

CACM Cost Report of 2019



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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

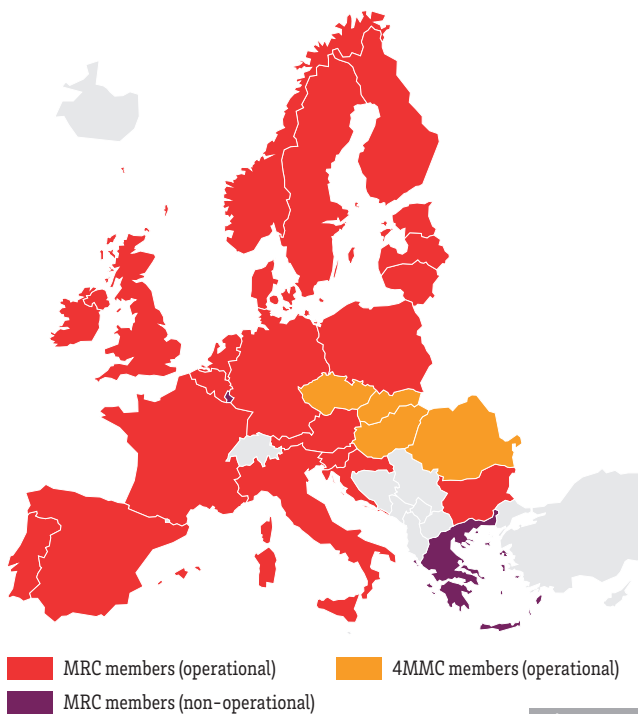
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Introduction

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

Description of the Single Day-ahead Coupling



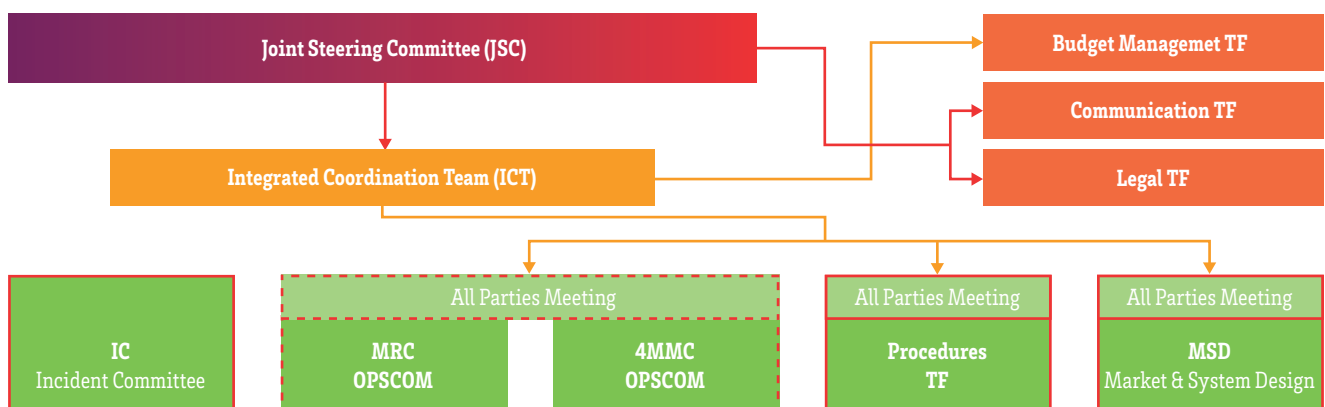
The aim of Single Day-ahead Coupling (SDAC) is to create a single pan European cross zonal day-ahead electricity market. An integrated day-ahead market will increase the overall efficiency of trading by promoting effective competition, increasing liquidity and enabling a more efficient utilisation of the generation resources across Europe. SDAC allocates scarce cross-border transmission capacity in the most efficient way by coupling wholesale electricity markets from different regions through a common algorithm, simultaneously taking into account cross-border transmission constraints thereby maximising social welfare. SDAC has started 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 2020, it covers most of Europe.

The governance of the SDAC consists of three layers:

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

Therefore, the governance structure is headed by a Joint Steering Committee (JSC) that includes representatives of all the parties involved. The JSC activities are supported by horizontal groups which address the legal, financial and communication aspects of the coupling. Furthermore, there are three joint groups which deal with the following operational aspects: Market & System Design, Procedures and Operation.

Joint SDAC NEMOs and TSOs governance structure

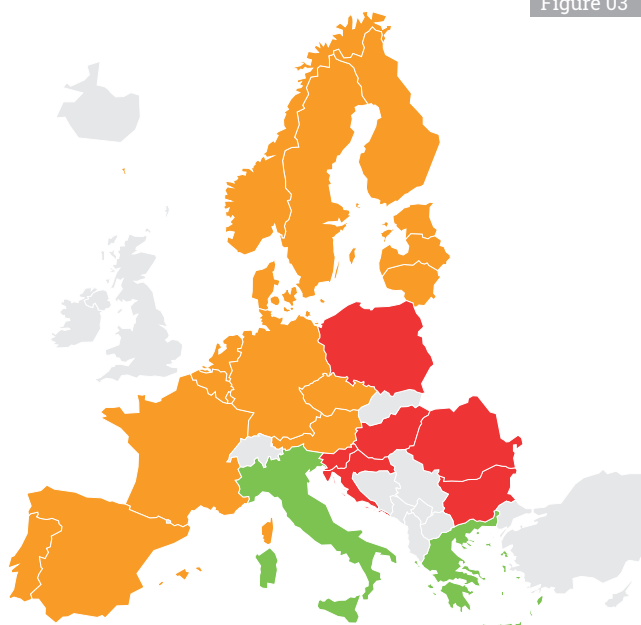


Step 2: To be merged into OPSCOM once technical coupling is effective (Enduring Phase according to DAOA)

