0000%
Northern Ireland	9 000.0000	7 794	0.8286%	SONI	100.000%	0.8286%
Norway	123 587.2640	2 647	5.7698%	EPEX SPOT	17.965%	1.0365%
		133 271		EMCO	82.035%	4.7332%

1.5 The following sharing key was used for sharing of all TSOs costs of establishing and amending the SDAC in 2021

Table 87

Member State	Entity	Final Consumption of 2019 (GWh)	Traded volume (TV) 2020 DA (GWh) to be used for sharing of SDAC costs in 2021	Shares MS as used for the costs of 2021	Share within MS as used for the costs of 2021	Shares per TSO for the costs of 2021
Austria	APG		0		100.00%	2.395%
Austria	EPEX SPOT		17 547		0.00%	0.000%
Austria	EXAA		2 743		0.00%	0.000%
Austria	EMCO		2 195		0.00%	0.000%
Austria		66 028	22 485	2.39%	100.00%	2.395%
Belgium	ELIA		0		100.00%	2.715%
Belgium	EPEX SPOT		16 384		0.00%	0.000%
Belgium	EMCO		1 535		0.00%	0.000%
Belgium		83 284	17 919	2.71%	100.00%	2.715%
Bulgaria	ESO		0		100.00%	1.460%
Bulgaria	IBEX		15 452		0.00%	0.000%
Bulgaria		31 120	15 452	1.46%	100.00%	1.460%
Croatia	HOPS		0		100.00%	0.925%
Croatia	Cropex		4 346		0.00%	0.000%
Croatia		16 572	4 346	0.92%	100.00%	0.925%
Czech Republic	ČEPS		0		100.00%	2.219%
Czech Republic	OTE		18 878		0.00%	0.000%
Czech Republic		61 189	18 878	2.22%	100.00%	2.219%
Denmark	ELSO		0		100.00%	1.702%
Denmark	EMCO		26 772		0.00%	0.000%
Denmark	EPEX SPOT		593		0.00%	0.000%
Denmark	Nasdaq		0		0.00%	0.000%
Denmark		32 460	27 365	1.70%	100.00%	1.702%
Estonia	Elering		0		100.00%	0.746%
Estonia	EMCO		5 160		0.00%	0.000%
Estonia	EPEX SPOT		0		0.00%	0.000%
Estonia		8 257	5 160	0.75%	100.00%	0.746%
Finland	Fingrid		0		100.00%	3.313%
Finland	EMCO		50 553		0.00%	0.000%
Finland	EPEX SPOT		1 516		0.00%	0.000%
Finland	Nasdaq		0		0.00%	0.000%
Finland		82 981	52 070	3.31%	100.00%	3.313%

Table 87

Member State	Entity	Final Consumption of 2019 (GWh)	Traded volume (TV) 2020 DA (GWh) to be used for sharing of SDAC costs in 2021	Shares MS as used for the costs of 2021	Share within MS as used for the costs of 2021	Shares per TSO for the costs of 2021
France	RTE		0		100.00%	12.694%
France	EPEX SPOT		103 585		0.00%	0.000%
France	EMCO		3 795		0.00%	0.000%
France		444 680	107 380	12.69%	100.00%	12.694%
Germany	50 Hertz		0		21.96%	3.605%
Germany	Amprion		0		32.07%	5.265%
Germany	TenneT DE		0		28.44%	4.669%
Germany	Transnet		0		17.53%	2.878%
Germany	EPEX SPOT		197		0.00%	0.000%
Germany	EMCO		18 295		0.00%	0.000%
Germany	EXAA		15 365		0.00%	0.000%
Germany	Nasdaq		0		0.00%	0.000%
Germany		510 542	231 210	16.42%	100.00%	16.418%
Greece	ADMIE		0		100.00%	2.558%
Greece	Henex		50 396		0.00%	0.000%
Greece		51 735	50 396	2.56%	100.00%	2.558%
Hungary	Mavir		0		100.00%	1.804%
Hungary	HUPX		21 581		0.00%	0.000%
Hungary		41 282	21 581	1.80%	100.00%	1.804%
Ireland	EirGrid (TSO)		0		100.00%	1.680%
Ireland	EirGrid (NEMO)		31 849		0.00%	0.000%
Ireland	EMCO		0		0.00%	0.000%
Ireland		28 102	31 849	1.68%	100.00%	1.680%
Italy	Terna		0		100.00%	11.191%
Italy	GME		209 833		0.00%	0.000%
Italy		301 804	209 833	11.19%	100.00%	11.191%
Latvia	AST		0		100.00%	0.731%
Latvia	EMCO		6 415		0.00%	0.000%
Latvia	EPEX SPOT		0		0.00%	0.000%
Latvia		6 652	6 415	0.73%	100.00%	0.731%

Member State	Entity	Final Consumption of 2019 (GWh)	Traded volume (TV) 2020 DA (GWh) to be used for sharing of SDAC costs in 2021	Shares MS as used for the costs of 2021	Share within MS as used for the costs of 2021	Shares per TSO for the costs of 2021
Lithuania	Litgrid		0		100.00%	0.911%
Lithuania	EMCO		10 310		0.00%	0.000%
Lithuania	EPEX SPOT		0		0.00%	0.000%
Lithuania		11 409	10 310	0.91%	100.00%	0.911%
Luxembourg	CREOS		0		100.00%	0.612%
Luxembourg	EPEX SPOT		0		0.00%	0.000%
Luxembourg	EMCO		0		0.00%	0.000%
Luxembourg	Nasdaq		0		0.00%	0.000%
Luxembourg		6 396	0	0.61%	100.00%	0.612%
Netherlands	TenneT BV		0		100.00%	3.715%
Netherlands	EPEX SPOT		23 999		0.00%	0.000%
Netherlands	EMCO		10 950		0.00%	0.000%
Netherlands		113 368	34 949	3.72%	100.00%	3.715%
Poland	PSE		0		100.00%	4.084%
Poland	TGE		5 091		0.00%	0.000%
Poland	EPEX SPOT		0		0.00%	0.000%
Poland	EMCO		0		0.00%	0.000%
Poland		152 002	5 091	4.08%	100.00%	4.084%
Portugal	REN		0		100.00%	2.555%
Portugal	OMIE		54 072		0.00%	0.000%
Portugal		48 810	54 072	2.55%	100.00%	2.555%
Romania	Transelectrica		0		100.00%	2.035%
Romania	OPCOM		23 628		0.00%	0.000%
Romania		49 641	23 628	2.03%	100.00%	2.035%
Slovakia	SEPS		0		100.00%	1.180%
Slovakia	OKTE		6 355		0.00%	0.000%
Slovakia		26 016	6 355	1.18%	100.00%	1.180%
Slovenia	ELES		0		100.00%	0.918%
Slovenia	BSP		7 614		0.00%	0.000%
Slovenia		13 776	7 614	0.92%	100.00%	0.918%
Spain	REE		0		100.00%	9.201%
Spain	OMIE		174 812		0.00%	0.000%
Spain		242 843	174 812	9.20%	100.00%	9.201%

Table 87

Member State	Entity	Final Consumption of 2019 (GWh)	Traded volume (TV) 2020 DA (GWh) to be used for sharing of SDAC costs in 2021	Shares MS as used for the costs of 2021	Share within MS as used for the costs of 2021	Shares per TSO for the costs of 2021
Sweden	Affärsverket svenska kraftnät		0		100.00%	5.689%
Sweden	EMCO		126 477		0.00%	0.000%
Sweden	EPEX SPOT		1 471		0.00%	0.000%
Sweden	Nasdaq		0		0.00%	0.000%
Sweden		127 372	127 948	5.69%	100.00%	5.689%
Northern Ireland	EMCO		0		0.00%	0.000%
Northern Ireland	SONI (TSO)		0		100.00%	0.810%
Northern Ireland	SONI (NEMO)		7 794		0.00%	0.000%
Northern Ireland		9 000	7 794	0.81%	100.00%	0.810%
Norway	Statnett		0		100.00%	5.742%
Norway	EPEX SPOT		2 647		0.00%	0.000%
Norway	EMCO		133 271		0.00%	0.000%
Norway		123 587	135 918	5.74%	100.00%	5.742%

1.6 The following sharing key was used for sharing of all TSOs costs of Operating the SDAC in 2021

Table 88

Member State	Entity	Final Consumption of 2019 (GWh)	Traded volume (TV) 2020 DA (GWh) to be used for sharing of SDAC costs in 2021	Shares MS as used for the costs of 2021	Share within MS as used for the costs of 01.01.2021 until 11.05.2021	Share within MS as used for the costs of 12.05.2021 until 31.12.2021	Shares per TSO for the costs of 01.01.2021 until 11.05.2021	Shares per TSO for the costs of 12.05.2021 until 31.12.2021
Austria	APG		0		100.00 %	100.00 %	2.458 %	2.416 %
Austria	EPEX SPOT		17 547		0.00 %	0.00 %	0.000 %	0.000 %
Austria	EXAA		2 743		0.00 %	0.00 %	0.000 %	0.000 %
Austria	EMCO		2 195		0.00 %	0.00 %	0.000 %	0.000 %
Austria		66 028	22 485	2.42 %	100.00 %	100.00 %	2.458 %	2.416 %
Belgium	ELIA		0		100.00 %	100.00 %	2.783 %	2.737 %
Belgium	EPEX SPOT		16 384		0.00 %	0.00 %	0.000 %	0.000 %
Belgium	EMCO		1 535		0.00 %	0.00 %	0.000 %	0.000 %
Belgium		83 284	17 919	2.74 %	100.00 %	100.00 %	2.783 %	2.737 %
Bulgaria	ESO		0		0.00 %	100 %		1.479 %
Bulgaria	IBEX		15 452 38		0.00 %	0 %		0.000 %
Bulgaria		31 120	15 452	1.48 %	0.00 %	100 %	0.000 %	1.479 %
Croatia	HOPS		0		100.00 %	100.00 %	0.968 %	0.944 %
Croatia	Cropex		4 346		0.00 %	0.00 %	0.000 %	0.000 %
Croatia		16 572	4 346	0.94 %	100.00 %	100.00 %	0.968 %	0.944 %
Czech Republic	ČEPS		0		100.00 %	100.00 %	2.280 %	2.240 %
Czech Republic	OTE		18 878		0.00 %	0.00 %	0.000 %	0.000 %
Czech Republic		61 189	18 878	2.24 %	100.00 %	100.00 %	2.280 %	2.240 %
Denmark	ELSO		0		100.00 %	100.00 %	1.755 %	1.721 %
Denmark	EMCO		26 772		0.00 %	0.00 %	0.000 %	0.000 %
Denmark	EPEX SPOT		593 061		0.00 %	0.00 %	0.000 %	0.000 %
Denmark	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
Denmark		32 460	27 365	1.72 %	100.00 %	100.00 %	1.755 %	1.721 %
Estonia	Elering		0		100.00 %	100.00 %	0.787 %	0.764 %
Estonia	EMCO		5 160		0.00 %	0.00 %	0.000 %	0.000 %
Estonia	EPEX SPOT		0		0.00 %	0.00 %	0.000 %	0.000 %
Estonia		8 257	5 160	0.76 %	100.00 %	100.00 %	0.787 %	0.764 %
Finland	Fingrid		0		100.00 %	100.00 %	3.387 %	3.335 %
Finland	EMCO		50 553		0.00 %	0.00 %	0.000 %	0.000 %
Finland	EPEX SPOT		1 516 501		0.00 %	0.00 %	0.000 %	0.000 %
Finland	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
Finland		82 981	52 070	3.34 %	100.00 %	100.00 %	3.387 %	3.335 %