Figure 02

Description of the Single Intraday Coupling

Figure 03



- Countries coupled in 1st go-live (June 2018)
- Countries coupled in 2nd go-live (November 2019)
- Countries to be coupled in 3rd go-live (Q4 2020)

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

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

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

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

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

Joint SIDC NEMOs and TSOs governance structure

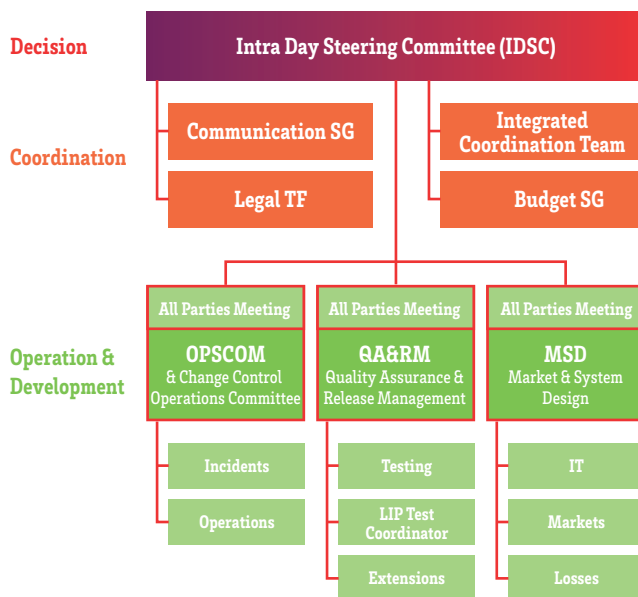


Figure 04

Being able to balance their positions until one hour before delivery time is beneficial for market participants and for the power systems alike by, among other things, reducing the need for reserves and associated costs while allowing enough time for carrying out system operation processes for ensuring system security.

Single intraday coupling (SIDC) is an initiative between the Nominated Electricity Market Operators (NEMOs) and Transmission System Operators (TSOs) which enables continuous cross-border trading across Europe. SIDC follows on from the XBID (Cross Border Intraday) Project which delivered, in June 2018, the first go-live of the intraday continuous trading platform. It allows energy networks to integrate and expand across Europe. The SIDC was launched on 12/13 June 2018 across 15 countries. In the first 16 months of operation over 25 million trades have been completed across these countries. On 19/20 November 2019 SIDC went live across a further seven countries resulting in 22 countries being coupled.

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

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

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

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

Description of the cost categories included in the report

Table 01

		Costs of establishing and amending		Costs of operating	
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 • Simulation Facility adaptations 	1.2	<ul style="list-style-type: none"> • Operation of the price coupling solution • Legal support • Secretarial Services • Procedures - Updates
	All NEMOs costs	1.3	<ul style="list-style-type: none"> • Maintenance Contracts for SDAC • Project Manager Office (PMO) • Support Tasks • Leader Remuneration (WGs) • NEMO only related Euphemia releases • Part of NEMOs committee costs (CACM related tasks) 	1.4	<ul style="list-style-type: none"> • Maintenance Contracts for SDAC • Leader Remuneration (WGs) • Project Manager Office (PMO) • Support Tasks
	All TSOs costs	1.5	<ul style="list-style-type: none"> • Legal Support 	1.6	<ul style="list-style-type: none"> • There were no costs categorized as all TSOs costs of operating the SDAC in 2019
SIDC common costs	All NEMOs and all TSOs costs	2.1	<ul style="list-style-type: none"> • Hosting & Maintenance of SIDC Technical solution and Further development of SIDC technical solution Workgroups (XTG, MSD, QARM, LTC, BMSG, COMSG), • Legal support (LTF) • Project Manager Officer (IDSC, ICT and other WGs) • Travelling and meeting organisation • Procedures - Updates by OTF 	2.2	<ul style="list-style-type: none"> • Hosting & Maintenance of SIDC Technical solution Incident Committee (IC SPOC) • Operational Committee (OPSCOM) • Workgroups (BMSG, OTF, ICT), • Legal support (LTF) • Project Manager Officer (IDSC, ICT and other WGs) • Travelling and meeting organisation • Procedures - Updates (OTF)
	All NEMOs costs	2.3	<ul style="list-style-type: none"> • 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) • Project Manager Officer (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 procurement 	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 cost since 2017