Table 88

Member State	Entity	Final Consumption of 2019 (GWh)	Traded volume (TV) 2020 DA (GWh) to be used for sharing of SDAC costs in 2021	Shares MS as used for the costs of 2021	Share within MS as used for the costs of 01.01.2021 until 11.05.2021	Share within MS as used for the costs of 12.05.2021 until 31.12.2021	Shares per TSO for the costs of 01.01.2021 until 11.05.2021	Shares per TSO for the costs of 12.05.2021 until 31.12.2021
France	RTE		0		100.00 %	100.00 %	12.898 %	12.736 %
France	EPEX SPOT		103 585		0.00 %	0.00 %	0.000 %	0.000 %
France	EMCO		3 795		0.00 %	0.00 %	0.000 %	0.000 %
France		444 680	107 380	12.74 %	100.00 %	100.00 %	12.898 %	12.736 %
Germany	50 Hertz		0		21.96 %	21.96 %	3.660 %	3.616 %
Germany	Amprion		0		32.07 %	32.07 %	5.345 %	5.280 %
Germany	TenneT DE		0		28.44 %	28.44 %	4.740 %	4.682 %
Germany	Transnet		0		17.53 %	17.53 %	2.922 %	2.886 %
Germany	EPEX SPOT		197 550		0.00 %	0.00 %	0.000 %	0.000 %
Germany	EMCO		18 295		0.00 %	0.00 %	0.000 %	0.000 %
Germany	EXAA		15 365		0.00 %	0.00 %	0.000 %	0.000 %
Germany	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
Germany		510 542	231 210	16.46 %	100.00 %	100.00 %	16.668 %	16.464 %
Greece	ADMIE		0		1	1	2.622 %	2.578 %
Greece	Henex		50 396		0	0	0.000 %	0.000 %
Greece		51 735	50 396	2.58 %	1	1	2.622 %	2.578 %
Hungary	Mavir		0		100.00 %	100.00 %	1.859 %	1.824 %
Hungary	HUPX		21 581		0.00 %	0.00 %	0.000 %	0.000 %
Hungary		41 282	21 581	1.82 %	100.00 %	100.00 %	1.859 %	1.824 %
Ireland	EirGrid (TSO)		0		100.00 %	100.00 %	1.733 %	1.699 %
Ireland	EirGrid (NEMO)		31 849		0.00 %	0.00 %	0.000 %	0.000 %
Ireland	EMCO		0		0.00 %	0.00 %	0.000 %	0.000 %
Ireland		28 102	31 849	1.70 %	100.00 %	100.00 %	1.733 %	1.699 %
Italy	Terna		0		100.00 %	100.00 %	11.368 %	11.226 %
Italy	GME		209 833		0.00 %	0.00 %	0.000 %	0.000 %
Italy		301 804	209 833	11.23 %	100.00 %	100.00 %	11.368 %	11.226 %
Latvia	AST		0		100.00 %	100.00 %	0.772 %	0.749 %
Latvia	EMCO		6 415		0.00 %	0.00 %	0.000 %	0.000 %
Latvia	EPEX SPOT		0		0.00 %	0.00 %	0.000 %	0.000 %
Latvia		6 652	6 415	0.75 %	100.00 %	100.00 %	0.772 %	0.749 %

Table 88

Member State	Entity	Final Consumption of 2019 (GWh)	Traded volume (TV) 2020 DA (GWh) to be used for sharing of SDAC costs in 2021	Shares MS as used for the costs of 2021	Share within MS as used for the costs of 01.01.2021 until 11.05.2021	Share within MS as used for the costs of 12.05.2021 until 31.12.2021	Shares per TSO for the costs of 01.01.2021 until 11.05.2021	Shares per TSO for the costs of 12.05.2021 until 31.12.2021
Lithuania	Litgrid		0		100.00 %	100.00 %	0.953 %	0.929 %
Lithuania	EMCO		10310		0.00 %	0.00 %	0.000 %	0.000 %
Lithuania	EPEX SPOT		0		0.00 %	0.00 %	0.000 %	0.000 %
Lithuania		11 409	10310	0.93 %	100.00 %	100.00 %	0.953 %	0.929 %
Luxembourg	CREOS							
Luxembourg	EPEX SPOT							
Luxembourg	EMCO							
Luxembourg	Nasdaq							
Luxembourg								
Netherlands	TenneT BV		0		100.00 %	100.00 %	3.797 %	3.739 %
Netherlands	EPEX SPOT		23999		0.00 %	0.00 %	0.000 %	0.000 %
Netherlands	EMCO		10950		0.00 %	0.00 %	0.000 %	0.000 %
Netherlands		113 368	34949	3.74 %	100.00 %	100.00 %	3.797 %	3.739 %
Poland	PSE		0		100.00 %	100.00 %	4.172 %	4.110 %
Poland	TGE		5091		0.00 %	0.00 %	0.000 %	0.000 %
Poland	EPEX SPOT		0		0.00 %	0.00 %	0.000 %	0.000 %
Poland	EMCO		0		0.00 %	0.00 %	0.000 %	0.000 %
Poland		152 002	5091	4.11 %	100.00 %	100.00 %	4.172 %	4.110 %
Portugal	REN		0		100.00 %	100.00 %	2.618 %	2.575 %
Portugal	OMIE		54072		0.00 %	0.00 %	0.000 %	0.000 %
Portugal		48 810	54072	2.58 %	100.00 %	100.00 %	2.618 %	2.575 %
Romania	Transelectrica		0		100.00 %	100.00 %	2.093 %	2.055 %
Romania	OPCOM		23628		0.00 %	0.00 %	0.000 %	0.000 %
Romania		49 641	23628	2.06 %	100.00 %	100.00 %	2.093 %	2.055 %
Slovakia	SEPS		0		100.00 %	100.00 %	1.227 %	1.199 %
Slovakia	OKTE		6355		0.00 %	0.00 %	0.000 %	0.000 %
Slovakia		26 016	6355	1.20 %	100.00 %	100.00 %	1.227 %	1.199 %
Slovenia	ELES		0		100.00 %	100.00 %	0.961 %	0.936 %
Slovenia	BSP		7614		0.00 %	0.00 %	0.000 %	0.000 %
Slovenia		13 776	7614	0.94 %	100.00 %	100.00 %	0.961 %	0.936 %
Spain	REE		0		100.00 %	100.00 %	9.352 %	9.232 %
Spain	OMIE		174812		0.00 %	0.00 %	0.000 %	0.000 %
Spain		242 843	174812	9.23 %	100.00 %	100.00 %	9.352 %	9.232 %

Table 88

Member State	Entity	Final Consumption of 2019 (GWh)	Traded volume (TV) 2020 DA (GWh) to be used for sharing of SDAC costs in 2021	Shares MS as used for the costs of 2021	Share within MS as used for the costs of 01.01.2021 until 11.05.2021	Share within MS as used for the costs of 12.05.2021 until 31.12.2021	Shares per TSO for the costs of 01.01.2021 until 11.05.2021	Shares per TSO for the costs of 12.05.2021 until 31.12.2021
Sweden	Affärs- verket svenska kraftnät		0		100.00 %	100.00 %	5.793 %	5.713 %
Sweden	EMCO		126477		0.00 %	0.00 %	0.000 %	0.000 %
Sweden	EPEX SPOT		1471		0.00 %	0.00 %	0.000 %	0.000 %
Sweden	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
Sweden		127 372	127 948	5.71 %	100.00 %	100.00 %	5.793 %	5.713 %
Northern Ireland	EMCO		0		0.00 %	0.00 %	0.000 %	0.000 %
Northern Ireland	SONI (TSO)		0		100.00 %	100.00 %	0.852 %	0.828 %
Northern Ireland	SONI (NEMO)		7 794		0.00 %	0.00 %	0.000 %	0.000 %
Northern Ireland		9 000	7 794	0.83 %	100.00 %	100.00 %	0.852 %	0.828 %
Norway	Statnett		0		100.00 %	100.00 %	5.846 %	5.767 %
Norway	EPEX SPOT		2 647		0.00 %	0.00 %	0.000 %	0.000 %
Norway	EMCO		133 271		0.00 %	0.00 %	0.000 %	0.000 %
Norway		123 587	135 918	5.77 %	100.00 %	100.00 %	5.846 %	5.767 %

2.1 The following sharing key was used for sharing of all TSOs and NEMOs costs of establishing and amending the SIDC in 2021

Table 89

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	2020 NEMO share within MS	CACM Share	IDOA Party	TSP	IDOA Share
Austria	66 028	2.6124 %	APG	50.0000 %		1.3062 %	Yes	1.3062 %	1.3062 %
			EPEX SPOT	40.3765 %	80.75 %	1.0548 %	Yes	1.0548 %	1.0548 %
			NP	9.6235 %	19.25 %	0.2514 %	Yes	0.2514 %	0.2514 %
Belgium	83 709	3.1879 %	ELIA	50.0000 %		1.5940 %	Yes	1.5940 %	1.5940 %
			EPEX SPOT	40.6804 %	81.36 %	1.2969 %	Yes	1.2969 %	1.2969 %
			NP	9.3196 %	18.64 %	0.2971 %	Yes	0.2971 %	0.2971 %
Bulgaria	31 600	1.4916 %	ESO	50.0000 %		0.7458 %	Yes	0.7458 %	0.7458 %
			IBEX	50.0000 %	100.0000 %	0.7458 %	Yes	0.7458 %	0.7458 %
Croatia	16 572	1.0024 %	HOPS	50.0000 %		0.5012 %	Yes	0.5012 %	0.5012 %
			CROPEX	50.0000 %	100.0000 %	0.5012 %	Yes	0.5012 %	0.5012 %
Czech Republic	60 057	2.4180 %	ČEPS	50.0000 %		1.2090 %	Yes	1.2090 %	1.2090 %
			OTE	50.0000 %	100.0000 %	1.2090 %	Yes	1.2090 %	1.2090 %
Denmark	32 442	1.5191 %	ENDK	50.0000 %		0.7595 %	Yes	0.7595 %	0.7595 %
			NP	30.1030 %	60.21 %	0.4573 %	Yes	0.4573 %	0.4573 %
			EPEX SPOT	19.8970 %	39.79 %	0.3022 %	Yes	0.3022 %	0.3022 %
Estonia	7 787	0.7164 %	Elering	50.0000 %		0.3582 %	Yes	0.3582 %	0.3582 %
			NP	41.6667 %	83.33 %	0.2985 %	Yes	0.2985 %	0.2985 %
			EPEX SPOT	8.3333 %	16.67 %	0.0597 %	Yes	0.0597 %	0.0597 %
Finland	82 980	3.1642 %	Fingrid	50.0000 %		1.5821 %	Yes	1.5821 %	1.5821 %
			NP	38.8792 %	77.76 %	1.2302 %	Yes	1.2302 %	1.2302 %
			EPEX SPOT	11.1208 %	22.24 %	0.3519 %	Yes	0.3519 %	0.3519 %
France	440 688	14.8086 %	RTE	50.0000 %		7.4043 %	Yes	7.4043 %	7.4043 %
			EPEX SPOT	25.0000 %	50.0000 %	3.7022 %	Yes	3.7022 %	3.7022 %
			NP	25.0000 %	50.0000 %	3.7022 %	Yes	3.7022 %	3.7022 %
Germany	510 542	17.0825 %	50Hz	21.9600 %		3.7513 %	Yes	3.7513 %	3.7513 %
			Amprion	32.0700 %		5.4784 %	Yes	5.4784 %	5.4784 %
			TenneT	28.4400 %		4.8583 %	Yes	4.8583 %	4.8583 %
			Transnet BW	17.5300 %		2.9946 %	Yes	2.9946 %	2.9946 %
			EPEX SPOT	0.0000 %	0.0000 %	0.00 %	Yes	0.0000 %	0.00 %
			NP	0.0000 %	0.0000 %	0.00 %	Yes	0.0000 %	0.00 %
Greece	51 735	2.1471 %	ADMIE	50.0000 %		1.0735 %	Yes	1.0735 %	1.0735 %
			HENEX	50.0000 %	100.0000 %	1.0735 %	Yes	1.0735 %	1.0735 %

Table 89

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	2020 NEMO share within MS	CACM Share	IDOA Party	TSP	IDOA Share
Hungary	41 477	1.8132%	MAVIR	50.0000%		0.9066%	Yes	0.9066%	0.9066%
			HUPX	50.0000%	100.0000%	0.9066%	Yes	0.9066%	0.9066%
Ireland	28 560	1.3927%	EirGRID N	50.0000%		0.6963%	Yes	0.6963%	0.6963%
			EirGRID T	50.0000%	100.0000%	0.6963%	Yes	0.6963%	0.6963%
			NP	0.0000%	0.0000%	0.0000%	Yes	0.0000%	0.0000%
Italy	301 804	10.2875%	Terna	50.0000%		5.1438%	Yes	5.1438%	5.1438%
			GME	50.0000%	100.0000%	5.1438%	Yes	5.1438%	5.1438%
Latvia	6 652	0.6795%	AST	50.0000%		0.3397%	Yes	0.3397%	0.3397%
			NP	41.6667%	83.3333%	0.2831%	Yes	0.2831%	0.2831%
			EPEX SPOT	8.3333%	16.6667%	0.0566%	Yes	0.0566%	0.0566%
Lithuania	11 409	0.8344%	LITGRID	50.0000%		0.4172%	Yes	0.4172%	0.4172%
			NP	41.6667%	83.3333%	0.3477%	Yes	0.3477%	0.3477%
			EPEX SPOT	8.3333%	16.6667%	0.0695%	Yes	0.0695%	0.0695%
Luxembourg	6 396	0.6712%	Creos	100.0000%		0.6712%	Yes	0.6712%	0.6712%
			EPEX SPOT	0.0000%	0.0000%	0.00%	Yes	0.0000%	0.00%
			NP	0.0000%	0.0000%	0.00%	Yes	0.0000%	0.00%
Netherlands	115 153	4.2115%	TenneT BV	50.0000%		2.1058%	Yes	2.1058%	2.1058%
			EPEX SPOT	46.2083%	92.4166%	1.9461%	Yes	1.9461%	1.9461%
			NP	3.7917%	7.5834%	0.1597%	Yes	0.1597%	0.1597%
Poland	152 002	5.4111%	PSE	50.0000%		2.7055%	Yes	2.7055%	2.7055%
			TGE	37.8868%	75.7735%	2.0501%	Yes	2.0501%	2.0501%
			EPEX SPOT	5.5556%	11.1111%	0.3006%	Yes	0.3006%	0.3006%
			NP	6.5577%	13.1154%	0.3548%	Yes	0.3548%	0.3548%
Portugal	48 810	2.0519%	REN	50.0000%		1.0259%	Yes	1.0259%	1.0259%
			OMIE	50.0000%	100.0000%	1.0259%	Yes	1.0259%	1.0259%
Romania	49 619	2.0782%	TEL	50.0000%		1.0391%	Yes	1.0391%	1.0391%
			OPCOM	50.0000%	100.0000%	1.0391%	Yes	1.0391%	1.0391%
Slovakia	26 016	1.3099%	SEPS	50.0000%		0.6549%	yes	0.6549%	0.6549%
			OKTE	50.0000%	100.0000%	0.6549%	Yes	0.6549%	0.6549%
Slovenia	13 776	0.9114%	ELES	50.0000%		0.4557%	Yes	0.4557%	0.4557%
			BSP	50.0000%	100.0000%	0.4557%	Yes	0.4557%	0.4557%
Spain	242 165	8.3461%	REE	50.0000%		4.1731%	Yes	4.1731%	4.1731%
			OMIE	50.0000%	100.0000%	4.1731%	Yes	4.1731%	4.1731%

Table 89

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	2020 NEMO share within MS	CACM Share	IDOA Party	TSP	IDOA Share
Sweden	127 372	4.6093 %	SVK	50.0000 %		2.3046 %	Yes	2.3046 %	2.3046 %
			NP	37.0974 %	74.19 %	1.7099 %	Yes	1.7099 %	1.7099 %
			EPEX SPOT	12.9026 %	25.81 %	0.5947 %	Yes	0.5947 %	0.5947 %
Northern Ireland	9 000	0.7559 %	National Grid			0.00 %	Yes	0.0000 %	0.00 %
			BritNed			0.00 %	Yes	0.0000 %	0.00 %
			EPEX SPOT		50.0000 %	0.00 %	Yes	0.0000 %	0.00 %
			NP		50.0000 %	0.00 %	Yes	0.0000 %	0.00 %
			SONI			0.00 %	Yes	0.0000 %	0.00 %
			SONI	100.0000 %	0.0000 %	0.7559 %	Yes	0.7559 %	0.7559 %
Norway	123 587	4.4861 %	Statnett	50.0000 %		2.2430 %	Yes	2.2430 %	2.2430 %
			NP	35.6741 %	71.35 %	1.6004 %	Yes	1.6004 %	1.6004 %
			EPEX SPOT	14.3259 %	28.65 %	0.6427 %	Yes	0.6427 %	0.6427 %

2.2 The following sharing key was used for the sharing of all TSOs and NEMOs costs of operating the SIDC in 2021

Table 90

For Q1, Q2 and Q3								
Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	IDOA Share
Austria	66 028	3.1466 %	APG	50.0000 %			1.5733 %	1.5733 %
			EPEX SPOT	40.3765 %	80.7531 %	2 677 426 30	1.2705 %	1.2705 %
			NP	9.6235 %	19.25 %	107 798 23	0.3028 %	0.3028 %
Belgium	83 709	3.8298 %	ELIA	50.0000 %			1.9149 %	1.9149 %
			EPEX SPOT	40.6804 %	81.36 %	2 631 883 29	1.5580 %	1.5580 %
			NP	9.3196 %	18.64 %	318 626 56	0.3569 %	0.3569 %
Bulgaria	31 600	1.8163 %	ESO	50.0000 %			0.9082 %	0.9082 %
			IBEX	50.0000 %	100.00 %		0.9082 %	0.9082 %
Croatia	16 572	1.2356 %	HOPS	50.0000 %			0.6178 %	0.6178 %
			CROPEX	50.0000 %	100.00 %		0.6178 %	0.6178 %
Czech Republic	60 057	2.9159 %	ČEPS	50.0000 %			1.4580 %	1.4580 %
			OTE	50.0000 %	100.00 %		1.4580 %	1.4580 %
Denmark	32 442	1.8488 %	ENDK	50.0000 %			0.9244 %	0.9244 %
			NP	30.1030 %	60.2060 %	1 770 136 95	0.5566 %	0.5566 %
			EPEX SPOT	19.8970 %	39.79 %	940 266 85	0.3679 %	0.3679 %
Estonia	7 787	0.8961 %	Elering	50.0000 %			0.4481 %	0.4481 %
			NP	50.0000 %	83.33 %		0.4481 %	0.4481 %
			EPEX SPOT	0.0000 %	16.67 %		0.0000 %	0.0000 %
Finland	82 980	3.8017 %	Fingrid	50.0000 %			1.9008 %	1.9008 %
			NP	38.8792 %	77.7583 %	1 011 736 05	1.4781 %	1.4781 %
			EPEX SPOT	11.1208 %	22.24 %	92 327 10	0.4228 %	0.4228 %
France	440 688	17.6239 %	RTE	50.0000 %			8.8120 %	8.8120 %
			EPEX SPOT	47.2589 %	94.52 %	10 230 599 90	8.3289 %	8.3289 %
			NP	2.7411 %	5.48 %	593 391 50	0.4831 %	0.4831 %
Germany	510 542	20.3231 %	50Hzt	21.9600 %			4.4630 %	4.4630 %
			Amprion	32.0700 %			6.5176 %	6.5176 %
			TenneT	28.4400 %			5.7799 %	5.7799 %
			Transnet-BW	17.5300 %			3.5626 %	3.5626 %
			EPEX SPOT	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 %

For Q1, Q2 and Q3

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	IDOA Share
Greece			ADMIE	50.0000 %			0.0000 %	0.0000 %
			HENEX	50.0000 %	100.00 %		0.0000 %	0.0000 %
Hungary	41 477	2.1980 %	MAVIR	50.0000 %			1.0990 %	1.0990 %
			HUPX	50.0000 %	100.00 %		1.0990 %	1.0990 %
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			Terna	50.0000 %			0.0000 %	0.0000 %
			GME	50.0000 %	100.0000 %		0.0000 %	0.0000 %
Latvia	6 652	0.8523 %	AST	50.0000 %			0.4261 %	0.4261 %
			NP	50.0000 %	83.3333 %		0.4261 %	0.4261 %
			EPEX SPOT	0.0000 %	16.6667 %		0.0000 %	0.0000 %
Lithuania	11 409	1.0361 %	LITGRID	50.0000 %			0.5181 %	0.5181 %
			NP	50.0000 %	83.3333 %		0.5181 %	0.5181 %
			EPEX SPOT	0.0000 %	16.6667 %		0.0000 %	0.0000 %
Luxembourg			Creos	100.0000 %			0.0000 %	0.0000 %
			EPEX SPOT	0.0000 %	0.0000 %		0.0000 %	0.0000 %
			NP	0.0000 %	0.0000 %		0.0000 %	0.0000 %
Netherlands	115 153	5.0449 %	TenneT BV	50.0000 %			2.5224 %	2.5224 %
			EPEX SPOT	46.2083 %	92.4166 %	3 888 238 22	2.3312 %	2.3312 %
			NP	3.7917 %	7.5834 %	319 055 60	0.1913 %	0.1913 %
Poland	152 002	6.4688 %	PSE	50.0000 %			3.2344 %	3.2344 %
			TGE	37.8868 %	75.7735 %	1 479 156 90	2.4508 %	2.4508 %
			EPEX SPOT	5.5556 %	11.1111 %		0.3594 %	0.3594 %
			NP	6.5577 %	13.1154 %	45 847 60	0.4242 %	0.4242 %
Portugal	48 810	2.4813 %	REN	50.0000 %			1.2407 %	1.2407 %
			OMIE	50.0000 %	100.0000 %		1.2407 %	1.2407 %
Romania	49 619	2.5126 %	TEL	50.0000 %			1.2563 %	1.2563 %
			OPCOM	50.0000 %	100.0000 %		1.2563 %	1.2563 %
Slovakia			SEPS	50.0000 %			0.0000 %	0.0000 %
			OKTE	50.0000 %	100.0000 %		0.0000 %	0.0000 %
Slovenia	13 776	1.1275 %	ELES	50.0000 %			0.5638 %	0.5638 %
			BSP	50.0000 %	100.0000 %		0.5638 %	0.5638 %