Table 02

		2017		2018		2019		2020 forecast	
		Establishing and amending (k €)	Operating (k €)	Establishing and amending (k €)	Operating (k €)	Establishing and amending (k €)	Operating (k €)	Establishing and amending (k €)	Operating (k €)
SDAC	Joint costs	204	0	902	0	1,368	264	3,322	396
	All NEMOs	1,315	0	1,314	0	1,134	446	1,303	566
	All TSOs	0	0	22	0	3	0	27	12
	Total	1,519	0	2,238	0	2,505	710	4,652	710
SIDC	Joint costs	2,846	0	4,854	959	3,780	2,135	5,770	2,294
	All NEMOs	863	0	679	71	472	235	782	937
	All TSOs	686	0	768	200	606	374	736	403
	Total	4,395	0	6,300	1,230	4,858	2,744	7,288	3,634
Regional total	Joint costs	703	592	718	317	1,113	667	836	345
	All NEMOs	6	0	1	0	0	139	0	175
	All TSOs	637	378	535	429	918	101	970	509
	Total	1,347	971	1,254	746	2,031	907	1,806	1,029
Grand Total (common + regional costs)		7,268	971	9,793	1,976	9,394	4,361	13,746	5,373
Total cost per year		8,239		11,769		13,755		19,109	

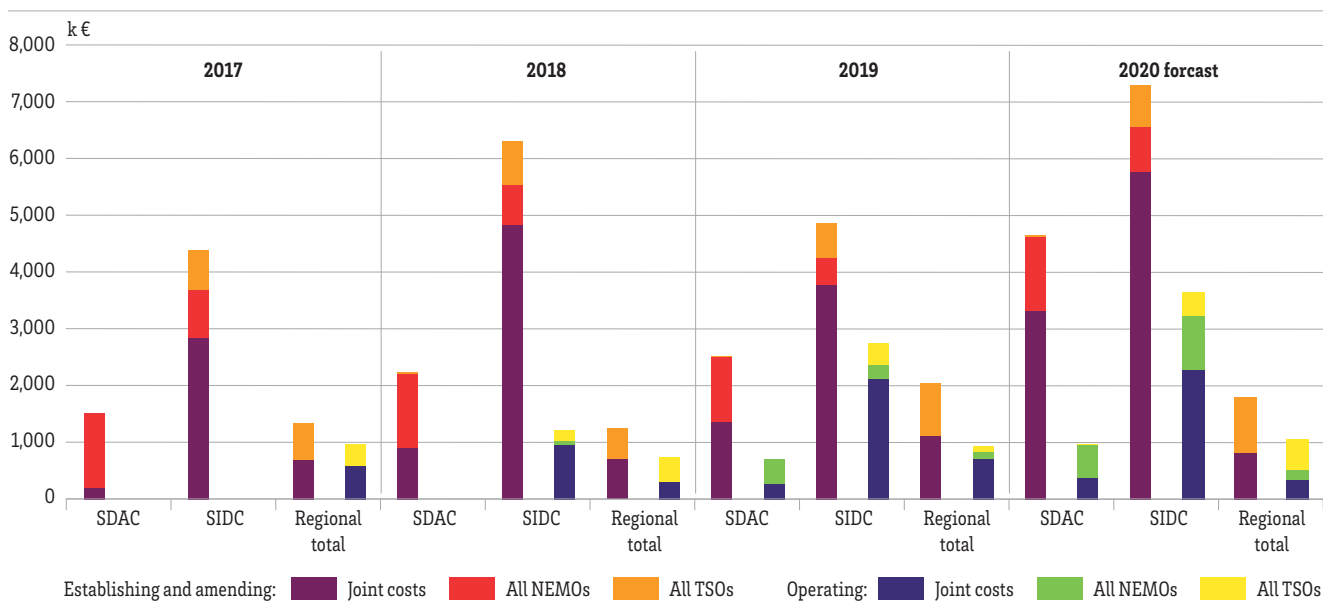


Figure 05

The key points of the evolution of costs in 2019 are the following:

- SDAC: Go live of SDAC operations in March 2019
- SDAC: increase of joint establishing costs due to the implementation of extension projects (see page 12) and the research and development plan implementation (15 minutes mainly).
- SIDC: higher operations cost due to 2nd wave
- Regional costs: increase in 2019 due to implementation of the MNA projects in Day-ahead and 2nd wave projects in Intraday.

Chapter A:

Common costs resulting from 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

Following table provides overview of total actual common costs for the SDAC and SIDC in 2019 (without the regional costs):

Table 03

			Costs of establishing and amending		Costs of operating
SDAC common costs	All NEMOs and all TSOs costs	1.1	1,368,930 €	1.2	264,453 €
	All NEMOs costs	1.3	1,134,363 €	1.4	446,313 €
	All TSOs costs	1.5	3,272 €	1.6	0 €
SIDC common cost	All NEMOs and all TSOs costs	2.1	3,779,650 €	2.2	2,135,459 €
	All NEMOs costs	2.3	472,048 €	2.4	234,963 €
	All TSOs costs	2.5	606,127 €	2.6	374,463 €
Total			7,364,390 €		3,455,651 €

Following table provides overview of 2020 forecast of common costs for the SDAC and SIDC (without the regional costs):

Table 04

			Costs of establishing and amending		Costs of operating
Day ahead related common costs	All NEMOs and all TSOs costs	3.1	3,322,745 €	3.2	396,862 €
	All NEMOs costs	3.3	1,302,872 €	3.4	566,034 €
	All TSOs costs	3.5	27,500 €	3.6	12,500 €
Intraday related common cost	All NEMOs and all TSOs costs	4.1	5,770,317 €	4.2	2,293,679 €
	All NEMOs costs	4.3	782,185 €	4.4	936,827 €
	All TSOs costs	4.5	735,836 €	4.6	403,331 €
Total			11,941,454 €		3,672,406 €