For Q1, Q2 and Q3

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	IDOA Share
Spain	242 165	9.9528 %	REE	50.0000 %			4.9764 %	4.9764 %
			OMIE	50.0000 %	100.0000 %		4.9764 %	4.9764 %
Sweden	127 372	5.5170 %	SVK	50.0000 %			2.7585 %	2.7585 %
			NP	37.0974 %	74.1947 %	2 424 361 55	2.0467 %	2.0467 %
			EPEX SPOT	12.9026 %	25.81 %	385 120 70	0.7118 %	0.7118 %
Norway	123 587	5.3708 %	Statnett	50.0000 %			2.6854 %	2.6854 %
			NP	35.6741 %	71.3482 %	1 191 720 65	1.9160 %	1.9160 %
			EPEX SPOT	14.3259 %	28.65 %	261 201 10	0.7694 %	0.7694 %

For Q4

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	IDOA Share
Austria	66 028	2.8195 %	APG	50.0000 %			1.4098 %	1.4098 %
			EPEX SPOT	40.3765 %	80.7531 %	2 677 426 30	1.1384 %	1.1384 %
			NP	9.6235 %	19.25 %	107 798 23	0.2713 %	0.2713 %
Belgium	83 709	3.4224 %	ELIA	50.0000 %			1.7112 %	1.7112 %
			EPEX SPOT	40.6804 %	81.36 %	2 631 883 29	1.3922 %	1.3922 %
			NP	9.3196 %	18.64 %	318 626 56	0.3190 %	0.3190 %
Bulgaria	31 600	1.6456 %	ESO	50.0000 %			0.8228 %	0.8228 %
			IBEX	50.0000 %	100.00 %		0.8228 %	0.8228 %
Croatia	16 572	1.1332 %	HOPS	50.0000 %			0.5666 %	0.5666 %
			CROPEX	50.0000 %	100.00 %		0.5666 %	0.5666 %
Czech Republic	60 057	2.6159 %	ČEPS	50.0000 %			1.3080 %	1.3080 %
			OTE	50.0000 %	100.00 %		1.3080 %	1.3080 %
Denmark	32 442	1.6744 %	ENDK	50.0000 %			0.8372 %	0.8372 %
			NP	30.1030 %	60.2060 %	1 770 136 95	0.5040 %	0.5040 %
			EPEX SPOT	19.8970 %	39.79 %	940 266 85	0.3331 %	0.3331 %

For Q4

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	IDOA Share
Estonia	7 787	0.8337 %	Elering	50.0000 %			0.4168 %	0.4168 %
			NP	50.0000 %	83.33 %		0.4168 %	0.4168 %
			EPEX SPOT	0.0000 %	16.67 %		0.0000 %	0.0000 %
Finland	82 980	3.3975 %	Fingrid	50.0000 %			1.6988 %	1.6988 %
			NP	38.8792 %	77.7583 %	1 011 736 05	1.3209 %	1.3209 %
			EPEX SPOT	11.1208 %	22.24 %	92 327 10	0.3778 %	0.3778 %
France	440 688	15.5942 %	RTE	50.0000 %			7.7971 %	7.7971 %
			EPEX SPOT	47.2589 %	94.52 %	10 230 599 90	7.3696 %	7.3696 %
			NP	2.7411 %	5.48 %	593 391 50	0.4275 %	0.4275 %
Germany	510 542	17.9760 %	50Hz	21.9600 %			3.9475 %	3.9475 %
			Amprion	32.0700 %			5.7649 %	5.7649 %
			TenneT	28.4400 %			5.1124 %	5.1124 %
			Transnet-BW	17.5300 %			3.1512 %	3.1512 %
			EPEX SPOT	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 %
Hungary	41 477	1.9824 %	MAVIR	50.0000 %			0.9912 %	0.9912 %
			HUPX	50.0000 %	100.00 %		0.9912 %	0.9912 %
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	301 804	10.8587 %	Terna	50.0000 %			5.4293 %	5.4293 %
			GME	50.0000 %	100.0000 %		5.4293 %	5.4293 %
Latvia	6 652	0.7950 %	AST	50.0000 %			0.3975 %	0.3975 %
			NP	50.0000 %	83.3333 %		0.3975 %	0.3975 %
			EPEX SPOT	0.0000 %	16.6667 %		0.0000 %	0.0000 %
Lithuania	11 409	0.9572 %	LITGRID	50.0000 %			0.4786 %	0.4786 %
			NP	50.0000 %	83.3333 %		0.4786 %	0.4786 %
			EPEX SPOT	0.0000 %	16.6667 %		0.0000 %	0.0000 %
Luxembourg			Creos	100.0000 %			0.0000 %	0.0000 %
			EPEX SPOT	0.0000 %	0.0000 %		0.0000 %	0.0000 %
			NP	0.0000 %	0.0000 %		0.0000 %	0.0000 %

For Q4

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	IDOA Share
Netherlands	115 153	4.4945 %	TenneT BV	50.0000 %			2.2473 %	2.2473 %
			EPEX SPOT	46.2083 %	92.4166 %	3 888 238 22	2.0768 %	2.0768 %
			NP	3.7917 %	7.5834 %	319 055 60	0.1704 %	0.1704 %
Poland	152 002	5.7509 %	PSE	50.0000 %			2.8755 %	2.8755 %
			TGE	37.8868 %	75.7735 %	1 479 156 90	2.1788 %	2.1788 %
			EPEX SPOT	5.5556 %	11.1111 %		0.3195 %	0.3195 %
			NP	6.5577 %	13.1154 %	45 847 60	0.3771 %	0.3771 %
Portugal	48 810	2.2325 %	REN	50.0000 %			1.1162 %	1.1162 %
			OMIE	50.0000 %	100.0000 %		1.1162 %	1.1162 %
Romania	49 619	2.2600 %	TEL	50.0000 %			1.1300 %	1.1300 %
			OPCOM	50.0000 %	100.0000 %		1.1300 %	1.1300 %
Slovakia			SEPS	50.0000 %			0.0000 %	0.0000 %
			OKTE	50.0000 %	100.0000 %		0.0000 %	0.0000 %
Slovenia	13 776	1.0379 %	ELES	50.0000 %			0.5189 %	0.5189 %
			BSP	50.0000 %	100.0000 %		0.5189 %	0.5189 %
Spain	242 165	8.8252 %	REE	50.0000 %			4.4126 %	4.4126 %
			OMIE	50.0000 %	100.0000 %		4.4126 %	4.4126 %
Sweden	127 372	4.9111 %	SVK	50.0000 %			2.4556 %	2.4556 %
			NP	37.0974 %	74.1947 %	2 424 361 55	1.8219 %	1.8219 %
			EPEX SPOT	12.9026 %	25.81 %	385 120 70	0.6337 %	0.6337 %
Norway	123 587	4.7821 %	Statnett	50.0000 %			2.3910 %	2.3910 %
			NP	35.6741 %	71.3482 %	1 191 720 65	1.7060 %	1.7060 %
			EPEX SPOT	14.3259 %	28.65 %	261 201 10	0.6851 %	0.6851 %

2.3 The following sharing key was used for the sharing of all NEMOs costs of establishing and amending the SIDC in 2021

Table 92

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	ANIDOA Party	TSP	ANIDOA Share
Austria	66 028	2.6124%	EPEX SPOT	80.7531%	80.7531%	2 677 426 30	2.1096%	Yes	2.1096%	2.1096%
			EXAA	0.0000%	0.0000%		0.0000%	No	0.0000%	0.0000%
			EMCO	19.2469%	19.2469%	107 798 23	0.5028%	Yes	0.5028%	0.5028%
Belgium	83 709	3.1879%	EPEX SPOT	81.3608%	81.3608%	2 631 883 29	2.5937%	Yes	2.5937%	2.5937%
			EMCO	18.6392%	18.6392%	318 626 56	0.5942%	Yes	0.5942%	0.5942%
Bulgaria	31 600	1.4916%	IBEX	100.0000%	100.0000%		1.4916%	Yes	1.4916%	1.4916%
Croatia	16 572	1.0024%	CROPEX	100.0000%	100.0000%		1.0024%	Yes	1.0024%	1.0024%
Czech Republic	60 057	2.4180%	OPEX	100.0000%	100.0000%		2.4180%	Yes	2.4180%	2.4180%
Denmark	32 442	1.5191%	EMCO	60.2060%	60.2060%	1 770 136 95	0.9146%	Yes	0.9146%	0.9146%
			EPEX SPOT	39.7940%	39.7940%	940 266 85	0.6045%	Yes	0.6045%	0.6045%
Estonia	7 787	0.7164%	EMCO	83.3333%	83.3333%		0.5970%	Yes	0.5970%	0.5970%
			EPEX SPOT	16.6667%	16.6667%		0.1194%	Yes	0.1194%	0.1194%
Finland	82 980	3.1642%	EMCO	77.7583%	77.7583%	1 011 736 05	2.4604%	Yes	2.4604%	2.4604%
			EPEX SPOT	22.2417%	22.2417%	92 327 10	0.7038%	Yes	0.7038%	0.7038%
France	440 688	14.8086%	EPEX SPOT	50.0000%	50.0000%	10 230 599 90	7.4043%	Yes	7.4043%	7.4043%
			EMCO	50.0000%	50.0000%	593 391 50	7.4043%	Yes	7.4043%	7.4043%
Germany	510 542	17.0825%	EPEX SPOT	50.0000%	50.0000%	38 260 534 53	8.5413%	Yes	8.5413%	8.5413%
			EMCO	50.0000%	50.0000%	4 887 011 11	8.5413%	Yes	8.5413%	8.5413%
Greece	51 735	2.1471%	HEX	100.0000%	100.0000%		2.1471%	Yes	2.1471%	2.1471%
Hungary	41 477	1.8132%	HUPX	100.0000%	100.0000%		1.8132%	Yes	1.8132%	1.8132%
Ireland	28 560	1.3927%	EirGRID	100.0000%	100.0000%		1.3927%	Yes	1.3927%	1.3927%
			EMCO	0.0000%	0.0000%		0.0000%	Yes	0.0000%	0.0000%
Italy	301 804	10.2875%	GME	100.0000%	100.0000%		10.2875%	Yes	10.2875%	10.2875%
Latvia	6 652	0.6795%	EMCO	83.3333%	83.3333%		0.5662%	Yes	0.5662%	0.5662%
			EPEX SPOT	16.6667%	16.6667%		0.1132%	Yes	0.1132%	0.1132%
Lithuania	11 409	0.8344%	EMCO	83.3333%	83.3333%		0.6953%	Yes	0.6953%	0.6953%
			EPEX SPOT	16.6667%	16.6667%		0.1391%	Yes	0.1391%	0.1391%
Luxembourg	6 396	0.6712%	EPEX SPOT	50.0000%	50.0000%		0.3356%	Yes	0.3356%	0.3356%
			EMCO	50.0000%	50.0000%		0.3356%	Yes	0.3356%	0.3356%
Netherlands	115 153	4.2115%	EPEX SPOT	92.4166%	92.4166%	3 888 238 22	3.8921%	Yes	3.8921%	3.8921%
			EMCO	7.5834%	7.5834%	319 055 60	0.3194%	Yes	0.3194%	0.3194%