1 Actual SDAC costs of 2019

The most important events on the extension of the SDAC during 2019 were the following:

- The Nemo Link became operational which implied the implementation of a new Bidding Zone Border: BE-GB (go-live on 31/01/2019). Nemo Link started participating to the operational costs starting from this date and this also resulted in a resettlement of the shares for the SDAC Parties with activity within GB based on their traded volumes.
- ElecLink cable, between France and GB, became operational (go-live on 01/10/2019). Following the 11th of June 2019 SDAC JSC meeting, the adherence of Eleclink as a SDAC TSO, has been approved. As per the UK SDAC Parties and per JSC decision, Eleclink will not participate to any historical cost, until they become Operational.
- COBRA cable go-live which implied the implementation of a new Bidding Zone Border: DK-NL (commercial go-live on 07/09/2019)
- An additional Bidding zone was introduced in the Italian market for the Montenegro connection (03/12/2019 – notification only)
- The CWE Multi NEMO Arrangement went live on 02/07/2019.
- The progress and obstacles faced by the Nordic MNA were followed up.
- In addition, the SDAC cooperated with the Energy Community to extend the EU-wide market coupling towards the signatory countries. SDAC participated in different fora like, for example, the Athens Forum.

The most important events involving the Day-Ahead Coupling Operations Agreement (DAOA) during 2019 were the following:

- The DAOA for the Joint NEMOs and TSOs cost entered into force as of the 28th of March 2019.
- In accordance with the DAOA, a resettlement for the Joint NEMOs and TSOs SDAC costs has been performed for the costs incurred under the MRC DAOA pre-financed by the MRC DAOA parties and PCR NEMOs for the period from the 14th of February 2017 until the end of the month following the entry into force of the DAOA (28th of March 2019).

- Nasdaq's adherence to the DAOA as a SDAC NEMO and started participating to the Joint NEMOs and TSOs Common cost for Establishing and Amending the SDAC from the 10th of June 2019.
- On the 30th of August 2019 there has been a release of a decision by Ofgem on the new intra SDAC TSOs and NEMOs split for the parties with activity in GB. The intra SDAC split for the GB TSOs was accordingly to the rated capacity of their respective interconnectors. For the SDAC GB NEMOs, the split was accordingly to their respective traded volumes.
- Brexit discussions have been performed also on the SDAC level, during the SDAC JSC calls. No actions or modifications on cost allocation/ reporting level was required for the 2019 SDAC Joint NEMOs and TSOs costs.

The significant events related to the All NEMO Day-Ahead Operational Agreement (ANDOA) in 2019 were the following:

- The ANDOA entered into force on 28/03/2019. This new contractual framework gathered the MRC and the 4MMC NEMOs in a single committee: the NEMO DA SC.
- New version of PMB and Euphemia was put in production. This version supports multi NEMO configurations by considering scheduling areas within each bidding zone, and NEMO trading hubs within each scheduling area (go-live on 03/04/2019).

The significant events related to the TSO Cooperation Agreement for Single Day-Ahead Coupling (TCDA) for the TSOs only cost in 2019 were the following:

- The TCDA entered into force as of the 28th of March 2019.
- In accordance with the TCDA, a resettlement has been performed for the costs incurred under the MRC DAOA pre-financed by the MRC Operational TSOs for the period from the 14th of February 2017 until the end of the month following the entry into force of the DAOA (28th of March 2019).

Other notable events:

- On the 7th May 2019, during the trilateral meeting (NRAs-NEMOs and TSOs), there has been the decision of the 2017 consumption rates to be used for the SDAC costs of 2019.

1.1 The joint all TSOs and all NEMOs costs of establishing and amending the SDAC in the amount of 1,368,930€ consists of:

Table 05

Category	Temporary activity	Costs of 2019
ICG	NO	43,663 €
Simulation Facility Training Users	NO	2,775 €
Simulation Facility Adaptation MNA Scope	NO	57,549 €
Algorithm TF Coordination	NO	6,654 €
MSD NEMOs & TSOs co leader (ES)	NO	66,970 €
MSD PMO	NO	64,967 €
SDAC Technical Solution Euphemia Releases	NO	146,654 €
SDAC Technical Solution Leader Remuneration	NO	150,118 €
SDAC Technical Solution MNA Project	NO	85,980 €
SDAC Technical Solution PMB Releases	NO	45,308 €
SDAC Technical Solution R&D	NO	651,899 €
Legal Support DAOA	NO	4,688 €
Project Place Users	NO	1,048 €
Communications TF Coordination (ES)	NO	10,699 €
Procedures TF Coordination (ES)	NO	6,441 €
Legal TF Coordination (ES)	NO	23,518 €
Total SUM		1,368,930 €

1.2 The joint all TSOs and all NEMOs costs of operating the SDAC in the amount of 264,453€ consists of:

Table 06

Category	Temporary activity	Costs of 2019
SF Operational	NO	238,532 €
Procedures TF Coordination (OP)	NO	14,516 €
Communications TF Coordination (OP)	NO	3,566 €
Legal TF Coordination (OP)	NO	7,839 €
Total SUM		264,453 €

- Rate of 925€/MD was used for internal resources of NEMOs and TSOs
- The external support for the Joint SDAC costs was assigned by the JSC group, for the preparation and the signature process of the DAOA Agreement.
- The BMTF is responsible for budgeting, validating and reviewing of costs associated with the Joint Steering Committee, who provides the final cost approval.

- The cost sharing methodology for the 2019 Joint Actual costs, is based on the CACM sharing keys implemented in the Day-ahead of Operations Agreement (DAOA), which entered into force as of 28.03.2019.
- The DAOA Agreement is replacing the previous NWE Day-Ahead Operations Agreement.
- Based on the information of the DAOA Agreement, a resettlement of the Joint NEMOs and TSOs common costs of establishing and amending the SDAC took place for the period of 14th of February 2017 to 31st of March 2019.
- The Joint NEMOs and TSOs establishing and amending costs were 1,064 k € higher compared to the 2018 costs, mainly because of the integration of the SDAC Technical Solution and MSD cost items to the SDAC Joint NEMOs and TSOs costs.
- New TF Leaders have been appointed by the SDAC JSC from June 2019. The new TF Leaders that have been introduced to the project were the MSD TF (and the MSD PMO), the Procedures TF and the Communications TF. The Legal TF continued the provided services as of the beginning of the 2019.
- The SDAC Technical Solution costs have also been introduced in 2019 under the Joint NEMOs and TSOs common cost of establishing and amending the SDAC.
- 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 the below:

1.2.1 Market and System Design TF

The MSD TF has been created in 2019 and started its activities in May 2019. Its mission & objective & general scope of competence of MSD is the following:

- Ensure a robust process is organized and applied to develop the Algorithm and the DA MCO function assets;
- 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 needed market, technical and functional knowledge base to other bodies.

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

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

Costs for the R&D program has 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 has been carried out by N-Side during 2019. A brief summary of the activities in 2019 related to the R&D program are the following:

- Euphemia Lab work set-up and started
- R&D work, carried out in cooperation with N-Side
- Algorithm performance improvements

First iteration of the Euphemia Lab conducted, promising ideas (Complex orders first, Scalable complex orders and Extended LTA inclusions) integrated into Euphemia release (E10.5)

- Progress on second iteration topics (Extended formulation for LTA inclusion, Distributed Computing, Bender cuts, PUN orders first)
- Evaluation on topics for following R&D iterations, including the preparation of content for iteration 3
- For the implementation of the 15-minutes MTU, the following topics have been addressed:
- Assessment of general implementation scenarios and planning incl. R&D process
- Questionnaire developed, evaluated and summarized

- Technical discussions on the 15 min MTU implementation design (particularly on stepwise approach)
- Design assessment started, following an action required by ACER, NRAs and European Commission

The first iteration of the Euphemia Lab has been completed during 2019 as part of Euphemia release E10.5. Further checks on iteration 2 have been conducted towards the end of November 2019.

General activities which were also addressed during 2019 by the MSD TF:

- Simulation facility: set up, running, progress on functionalities, assessment of new SF architecture
- Preparation of global SDAC roadmap
- Physical of workshops on the R&D aspect and Generic TF prepared and conducted
- Extension projects (reporting on status etc.) such as the Nordic Flow Based and the Italian-Montenegro project.
- Reporting (to JSC, TCG, MESC etc.)

1.2.2 Procedures TF

The Procedures TF has been created in 2019 and started its activities in June 2019 which are 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 2019 were the following:

- New implementations impacting current MRC procedures
 - › Harmonization of Max. & Min. prices procedures
 - › MRC procedural update with MNA and CACM
 - › COBRA Cable
 - › Eleclink new interconnector
 - › Hard Brexit procedures adaptation
 - › Nordic MNA draft procedures

- Maintenance, improvements and testing of existing MRC operational procedures
- Joint procedural testing, organizational tasks, management and reporting

- Analysis, discussion and impact assessment in Market Coupling process. Documentation and reporting for extension of algorithm computation from 12 to 17 minutes in 2020.

- Draft, update and test relevant SDAC operational procedures in preparation of the enduring phase.

1.2.3 Communications TF

The Communication TF was established at the end of Q2 2019 with the implementation of the SDAC governance. The group is chaired by an external service provider, E-Bridge Consulting.

The activities of the Communication TF focus on external communication, in particular the following major deliverables were worked upon:

- Establishment and set-up of the SDAC Communication TF
- Publication of several information notes and press releases regarding establishment of SDAC, June's decoupling event and no-deal Brexit preparation
- Compilation of the content for an SDAC webpage which is published under the ENTSO-E and NEMO Committee webpage
- Establishment of a professional SDAC slide design
- Preparation of SDAC material for 2019 MESC and Trilateral Coordination Group meetings
- Establishment and maintenance of an SDAC communication plan