Table 92

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	ANIDOA Party	TSP	ANIDOA Share
Poland	152002	5.4111%	TGE	75.7735%	75.7735%	147915690	4.1001%	Yes	4.1001%	4.1001%
			EPEX SPOT	11.1111%	11.1111%	000	0.6012%	Yes	0.6012%	0.6012%
			EMCO	13.1154%	13.1154%	4584760	0.7097%	Yes	0.7097%	0.7097%
Portugal	48810	2.0519%	OMIE	100.0000%	100.0000%		2.0519%	Yes	2.0519%	2.0519%
Romania	49619	2.0782%	OPCOM	100.0000%	100.0000%		2.0782%	Yes	2.0782%	2.0782%
Slovakia	26016	1.3099%	OKTE	100.0000%	100.0000%		1.3099%	Yes	1.3099%	1.3099%
Slovenia	13776	0.9114%	BSP	100.0000%	100.0000%		0.9114%	Yes	0.9114%	0.9114%
Spain	242165	8.3461%	OMIE	100.0000%	100.0000%		8.3461%	Yes	8.3461%	8.3461%
Sweden	127372	4.6093%	EMCO	74.1947%	74.1947%	242436155	3.4198%	Yes	3.4198%	3.4198%
			EPEX SPOT	25.8053%	25.8053%	38512070	1.1894%	Yes	1.1894%	1.1894%
Northern Ireland	9000	0.7559%	EPEX SPOT	0.0000%	0.0000%		0.0000%	Yes	0.0000%	0.0000%
			EMCO	0.0000%	0.0000%		0.0000%	Yes	0.0000%	0.0000%
			SONI	100.0000%	100.0000%		0.7559%	Yes	0.7559%	0.7559%
Norway	123587	4.4861%	EMCO	71.3482%	71.3482%	119172065	3.2007%	Yes	3.2007%	3.2007%
			EPEX SPOT	28.6518%	28.6518%	26120110	1.2853%	Yes	1.2853%	1.2853%

2.4 The following sharing key was used for the sharing of all NEMOs costs of operating the SIDC in 2021

Table 93

For Q1, Q2 and Q3										
Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	ANIDOA Party	TSP	ANIDOA Share
Austria	66028	3.1466%	EPEX SPOT	80.7531%	80.7531%	267742630	2.5410%	Yes	2.5410%	2.5410%
			EXAA	0.0000%	0.0000%	000	0.0000%	No	0.0000%	0.0000%
			EMCO	19.2469%	19.2469%	10779823	0.6056%	Yes	0.6056%	0.6056%
Belgium	83709	3.8298%	EPEX SPOT	81.3608%	81.3608%	263188329	3.1160%	Yes	3.1160%	3.1160%
			EMCO	18.6392%	18.6392%	31862656	0.7139%	Yes	0.7139%	0.7139%
Bulgaria	31600	1.8163%	IBEX	100.0000%	100.0000%	000	1.8163%	Yes	1.8163%	1.8163%
Croatia	16572	1.2356%	CROPEX	100.0000%	100.0000%	000	1.2356%	Yes	1.2356%	1.2356%
Czech Republic	60057	2.9159%	OTE	100.0000%	100.0000%	000	2.9159%	Yes	2.9159%	2.9159%
Denmark	32442	1.8488%	EMCO	60.2060%	60.2060%	177013695	1.1131%	Yes	1.1131%	1.1131%
			EPEX SPOT	39.7940%	39.7940%	94026685	0.7357%	Yes	0.7357%	0.7357%
Estonia	7787	0.8961%	EMCO	83.3333%	83.3333%	000	0.7468%	Yes	0.7468%	0.7468%
			EPEX SPOT	16.6667%	16.6667%	000	0.1494%	Yes	0.1494%	0.1494%
Finland	82980	3.8017%	EMCO	77.7583%	77.7583%	101173605	2.9561%	Yes	2.9561%	2.9561%
			EPEX SPOT	22.2417%	22.2417%	9232710	0.8456%	Yes	0.8456%	0.8456%
France	440688	17.6239%	EPEX SPOT	94.5178%	94.5178%	1023059990	16.6577%	Yes	16.6577%	16.6577%
			EMCO	5.4822%	5.4822%	59339150	0.9662%	Yes	0.9662%	0.9662%
Germany	510542	20.3231%	EPEX SPOT	50.0000%	50.0000%	3826053453	10.1616%	Yes	10.1616%	10.1616%
			EMCO	50.0000%	50.0000%	488701111	10.1616%	Yes	10.1616%	10.1616%
Greece			HEnEX	100.0000%	100.0000%	000	0.0000%	Yes	0.0000%	0.0000%
Hungary	41477	2.1980%	HUPX	100.0000%	100.0000%	000	2.1980%	Yes	2.1980%	2.1980%
Ireland			EirGRID	100.0000%	100.0000%	000	0.0000%	Yes	0.0000%	0.0000%
			EMCO	0.0000%	0.0000%	000	0.0000%	Yes	0.0000%	0.0000%
Italy			GME	100.0000%	100.0000%	000	0.0000%	Yes	0.0000%	0.0000%
Latvia	6652	0.8523%	EMCO	83.3333%	83.3333%	000	0.7102%	Yes	0.7102%	0.7102%
			EPEX SPOT	16.6667%	16.6667%	000	0.1420%	Yes	0.1420%	0.1420%
Lithuania	11409	1.0361%	EMCO	83.3333%	83.3333%	000	0.8634%	Yes	0.8634%	0.8634%
			EPEX SPOT	16.6667%	16.6667%	000	0.1727%	Yes	0.1727%	0.1727%
Luxembourg			EPEX SPOT	50.0000%	50.0000%	000	0.0000%	Yes	0.0000%	0.0000%
			EMCO	50.0000%	50.0000%	000	0.0000%	Yes	0.0000%	0.0000%
Netherlands	115153		EPEX SPOT	92.4166%	92.4166%	388823822	4.6623%	Yes	4.6623%	4.6623%
			EMCO	7.5834%	7.5834%	31905560	0.3826%	Yes	0.3826%	0.3826%

For Q1, Q2 and Q3

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	ANIDOA Party	TSP	ANIDOA Share
Poland	152002	6.4688%	TGE	75.7735%	75.7735%	147915690	4.9016%	Yes	4.9016%	4.9016%
			EPEX SPOT	11.1111%	11.1111%	000	0.7188%	Yes	0.7188%	0.7188%
			EMCO	13.1154%	13.1154%	4584760	0.8484%	Yes	0.8484%	0.8484%
Portugal	48810	2.4813%	OMIE	100.0000%	100.0000%	000	2.4813%	Yes	2.4813%	2.4813%
Romania	49619	2.5126%	OPCOM	100.0000%	100.0000%	000	2.5126%	Yes	2.5126%	2.5126%
Slovakia			OKTE	100.0000%	100.0000%	000	0.0000%	Yes	0.0000%	0.0000%
Slovenia	13776	1.1275%	BSP	100.0000%	100.0000%	000	1.1275%	Yes	1.1275%	1.1275%
Spain	242165	9.9528%	OMIE	100.0000%	100.0000%	000	9.9528%	Yes	9.9528%	9.9528%
Sweden	127372	5.5170%	EMCO	74.1947%	74.1947%	24243655	4.0933%	Yes	4.0933%	4.0933%
			EPEX SPOT	25.8053%	25.8053%	38512070	1.4237%	Yes	1.4237%	1.4237%
Northern Ireland			EPEX SPOT	0.0000%	0.0000%	000	0.0000%	Yes	0.0000%	0.0000%
			EMCO	0.0000%	0.0000%	000	0.0000%	Yes	0.0000%	0.0000%
			SONI	100.0000%	100.0000%	000	0.0000%	Yes	0.0000%	0.0000%
Norway	123587	5.3708%	EMCO	71.3482%	71.3482%	119172065	3.8320%	Yes	3.8320%	3.8320%
			EPEX SPOT	28.6518%	28.6518%	26120110	1.5388%	Yes	1.5388%	1.5388%

For Q4

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	ANIDOA Party	TSP	ANIDOA Share
Austria	66028	2.8195%	EPEX SPOT	80.7531%	80.7531%	267742630	2.2768%	Yes	2.2768%	2.2768%
			EXAA	0.0000%	0.0000%	000	0.0000%	No	0.0000%	0.0000%
			EMCO	19.2469%	19.2469%	10779823	0.5427%	Yes	0.5427%	0.5427%
Belgium	83709	3.4224%	EPEX SPOT	81.3608%	81.3608%	263188329	2.7845%	Yes	2.7845%	2.7845%
			EMCO	18.6392%	18.6392%	31862656	0.6379%	Yes	0.6379%	0.6379%
Bulgaria	31600	1.6456%	IBEX	100.0000%	100.0000%	000	1.6456%	Yes	1.6456%	1.6456%
Croatia	16572	1.1332%	CROPEX	100.0000%	100.0000%	000	1.1332%	Yes	1.1332%	1.1332%
Czech Republic	60057	2.6159%	OTE	100.0000%	100.0000%	000	2.6159%	Yes	2.6159%	2.6159%