1.2.4 Legal Support DAOA (this cost item is no longer active since July 2019)

- Finalization of the DAOA and arranging the signature process
- Costs for creating an original DAOA copy for each signatory party and postage
- Finalization of the Single Day-Ahead Coupling Operations Agreement ("DAOA") and of the Central Settlement Entity Service Level Agreement for Day-Ahead Coupling Operations ("CSE SLA") and monitoring signature process.
- Preparation of Accession Forms for Nasdaq and ElexLink (DAOA & CSE SLA)
- Double checking on impact assessment on DAOA of switch from Interim to Enduring phase (4MMC & MRC parallel operations into on single operation)
- Various legal assessments regarding the impact of Brexit on SDAC
- Various legal assessments regarding non-EEA members and potential extension of SDAC / adherence to DAOA, drafting of a Confidentiality Declaration for the Energy Community.
- Work on impact assessment on DAOA of SDAC joint governance principles (as approved by all NEMOs & all TSOS), preparation of a list of "legal questions" regarding those principles and drafting of several clarifications to these principles.
- Various assessments regarding the need for a selection process for the Central Settlement Entity role in the future

1.2.5 Simulation Facility Operational

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

The main costs involving the Simulation Facility which occurred in 2019 are the following:

- CPLEX licenses for N-Side (needed for Euphemia use)
- Maintenance and hosting of TRIMANE SDAC Technical Solution

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

* Mind the FSFO activity significantly increased in 2019 due to

1. Entry into force of the new DAOA, providing right from all signatory SDAC TSOs and NEMOs to request an access to the SF platform
2. Integration of 4MMC region (allowing corresponding actors to perform simulations)
3. Discussions around external parallel run (so far from CORE FB project) to be performed directly in the SF

1.2.6 SDAC Technical Solution

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

1.2.7 SDAC Technical Solution Euphemia Releases

This cost item is mainly used to group the costs associated to the work on Euphemia releases. The most important event of 2019 was the implementation of Euphemia 10.3 in May.

1.2.8 SDAC Technical Solution PMB Releases

The two key contributors into PMB/IT costs were the PMB releases where the first one (PMB10.2) is from April, supporting the CWE MNA go live but also the PMB11.0 that was released already in August (originally planned to go live in September).

1.2.9 SDAC Technical Solution Leader Remuneration

This cost item groups the remuneration of all TF/WG leaders such as: Algorithm WG, System Design WG, Change Control Board, Testing WG, etc.

1.2.10 SDAC Technical Solution MNA

The MNA TF was responsible for the monitoring and follow-up of the technical go-live of MNA (Euphemia 10.3, PMB 10.2 & testing, procedures adaptation) and coordination with the other bodies (NEMO Committee, SDAC Technical Solution SC, SDAC). All TF leader of algorithm, system design, procedures and testing were part of this TF. The most important events of 2019 were the implementation of Euphemia 10.3 and PMB 10.2 (May).

1.2.11 SDAC Technical Solution R&D

The R&D cost item is used to report activities with regards to Euphemia Lab. The most important events of 2019 were Euphemia Lab diagnosis phase, first iteration (March) and second iteration (September).

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

Table 07

Member State	TSO/ NEMO	Final consumption* in 2017 according to Report 105a (data from 04.06.2018) (in GWh)	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Share within MS to be used for sharing of SDAC costs during Apr.-Sep. 2019	Share within MS to be used for sharing of SDAC costs during Oct.-Dec. 2019	Last updated CACM Shares - SDAC to be used for sharing of SDAC costs in 2019
Austria	APG		0		50.00 %	50.00 %	1.131 %
Austria	EPEX		23,479		37.92 %	37.92 %	0.858 %
Austria	EXAA		2,780		6.44 %	6.44 %	0.146 %
Austria	NP EMCO		0		5.64 %	5.64 %	0.128 %
Austria		65,286	26,259	2.263 %	100.00 %	100.00 %	2.263 %
Belgium	ELIA		0		50.00 %	50.00 %	1.235 %
Belgium	EPEX		15,881		45.00 %	45.00 %	1.112 %
Belgium	NP EMCO		0		5.00 %	5.00 %	0.124 %
Belgium		83,579	15,881	2.471 %	100.00 %	100.00 %	2.471 %
Bulgaria	ESO		0		50.00 %	50.00 %	0.609 %
Bulgaria	IBEX		6,060		50.00 %	50.00 %	0.609 %
Bulgaria		31,400	6,060	1.219 %	100.00 %	100.00 %	1.219 %
Croatia	HOPS		0		50.00 %	50.00 %	0.416 %
Croatia	Cropex		1,580		50.00 %	50.00 %	0.416 %
Croatia		16,425	1,580	0.832 %	100.00 %	100.00 %	0.832 %
Czech Republic	CEPS		0		50.00 %	50.00 %	1.012 %
Czech Republic	OTE		19,767		50.00 %	50.00 %	1.012 %
Czech Republic		59,061	19,767	2.024 %	100.00 %	100.00 %	2.024 %
Denmark	ELSO		0		50.00 %	50.00 %	0.821 %
Denmark	NP EMCO		30,321		38.89 %	38.89 %	0.638 %
Denmark	EPEX		0		5.56 %	5.56 %	0.091 %
Denmark	Nasdaq		0		5.56 %	5.56 %	0.091 %
Denmark		32,238	30,321	1.641 %	100.00 %	100.00 %	1.641 %