For Q4

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	ANIDOA Party	TSP	ANIDOA Share
Denmark	32 442	1.6744%	EMCO	60.2060%	60.2060%	1 770 136 95	1.0081%	Yes	1.0081%	1.0081%
			EPEX SPOT	39.7940%	39.7940%	940 266 85	0.6663%	Yes	0.6663%	0.6663%
Estonia	7 787	0.8337%	EMCO	83.3333%	83.3333%	000	0.6947%	Yes	0.6947%	0.6947%
			EPEX SPOT	16.6667%	16.6667%	000	0.1389%	Yes	0.1389%	0.1389%
Finland	82 980	3.3975%	EMCO	77.7583%	77.7583%	1 011 736 05	2.6419%	Yes	2.6419%	2.6419%
			EPEX SPOT	22.2417%	22.2417%	92 327 10	0.7557%	Yes	0.7557%	0.7557%
France	440 688	15.5942%	EPEX SPOT	94.5178%	94.5178%	10 230 599 90	14.7393%	Yes	14.7393%	14.7393%
			EMCO	5.4822%	5.4822%	593 391 50	0.8549%	Yes	0.8549%	0.8549%
Germany	510 542	17.9760%	EPEX SPOT	50.0000%	50.0000%	38 260 534 53	8.9880%	Yes	8.9880%	8.9880%
			EMCO	50.0000%	50.0000%	4 887 011 11	8.9880%	Yes	8.9880%	8.9880%
Greece			HEnEX	100.0000%	100.0000%	000	0.0000%	Yes	0.0000%	0.0000%
Hungary	41 477	1.9824%	HUPX	100.0000%	100.0000%	000	1.9824%	Yes	1.9824%	1.9824%
Ireland			EirGRID	100.0000%	100.0000%	000	0.0000%	Yes	0.0000%	0.0000%
			EMCO	0.0000%	0.0000%	000	0.0000%	Yes	0.0000%	0.0000%
Italy	301 804	10.8587%	GME	100.0000%	100.0000%	000	10.8587%	Yes	10.8587%	10.8587%
Latvia	6 652	0.7950%	EMCO	83.3333%	83.3333%	000	0.6625%	Yes	0.6625%	0.6625%
			EPEX SPOT	16.6667%	16.6667%	000	0.1325%	Yes	0.1325%	0.1325%
Lithuania	11 409	0.9572%	EMCO	83.3333%	83.3333%	000	0.7977%	Yes	0.7977%	0.7977%
			EPEX SPOT	16.6667%	16.6667%	000	0.1595%	Yes	0.1595%	0.1595%
Luxembourg			EPEX SPOT	50.0000%	50.0000%	000	0.0000%	Yes	0.0000%	0.0000%
			EMCO	50.0000%	50.0000%	000	0.0000%	Yes	0.0000%	0.0000%
Netherlands	115 153	4.4945%	EPEX SPOT	92.4166%	92.4166%	3 888 238 22	4.1537%	Yes	4.1537%	4.1537%
			EMCO	7.5834%	7.5834%	319 055 60	0.3408%	Yes	0.3408%	0.3408%
Poland	152 002	5.7509%	TGE	75.7735%	75.7735%	14 791 569 90	4.3577%	Yes	4.3577%	4.3577%
			EPEX SPOT	11.1111%	11.1111%	000	0.6390%	Yes	0.6390%	0.6390%
			EMCO	13.1154%	13.1154%	45 847 60	0.7543%	Yes	0.7543%	0.7543%
Portugal	48 810	2.2325%	OMIE	100.0000%	100.0000%	000	2.2325%	Yes	2.2325%	2.2325%
Romania	49 619	2.2600%	OPCOM	100.0000%	100.0000%	000	2.2600%	Yes	2.2600%	2.2600%
Slovakia			OKTE	100.0000%	100.0000%	000	0.0000%	Yes	0.0000%	0.0000%
Slovenia	13 776	1.0379%	BSP	100.0000%	100.0000%	000	1.0379%	Yes	1.0379%	1.0379%
Spain	242 165	8.8252%	OMIE	100.0000%	100.0000%	000	8.8252%	Yes	8.8252%	8.8252%
Sweden	127 372	4.9111%	EMCO	74.1947%	74.1947%	2 424 361 55	3.6438%	Yes	3.6438%	3.6438%
			EPEX SPOT	25.8053%	25.8053%	385 120 70	1.2673%	Yes	1.2673%	1.2673%

For Q4

Member State	Final consumption in 2019 (GWh)	MS share	Entity	Share within MS	NEMO share within MS	2020 Trading Data for 2021 CSK	CACM Share	ANIDOA Party	TSP	ANIDOA Share
Northern Ireland			EPEX SPOT	0.0000%	0.0000%	000	0.0000%	Yes	0.0000%	0.0000%
			EMCO	0.0000%	0.0000%	000	0.0000%	Yes	0.0000%	0.0000%
			SONI	100.0000%	100.0000%	000	0.0000%	Yes	0.0000%	0.0000%
Norway	123 587	4.7821%	EMCO	71.3482%	71.3482%	1 191 720 65	3.4119%	Yes	3.4119%	3.4119%
			EPEX SPOT	28.6518%	28.6518%	261 201 10	1.3702%	Yes	1.3702%	1.3702%

Related to 2.5 and 2.6. the following sharing key was used for the sharing of all TSOs costs of the SIDC in 2021

Table 95

Member State	Final consumption in 2019 (GWh)	TSO	Share within MS	Establishment and amendment Share per TSO	Share per operational TSO for Q1-Q3	Share per operational TSO for Q4
Austria	66 028	APG	100.000 %	2.612358 %	3.14663 %	2.81952 %
Belgium	83 709	Elia	100.000 %	3.187924 %	3.82984 %	3.42238 %
Bulgaria	31 600	ESO	100.000 %	1.491639 %	1.81631 %	1.64564 %
Croatia	16 572	HOPS	100.000 %	1.002428 %	1.23560 %	1.13323 %
Czech Republic	60 057	ČEPS	100.000 %	2.417984 %	2.91590 %	2.61592 %
Denmark	32 442	Energinet/ ELSO	10.000 %	1.519050 %	1.84884 %	1.67436 %
Estonia	7 787	Elering	100.000 %	0.716450 %	0.89613 %	0.83369 %
Finland	82 980	Fingrid	100.000 %	3.164196 %	3.80168 %	3.39753 %
France	440 688	RTE	100.000 %	14.808600 %	17.62391 %	15.59418 %
Germany	510 542	50 Hertz	21.960 %	3.751327 %	4.46296 %	3.94752 %
		Amprion	32.070 %	5.478372 %	6.51763 %	5.76489 %
		TTG	28.440 %	4.858276 %	5.77990 %	5.11237 %
		Transnet-BW	17.530 %	2.994570 %	3.56265 %	3.15119 %
Greece	51 735	ADMIE	100.000 %	2.147093 %	0.00000 %	0.00000 %
Hungary	41 477	MAVIR	100.000 %	1.813156 %	2.19796 %	1.98241 %
Ireland	28 560	EirGrid	100.000 %	1.392669 %	0.00000 %	0.00000 %
Italy	301 804	Terna	100.000 %	10.287520 %	0.00000 %	10.85868 %
Latvia	6 652	AST	100.000 %	0.679500 %	0.85227 %	0.79499 %
Lithuania	11 409	Litgrid	100.000 %	0.834368 %	1.03611 %	0.95720 %
Luxembourg	6 396	CREOS	100.000 %	0.671187 %	0.00000 %	0.00000 %
Netherlands	115 153	TTN	100.000 %	4.211522 %	5.04488 %	4.49452 %
Poland	152 002	PSE	100.000 %	5.411056 %	6.46876 %	5.75095 %
Portugal	48 810	REN	100.000 %	2.051882 %	2.48133 %	2.23246 %
Romania	49 619	Transec- trica	100.000 %	2.078204 %	2.51257 %	2.26003 %
Slovakia	26 016	SEPS	100.000 %	1.309857 %	0.00000 %	0.00000 %
Slovenia	13 776	ELES	100.000 %	0.911400 %	1.12755 %	1.03789 %
Spain	242 165	REE	100.000 %	8.346116 %	9.95276 %	8.82521 %
Sweden	127 372	Svk	100.000 %	4.609281 %	5.51703 %	4.91115 %
Northern Ireland	9 000	SONI	100.000 %	0.755938 %	0.00000 %	0.00000 %
Norway	123 587	Statnett	100.000 %	4.486077 %	5.37079 %	4.78210 %
Total	2 687 939			100.000 %	100.000 %	100.000 %

Regional sharing keys

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

Establishing and amending costs

Table 96

Member state	Entity	Share MS used for the costs of 2021	Share within MS used for the costs of 2021	Shares per party as used for the costs of 2021
Austria	APG		50.00%	3.41%
Austria	EPEX SPOT		31.57%	2.15%
Austria	EXAA		9.62%	0.66%
Austria	NP		8.81%	0.60%
Austria		6.812%	100.00%	
Belgium	ELIA		50.00%	3.71%
Belgium	EPEX SPOT		41.57%	3.08%
Belgium	NP		8.43%	0.63%
Belgium		7.417%	100.00%	
France	RTE		50.00%	15.63%
France	EPEX SPOT		25.00%	7.82%
France	NP		25.00%	7.82%
France		31.269%	100.00%	
Germany	Amprion		41.09%	17.30%
Germany	TenneT GmbH		36.44%	15.35%
Germany	TransnetBW		22.46%	9.46%
Germany	EPEX SPOT		0.00%	0.00%
Germany	EXAA		0.00%	0.00%
Germany	NP		0.00%	0.00%
Germany		42.110%	100.00%	
Luxembourg	Creos		100.00%	2.41%
Luxembourg	EPEX SPOT		0.00%	0.00%
Luxembourg	NP		0.00%	0.00%
Luxembourg		2.410%	100.00%	
The Netherlands	TenneT BV		50.00%	4.99%
The Netherlands	EPEX SPOT		34.33%	3.43%
The Netherlands	NP		15.67%	1.56%
The Netherlands		9.981%	100.00%	

Operating costs

Table 97

Member state	Entity	Share MS used for the costs of 2021	Share within MS used for the costs of 2021	Shares per party as used for the costs of 2021
Austria	APG		50.00%	3.62%
Austria	EPEX SPOT		31.57%	2.29%
Austria	EXAA		9.62%	0.70%
Austria	NP		8.81%	0.64%
Austria		7.246%	100.00%	
Belgium	ELIA		50.00%	3.93%
Belgium	EPEX SPOT		41.57%	3.27%
Belgium	NP		8.43%	0.66%
Belgium		7.856%	100.00%	
France	RTE		50.00%	15.90%
France	EPEX SPOT		48.23%	15.34%
France	NP		1.77%	0.56%
France		31.805%	100.00%	
Germany	Amprion		41.09%	17.53%
Germany	TenneT GmbH		36.44%	15.55%
Germany	TransnetBW		22.46%	9.58%
Germany	EPEX SPOT		0.00%	0.00%
Germany	EXAA		0.00%	0.00%
Germany	NP		0.00%	0.00%
Germany		42.664%	100.00%	
The Netherlands	TenneT BV		50.00%	5.21%
The Netherlands	EPEX SPOT		34.33%	3.58%
The Netherlands	NP		15.67%	1.63%
The Netherlands		10.429%	100.00%	

NEMOs only operating costs (CIP) were shared equally between EXAA, Nord Pool EMCO and EPEX SPOT

With regard to percentage sharing keys amongst NEMOs and TSOs active in each Member State or third country contributing the Core FB MC, the following data shall be used for the Core FB MC Joint NEMOs and TSOs Regional Common Costs for operating the Core FB MC

Table 98

Member State	Entity	Operational Party in 2022	CONCATENATE	Share per party as used for the costs of 2022
Austria	APG	Yes	AustriaAPG	2.348 %
Austria	EPEX SPOT	Yes	AustriaEPEX	1.371 %
Austria	EXAA	Yes	AustriaEXAA	0.656 %
Austria	EMCO	Yes	AustriaEMCO	0.321 %
Austria		Yes		4.696 %
Belgium	ELIA	Yes	BelgiumELIA	2.648 %
Belgium	EPEX SPOT	Yes	BelgiumEPEX	2.196 %
Belgium	EMCO	Yes	BelgiumEMCO	0.453 %
Belgium		Yes		5.296 %
Croatia	HOPS	Yes	CroatiaHOPS	0.994 %
Croatia	CROPEX	Yes	CroatiaCROPEX	0.994 %
Croatia		Yes		1.988 %
Czech Republic	ČEPS	Yes	Czech RepublicCEPS	2.218 %
Czech Republic	OTE	Yes	Czech RepublicOTE	2.218 %
Czech Republic		Yes		4.435 %
France	RTE	Yes	FranceRTE	11.986 %
France	EPEX SPOT	Yes	FranceEPEX	11.482 %
France	EMCO	Yes	FranceEMCO	0.504 %
France	Nasdaq	No	FranceNasdaq	0.000 %
France		Yes		23.972 %
Germany	50 Hertz	Yes	Germany50Hertz	7.177 %
Germany	Amprion	Yes	GermanyAmprion	10.296 %
Germany	TenneT DE	Yes	GermanyTenneT DE	9.123 %
Germany	Transnet	Yes	GermanyTransnet	5.618 %
Germany	EPEX SPOT	Yes	GermanyEPEX	0.000 %
Germany	EMCO	Yes	GermanyEMCO	0.000 %