Member State	TSO/ NEMO	Final consumption* in 2017 according to Report 105a (data from 04.06.2018) (in GWh)	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Share within MS to be used for sharing of SDAC costs during Apr.-Sep. 2019	Share within MS to be used for sharing of SDAC costs during Oct.-Dec. 2019	Last updated CACM Shares - SDAC to be used for sharing of SDAC costs in 2019
Estonia	Elering		0		50.00 %	50.00 %	0.383 %
Estonia	NP EMCO		8,562		41.67 %	41.67 %	0.320 %
Estonia	EPEX		0		8.33 %	8.33 %	0.064 %
Estonia		7,721	8,562	0.767 %	100.00 %	100.00 %	0.767 %
Finland	Fingrid		0		50.00 %	50.00 %	1.549 %
Finland	NP EMCO		55,081		38.89 %	38.89 %	1.205 %
Finland	EPEX		0		5.56 %	5.56 %	0.172 %
Finland	Nasdaq		0		5.56 %	5.56 %	0.172 %
Finland		82,275	55,081	3.098 %	100.00 %	100.00 %	3.098 %
France	RTE		0		50.00 %	50.00 %	5.516 %
France	EPEX		79,073		25.00 %	16.67 %	1.839 %
France	NP EMCO		0		25.00 %	16.67 %	1.839 %
France	Nasdaq		0		0.00 %	16.67 %	1.839 %
France		443,493	79,073	11.031 %	100.00 %	100.00 %	11.031 %
Germany	50Hertz		0		21.96 %	21.96 %	3.232 %
Germany	Amprion		0		32.07 %	32.07 %	4.720 %
Germany	Tennet DE		0		28.44 %	28.44 %	4.186 %
Germany	Transnet		0		17.53 %	17.53 %	2.580 %
Germany	EPEX		190,216		0.00 %	0.00 %	0.000 %
Germany	NP EMCO		0		0.00 %	0.00 %	0.000 %
Germany	EXAA		0		0.00 %	0.00 %	0.000 %
Germany	Nasdaq		0		0.00 %	0.00 %	0.000 %
Germany		531,324	190,216	14.717 %	100.00 %	100.00 %	14.717 %
Greece	ADMIE		0		50.00 %	50.00 %	1.277 %
Greece	Henex		55,852		50.00 %	50.00 %	1.277 %
Greece		55,614	55,852	2.555 %	100.00 %	100.00 %	2.555 %
Hungary	Mavir		0		50.00 %	50.00 %	0.786 %
Hungary	HUPX		16,930		50.00 %	50.00 %	0.786 %
Hungary		39,641	16,930	1.572 %	100.00 %	100.00 %	1.572 %
Ireland	EirGrid (TSO)		0		50.00 %	50.00 %	0.745 %
Ireland	EirGrid (NEMO)		29,130		50.00 %	50.00 %	0.745 %
Ireland	NP EMCO		0		0.00 %	0.00 %	0.000 %
Ireland		25,968	29,130	1.491 %	100.00 %	100.00 %	1.491 %

Table 07

Member State	TSO/ NEMO	Final consumption* in 2017 according to Report 105a (data from 04.06.2018) (in GWh)	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Share within MS to be used for sharing of SDAC costs during Apr.-Sep. 2019	Share within MS to be used for sharing of SDAC costs during Oct.-Dec. 2019	Last updated CACM Shares - SDAC to be used for sharing of SDAC costs in 2019
Italy	Terna		0		50.00 %	50.00 %	5.156 %
Italy	GME		212,927		50.00 %	50.00 %	5.156 %
Italy		301,881	212,927	10.311 %	100.00 %	100.00 %	10.311 %
Latvia	AST		0		50.00 %	50.00 %	0.357 %
Latvia	NP EMCO		6,940		41.67 %	41.67 %	0.297 %
Latvia	EPEX		0		8.33 %	8.33 %	0.059 %
Latvia		6,485	6,940	0.714 %	100.00 %	100.00 %	0.714 %
Lithuania	Litgrid		0		50.00 %	50.00 %	0.440 %
Lithuania	NP EMCO		11,292		41.67 %	41.67 %	0.367 %
Lithuania	EPEX		0		8.33 %	8.33 %	0.073 %
Lithuania		10,958	11,292	0.880 %	100.00 %	100.00 %	0.880 %
Luxembourg	CREOS		0		100.00 %	100.00 %	0.596 %
Luxembourg	EPEX		0		0.00 %	0.00 %	0.000 %
Luxembourg	NP EMCO		0		0.00 %	0.00 %	0.000 %
Luxembourg	Nasdaq		0		0.00 %	0.00 %	0.000 %
Luxembourg		6,394	0	0.596 %	100.00 %	100.00 %	0.596 %
Netherlands	Tennet BV		0		50.00 %	50.00 %	1.636 %
Netherlands	EPEX		29,003		50.00 %	50.00 %	1.636 %
Netherlands	NP EMCO		0		0.00 %	0.00 %	0.000 %
Netherlands		111,445	29,003	3.271 %	100.00 %	100.00 %	3.271 %
Poland	PSE		0		50.00 %	50.00 %	1.797 %
Poland	TGE		4,591		38.89 %	38.89 %	1.397 %
Poland	EPEX		0		5.56 %	5.56 %	0.200 %
Poland	NP EMCO		0		5.56 %	5.56 %	0.200 %
Poland		146,425	4,591	3.593 %	100.00 %	100.00 %	3.593 %
Portugal	REN		0		50.00 %	50.00 %	1.170 %
Portugal	OMIE		52,885		50.00 %	50.00 %	1.170 %
Portugal		47,661	52,885	2.339 %	100.00 %	100.00 %	2.339 %
Romania	Transelectrica		0		50.00 %	50.00 %	0.927 %
Romania	OPCOM		22,280		50.00 %	50.00 %	0.927 %
Romania		48,861	22,280	1.854 %	100.00 %	100.00 %	1.854 %
Slovakia	SEPS		0		50.00 %	50.00 %	0.569 %
Slovakia	OKTE		6,736		50.00 %	50.00 %	0.569 %
Slovakia		27,016	6,736	1.139 %	100.00 %	100.00 %	1.139 %