Table 98

Member State	Entity	Operational Party in 2022	CONCATENATE	Share per party as used for the costs of 2022
Germany	EXAA	Yes	GermanyEXAA	0.000 %
Germany	Nasdaq	No	GermanyNasdaq	0.000 %
Germany		Yes		32.215 %
Hungary	Mavir	Yes	HungaryMavir	1.924 %
Hungary	HUPX	Yes	HungaryHUPX	1.924 %
Hungary		Yes		3.848 %
Netherlands	TenneT BV	Yes	NetherlandsTenneT BV	3.709 %
Netherlands	EPEX SPOT	Yes	NetherlandsEPEX	2.856 %
Netherlands	EMCO	Yes	NetherlandsEMCO	0.854 %
Netherlands		Yes		7.418 %
Poland	PSE	Yes	PolandPSE	3.739 %
Poland	TGE	Yes	PolandTGE	2.595 %
Poland	EPEX SPOT	Yes	PolandEPEX	0.715 %
Poland	EMCO	Yes	PolandEMCO	0.428 %
Poland		Yes		7.477 %
Romania	Transelectrica	Yes	Romania Transelectrica	2.121 %
Romania	OPCOM	Yes	RomaniaOPCOM	2.121 %
Romania		Yes		4.242 %
Slovakia	SEPS	Yes	SlovakiaSEPS	1.210 %
Slovakia	OKTE	Yes	SlovakiaOKTE	1.210 %
Slovakia		Yes		2.419 %
Slovenia	ELES	Yes	SloveniaELES	0.997 %
Slovenia	BSP	Yes	SloveniaBSP	0.997 %
Slovenia		Yes		1.993 %
Grand Total				100.000 %

Regional Core FB MC Sharing keys

Table 99

Party	Total Share Per Party	Party	Total Share Per Party
EPEX SPOT	10.8316 %	OKTE	3.0858 %
50 Hertz	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 %
ČEPS	3.9740 %	CROPEX	2.8045 %
OTE	3.9740 %	Nord Pool	10.8316 %
HUPX	3.3598 %	Nasdaq	8.2043 %
MAVIR	3.3598 %	SUM	100.0000 %

Table 100

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

Table 101

Project Party	Equal share	National Common Cost Sharing Key (NCCSK)	Total share per Project Party
Austria			
APG	2.3810 %	0.8843 %	3.2653 %
EXAA	2.3810 %	0.8843 %	3.2653 %
EPEX SPOT*	0.7937 %	0.8843 %	1.6780 %
Nord Pool	0.7937	0.8843 %	1.6780 %
Croatia			
HOPS	2.3810 %	0.4235 %	2.8045 %
CROPEX	2.3810 %	0.4235 %	2.8045 %
Czech Republic			
ČEPS	2.3810 %	1.5930 %	3.9740 %
OTE	2.3810 %	1.5930 %	3.9740 %
Germany			
50 Hertz	2.3810 %	5.8233 %	8.2043 %
EPEX SPOT*	0.7937 %	5.8233 %	6.6170 %
TenneT	2.3810 %	5.8233 %	8.2043 %
NASDAQ	2.3810 %	5.8233 %	8.2043 %
Nord Pool*	0.7937 %	5.8233 %	6.6170 %
Hungary			
HUPX	2.3810 %	0.9789 %	3.3598 %
MAVIR	2.3810 %	0.9789 %	3.3598 %
Poland			
PSE	2.3810 %	1.7430 %	4.1240 %
TGE	2.3810 %	1.7430 %	4.1240 %
EPEX SPOT*	0.7937 %	1.7430 %	2.5367 %
Nord Pool*	0.7937 %	1.7430 %	2.5367 %
Slovakia			
OKTE	2.3810 %	0.7049	3.0858 %
SEPS	2.3810 %	0.7049	3.0858 %
Slovenia			
BSP	2.3810 %	0.3538 %	2.7347 %
ELES	2.3810 %	0.3538 %	2.7347 %
Romania			
OPCOM	2.3810 %	1.1329 %	3.5139 %
Transelectrica	2.3810 %	1.1329 %	3.5139 %
Total	50.0000 %	50.0000 %	100.0000 %

* Since EPEXSPOT and Nord Pool are active as NEMOs in three different countries, their equal share part is assigned evenly across the countries in which they are active.

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

Table 102

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 SPOT	75.8400%	3.7902%
	EXAA	12.8800%	0.6437%
	EMCO	11.2800%	0.5637%
Belgium	EPEX SPOT	90.0000%	4.5516%
	EMCO	10.0000%	0.5057%
Croatia	CROPEX	100.0000%	1.5910%
Czech Republic	OTE	100.0000%	4.4200%
France	EPEX SPOT	50.0000%	11.9215%
	EMCO	50.0000%	11.9215%
Germany	EPEX SPOT	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 SPOT	50.0000%	0.6102%
	NASDAQ		0.0000%
	EMCO	50.0000%	0.6102%
Netherlands	EPEX SPOT	100.0000%	6.8775%
	EMCO	0.0000%	0.0000%
Poland	TGE	77.7800%	5.2474%
	EPEX SPOT	11.1100%	0.7495%
	EMCO	11.1100%	0.7495%
Romania	OPCOM	100.0000%	4.0828%
Slovakia	OKTE	100.0000%	2.3472%
Slovenia	BSP	100.0000%	1.8860%
Total/Checksum			100.0000%

Regional Nordic sharing keys: Establishing and amending costs 2021

The following sharing key will be used for sharing of all Nordic 15min MTU, Nordic MNA & Flow-based TSOs and NEMOs costs of establishing and amending in 2021.

Table 103

Project Party	C_x (TWh) Energy Consumption 2019	TV_x (TWh) Traded Volume 2020	MS_i Share of MS	X Share within MS	Y Share of Party
Denmark	32.46	27.37	10.65 %		
Energinet	N/A	N/A		50.00 %	5.33 %
EMCO	N/A	26.77		38.17 %	4.07 %
EPEX SPOT	N/A	0.59		6.28 %	0.67 %
Nasdaq	N/A	N/A		5.56 %	0.59 %
Finland	82.98	52.07	21.07 %		
Fingrid	N/A	N/A		50.00 %	10.54 %
EMCO	N/A	50.55		37.92 %	7.99 %
EPEX SPOT	N/A	1.52		6.53 %	1.38 %
Nasdaq	N/A	N/A		5.56 %	1.17 %
Norway	123.59	135.92	34.10 %		
Statnett	N/A	N/A		50.00 %	17.05 %
EEMCO	N/A	133.27		41.02 %	13.99 %
EPEX SPOT	N/A	2.65		8.98 %	3.06 %
Nasdaq	N/A	N/A			
Sweden	127.37	127.95	34.17 %		
Svk	N/A	N/A		50.00 %	17.08 %
EEMCO	N/A	126.48		38.51 %	13.16 %
EPEX SPOT	N/A	1.47		5.94 %	2.03 %
Nasdaq	N/A	N/A		5.56 %	1.90 %
Nordics Total	366.40	343.30	100.00 %		100.00 %

Regional Nordic sharing keys: Operating costs 2021

The following sharing key will be used for sharing of all Nordic MNA costs of operating in 2021.

Table 104

Project Party	C_x (TWh) Energy Consumption 2019	TV_x (TWh) Traded Volume 2020	MS_i Share of MS	X Share within MS	Y Share of Party
Denmark	32.46	27.37	10.65 %		
Energinet	N/A	N/A		50.00 %	5.33 %
EMCO	N/A	26.77		40.94 %	4.36 %
EPEX SPOT	N/A	0.59		9.06 %	0.96 %
Nasdaq	N/A	N/A		0.00 %	0.00 %
Finland	82.98	52.07	21.07 %		
Fingrid	N/A	N/A		50.00 %	10.54 %
EMCO	N/A	50.55		40.70 %	8.58 %
EPEX SPOT	N/A	1.52		9.30 %	1.96 %
Nasdaq	N/A	N/A		0.00 %	0.00 %
Norway	123.59	135.92	34.10 %		
Statnett	N/A	N/A		50.00 %	17.05 %
EEMCO	N/A	133.27		41.02 %	13.99 %
EPEX SPOT	N/A	2.65		8.98 %	3.06 %
Nasdaq	N/A	N/A			
Sweden	127.37	127.95	34.17 %		
Svk	N/A	N/A		50.00 %	17.08 %
EEMCO	N/A	126.48		41.28 %	14.11 %
EPEX SPOT	N/A	1.47		8.72 %	2.98 %
Nasdaq	N/A	N/A		0.00 %	0.00 %
Nordics Total	366.40	343.30	100.00 %		100.00 %

Regional Nordic sharing keys: Establishing and amending costs 2022

The following sharing key will be used for sharing of all Nordic 15min MTU, Nordic MNA & Flow-based TSOs and NEMOs costs of establishing and amending in 2022.

Table 105

Project Party	C_x (TWh) Energy Consumption 2020	TV_x (TWh) Traded Volume 2021	MS_i Share of MS	X Share within MS	Y Share of Party
Denmark	32.80	27.49	10.74 %		
Energinet	N/A	N/A		50.00 %	5.37 %
EMCO	N/A	21.43		31.53 %	3.39 %
EPEX SPOT	N/A	6.07		12.91 %	1.39 %
Nasdaq	N/A	N/A		5.56 %	0.60 %
Finland	78.14	57.56	20.71 %		
Fingrid	N/A	N/A		50.00 %	10.35 %
EMCO	N/A	54.81		37.30 %	7.72 %
EPEX SPOT	N/A	2.75		7.15 %	1.48 %
Kraftnät Åland	N/A	N/A		0.00 %	0.00 %
Nasdaq	N/A	N/A		5.56 %	1.15 %
Norway	122.33	141.26	34.18 %		
Statnett	N/A	N/A		50.00 %	17.09 %
EEMCO	N/A	135.48		40.30 %	13.78 %
EPEX SPOT	N/A	5.78		9.70 %	3.31 %
Nasdaq	N/A	N/A			
Sweden	125.68	135.64	34.38 %		
Svk	N/A	N/A		50.00 %	17.19 %
EEMCO	N/A	125.82		36.48 %	12.54 %
EPEX SPOT	N/A	9.82		7.97 %	2.74 %
Nasdaq	N/A	N/A		5.56 %	1.91 %
Nordics Total	358.95	361.95	100.00 %		100.00 %

Regional Nordic sharing keys: Operating costs 2022

The following sharing key will be used for sharing of all Nordic MNA costs of operating in 2022.

Table 106

Project Party	C_x (TWh) Energy Consumption 2020	TV_x (TWh) Traded Volume 2021	MS_i Share of MS	X Share within MS	Y Share of Party
Denmark	32.80	27.49	10.74 %		
Energinet	N/A	N/A		50.00 %	5.37 %
EMCO	N/A	21.43		34.31 %	3.68 %
EPEX SPOT	N/A	6.07		15.69 %	1.68 %
Nasdaq	N/A	N/A		0.00 %	0.00 %
Finland	78.14	57.56	20.71 %		
Fingrid	N/A	N/A		50.00 %	10.35 %
EMCO	N/A	54.81		40.08 %	8.30 %
EPEX SPOT	N/A	2.75		9.92 %	2.06 %
Kraftnät Åland	N/A	N/A		0.00 %	0.00 %
Nasdaq	N/A	N/A		0.00 %	0.00 %
Norway	122.33	141.26	34.18 %		
Statnett	N/A	N/A		50.00 %	17.09 %
EEMCO	N/A	135.48		40.30 %	13.78 %
EPEX SPOT	N/A	5.78		9.70 %	3.31 %
Nasdaq	N/A	N/A			
Sweden	125.68	135.64	34.38 %		
Svk	N/A	N/A		50.00 %	17.19 %
EEMCO	N/A	125.82		36.48 %	13.49 %
EPEX SPOT	N/A	9.82		10.75 %	3.69 %
Nasdaq	N/A	N/A		0.00 %	0.00 %
Nordics Total	358.95	361.95	100.00 %		100.00 %

Regional MRC NEMOs Sharing keys

Table 107

Member State	Final consumption in 2019 (GWh)	Traded volume 2020 DA (GWh) to be used for sharing costs in 2021	MS share to be used for sharing costs in 2021	Entity	NEMO share within MS to be used for sharing costs in 2021	CACM Share – SDAC to be used for sharing costs in 2021
Austria	66027.9300	17547	2.6354%	EPEX SPOT	63.137%	1.6639%
		2743		EXAA	19.244%	0.5072%
		2195		EMCO	17.619%	0.4643%
Belgium	83708.9000	16384	2.9915%	EPEX SPOT	83.147%	2.4873%
		1535		EMCO	16.853%	0.5042%
Bulgaria	31600.2120	15452	1.6450%	IBEX	100.000%	1.6450%
Croatia	16572.0000	4346	1.0628%	CROPEX	100.000%	1.0628%
Czech Republic	60056.8960	18878		OTE	0.000%	0.0000%
Denmark	32442.2740	26772	1.8882%	EMCO	81.889%	1.5462%
		593		EPEX SPOT	18.112%	0.3420%
		N/A		NASDAQ	0.000%	0.0000%
Estonia	7786.9400	5160	0.8588%	EMCO	83.330%	0.7156%
		0		EPEX SPOT	16.670%	0.1432%
Finland	82980.0000	50553	3.6102%	EMCO	81.392%	2.9384%
		1517		EPEX SPOT	18.608%	0.6718%
		N/A		NASDAQ	0.000%	0.0000%
France	440688.0240	103585	13.5689%	EPEX SPOT	96.466%	13.0893%
		N/A		NASDAQ	0.000%	0.0000%
		3795		EMCO	3.534%	0.4796%
Germany	510542.0000	197550	17.6218%	EPEX SPOT	33.333%	5.8739%
		18295		EMCO	33.333%	5.8739%
		N/A		NASDAQ	0.000%	0.0000%
		15365		EXAA	33.333%	5.8739%
Greece	51735.3040	50396	2.7993%	HENEX	100.000%	2.7993%
Hungary	41477.0000	21581		HUPX	0.000%	0.0000%
Ireland	28559.9190	31849	1.8750%	EirGRID	100.000%	1.8750%
Italy	301803.5650	209833	12.0138%	GME	100.000%	12.0138%
Latvia	6651.8640	6415	0.8538%	EMCO	83.330%	0.7115%
		0		EPEX SPOT	16.670%	0.1423%
Lithuania	11409.3000	10310	1.0452%	EMCO	83.330%	0.8710%
		0		EPEX SPOT	16.670%	0.1742%
Luxembourg	6396.4980	0		EPEX SPOT	0.000%	0.0000%
		N/A		NASDAQ	0.000%	0.0000%
		0		EMCO	0.000%	0.0000%

Table 107

Member State	Final consumption in 2019 (GWh)	Traded volume 2020 DA (GWh) to be used for sharing costs in 2021	MS share to be used for sharing costs in 2021	Entity	NEMO share within MS to be used for sharing costs in 2021	CACM Share – SDAC to be used for sharing costs in 2021
Netherlands	115 153.1360	23 999	4.0938 %	EPEX SPOT	68.669 %	2.8112 %
		10 950		EMCO	31.331 %	1.2826 %
Poland	152 001.9830	5 091	4.4565 %	TGE	77.778 %	3.4662 %
		0		EPEX SPOT	11.111 %	0.4952 %
		0		EMCO	11.111 %	0.4952 %
Portugal	48 810.4980	54 072	2.7948 %	OMIE	100.000 %	2.7948 %
Romania	49 619.0830	23 628		OPCOM	0.000 %	0.0000 %
Slovakia	26 016.0000	6 355		OKTE	0.000 %	0.0000 %
Slovenia	13 775.6810	7 614	1.0540 %	BSP	100.000 %	1.0540 %
Spain	242 165.0000	174 812	9.8722 %	OMIE	100.000 %	9.8722 %
Sweden	127 372.0000	126 477	6.1333 %	EMCO	82.567 %	5.0641 %
		1 471		EPEX SPOT	17.433 %	1.0692 %
		N/A		NASDAQ	0.000 %	0.0000 %
Northern Ireland	9 000.0000	7 794	0.9382 %	SONI	100.000 %	0.9382 %
Norway	123 587.2640	2 647	6.1875 %	EPEX SPOT	17.965 %	1.1116 %
		133 271		EMCO	82.035 %	5.0759 %

Regional MRC the Joint NEMOs and TSOs Sharing keys

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

Table 108

Member State	Parties	Share per party as used for the costs of 01.01.2021-11.05.2021	Share per party as used for the costs of 12.05.2021-30.06.2021
Austria	APG	1.307%	1.307%
Austria	EPEX SPOT	0.825%	0.825%
Austria	EXAA	0.000%	0.000%
Austria	EMCO	0.230%	0.230%
Austria		2.362%	2.362%
Belgium	ELIA	1.480%	1.480%
Belgium	EPEX SPOT	1.231%	1.231%
Belgium	EMCO	0.249%	0.249%
Belgium		2.961%	2.961%
Bulgaria	ESO	0.000%	0.800%
Bulgaria	IBEX	1.600%	0.800%
Bulgaria		1.600%	1.600%
Croatia	HOPS	0.510%	0.510%
Croatia	Cropex	0.510%	0.510%
Croatia		1.021%	1.021%
Czech Republic	CEPS	0.000%	0.000%
Czech Republic	OTE	0.000%	0.000%
Czech Republic		0.000%	0.000%
Denmark	ELSO	0.931%	0.931%
Denmark	EMCO	0.762%	0.762%
Denmark	EPEX SPOT	0.169%	0.169%
Denmark		1.862%	1.862%
Estonia	Elering	0.413%	0.413%
Estonia	EMCO	0.413%	0.413%
Estonia	EPEX SPOT	0.000%	0.000%
Estonia		0.827%	0.827%
Finland	Fingrid	1.804%	1.804%
Finland	EMCO	1.468%	1.468%
Finland	EPEX SPOT	0.336%	0.336%
Finland		3.608%	3.608%
France	RTE	6.888%	6.888%
France	EPEX SPOT	6.645%	6.645%
France	EMCO	0.243%	0.243%
France		13.777%	13.777%

Member State	Parties	Share per party as used for the costs of 01.01.2021-11.05.2021	Share per party as used for the costs of 12.05.2021-30.06.2021
Germany	50 Hertz	3.911%	3.911%
Germany	Amprion	5.711%	5.711%
Germany	Tennet DE	5.065%	5.065%
Germany	Transnet	3.122%	3.122%
Germany	EPEX SPOT	0.000%	0.000%
Germany	EMCO	0.000%	0.000%
Germany	EXAA	0.000%	0.000%
Germany		17.809%	17.809%
Greece	ADMIE	1.394%	1.394%
Greece	Henex	1.394%	1.394%
Greece		2.789%	2.789%
Hungary	Mavir	0.000%	0.000%
Hungary	HUPX	0.000%	0.000%
Hungary		0.000%	0.000%
Ireland	EirGrid (TSO)	0.919%	0.919%
Ireland	EirGrid (NEMO)	0.919%	0.919%
Ireland	EMCO	0.000%	0.000%
Ireland		1.838%	1.838%
Italy	Terna	6.071%	6.071%
Italy	GME	6.071%	6.071%
Italy		12.142%	12.142%
Latvia	AST	0.405%	0.405%
Latvia	EMCO	0.405%	0.405%
Latvia	EPEX SPOT	0.000%	0.000%
Latvia		0.811%	0.811%
Lithuania	Litgrid	0.502%	0.502%
Lithuania	EMCO	0.502%	0.502%
Lithuania	EPEX SPOT	0.000%	0.000%
Lithuania		1.005%	1.005%
Luxembourg	CREOS		
Luxembourg	EPEX SPOT		
Luxembourg	EMCO		
Luxembourg			
Netherlands	Tennet BV	2.022%	2.022%
Netherlands	EPEX SPOT	1.389%	1.389%
Netherlands	EMCO	0.634%	0.634%
Netherlands		4.045%	4.045%
Poland	PSE	2.223%	2.223%

Member State	Parties	Share per party as used for the costs of 01.01.2021-11.05.2021	Share per party as used for the costs of 12.05.2021-30.06.2021
Poland	TGE	1.729%	1.729%
Poland	EPEX SPOT	0.247%	0.247%
Poland	EMCO	0.247%	0.247%
Poland		4.446%	4.446%
Portugal	REN	1.393%	1.393%
Portugal	OMIE	1.393%	1.393%
Portugal		2.786%	2.786%
Romania	Transelectrica	0.000%	0.000%
Romania	OPCOM	0.000%	0.000%
Romania		0.000%	0.000%
Slovakia	SEPS	0.000%	0.000%
Slovakia	OKTE	0.000%	0.000%
Slovakia		0.000%	0.000%
Slovenia	ELES	0.506%	0.506%
Slovenia	BSP	0.506%	0.506%
Slovenia		1.013%	1.013%
Spain	REE	4.993%	4.993%
Spain	OMIE	4.993%	4.993%
Spain		9.986%	9.986%
Sweden	Affärsverket svenska kraftnät	3.090%	3.090%
Sweden	EMCO	2.551%	2.551%
Sweden	EPEX SPOT	0.539%	0.539%
Sweden		6.180%	6.180%
Northern Ireland	EMCO	0.000%	0.000%
Northern Ireland	SONI (TSO)	0.896%	0.896%
Northern Ireland	SONI (NEMO)	0.000%	0.000%
Northern Ireland		0.896%	0.896%
Norway	Statnett	3.119%	3.119%
Norway	EPEX SPOT	0.560%	0.560%
Norway	EMCO	2.558%	2.558%
Norway		6.238%	6.238%

LIP 14 Sharing Key

Table 109

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 110

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

IBWT sharing keys

Table 111

Entity	IBWT MNA cost sharing key
APG	20%
RTE	20%
EPEX SPOT	20%
NordPool EMCO	20%
EXAA	20%

Table 112

Entity	IBWT GR–BG cost sharing key
HenEx	25%
IPTO	25%
IBEX	25%
ESO	25%
EXAA	20%

ALL
NEMO 
COMMITTEE

Imprint

Publisher:

NEMO Committee
ENTSO-E AISBL
Rue de Spa, 8
1000 Brussels
Belgium

Cover:

© iStockphoto.com, Kosig

Design:

DreiDreizehn GmbH, Berlin
www.313.de

Publishing date:

June 2022