Table 07

Member State	TSO/ NEMO	Final consumption* in 2017 according to Report 105a (data from 04.06.2018) (in GWh)	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Share within MS to be used for sharing of SDAC costs during Apr.-Sep. 2019	Share within MS to be used for sharing of SDAC costs during Oct.-Dec. 2019	Last updated CACM Shares - SDAC to be used for sharing of SDAC costs in 2019
Slovenia	ELES		0		50.00 %	50.00 %	0.436 %
Slovenia	BSP		7,442		50.00 %	50.00 %	0.436 %
Slovenia		13,623	7,442	0.871 %	100.00 %	100.00 %	0.871 %
Spain	REE		0		50.00 %	50.00 %	4.213 %
Spain	OMIE		174,933		50.00 %	50.00 %	4.213 %
Spain		241,869	174,933	8.426 %	100.00 %	100.00 %	8.426 %
Sweden	Affärsverket svenska kraftnät		0		50.00 %	50.00 %	2.768 %
Sweden	NP EMCO		142,417		38.89 %	38.89 %	2.153 %
Sweden	EPEX		0		5.56 %	5.56 %	0.308 %
Sweden	Nasdaq		0		5.56 %	5.56 %	0.308 %
Sweden		130,459	142,417	5.535 %	100.00 %	100.00 %	5.535 %
UK (including Northern Ireland whose consumption is 9TWh)	National Grid		0		16.17 %	16.17 %	1.525 %
UK (including Northern Ireland whose consumption is 9TWh)	Britned		0		16.17 %	16.17 %	1.525 %
UK (including Northern Ireland whose consumption is 9TWh)	Nemo Link		0		16.17 %	16.17 %	1.525 %
UK (including Northern Ireland whose consumption is 9TWh)	Eleclink		0		0.00 %	0.00 %	0.000 %
UK (including Northern Ireland whose consumption is 9TWh)	EPEX		37,309		16.42 %	16.42 %	1.549 %
UK (including Northern Ireland whose consumption is 9TWh)	NP EMCO		107,453		32.10 %	32.10 %	3.027 %
UK (including Northern Ireland whose consumption is 9TWh)	SONI (TSO)		0		2.96 %	2.96 %	0.279 %
UK (including Northern Ireland whose consumption is 9TWh)	SONI (NEMO)		7,833		0.00 %	0.00 %	0.000 %
UK (including Northern Ireland whose consumption is 9TWh)		307,914	152,594	9.431 %	100.00 %	100.00 %	9.431 %
Norway	Statnett		0		50.00 %	50.00 %	2.679 %
Norway	EPEX		0		0.00 %	0.00 %	0.000 %
Norway	NP EMCO		140,946		50.00 %	50.00 %	2.679 %
Norway		121,958	140,946	5.358 %	100.00 %	100.00 %	5.358 %

* consumption of each concerned Member State, the latest available values included in the Eurostat Supply, transformation and consumption of electricity (nrg_cb_e) dataset. i. e. 2017 data are the latest available

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

Table 08

Member State	Parties	Final consumption* of 2017 of SDAC Operational MS for SDAC costs in 2019	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Share with- in MS to be used for sharing of SDAC costs during Jan. - Feb. 2019	Share with- in MS to be used for sharing of SDAC costs during Feb. - Dec. 2019	Last updated CACM Shares - SDAC to be used for sharing of SDAC costs during Jan. - Feb. 2019	Last updated CACM Shares - SDAC to be used for sharing of SDAC costs during Feb. - Dec. 2019
Austria	APG		0		50.00 %	50.00 %	1.173 %	1.173 %
Austria	EPEX		23,479		37.92 %	37.92 %	0.889 %	0.889 %
Austria	EXAA		2,780		6.44 %	6.44 %	0.151 %	0.151 %
Austria	NP EMCO		0		5.64 %	5.64 %	0.132 %	0.132 %
Austria		65,286	26,259	2.345 %	100.00 %	100.00 %	2.345 %	2.345 %
Belgium	ELIA		0		50.00 %	50.00 %	1.278 %	1.278 %
Belgium	EPEX		15,881		45.00 %	45.00 %	1.150 %	1.150 %
Belgium	NP EMCO		0		5.00 %	5.00 %	0.128 %	0.128 %
Belgium		83,579	15,881	2.555 %	100.00 %	100.00 %	2.555 %	2.555 %
Bulgaria	ESO		0		0.00 %	0.00 %	0.000 %	0.000 %
Bulgaria	IBEX		6,060		100.00 %	100.00 %	1.274 %	1.274 %
Bulgaria		31,400	6,060	1.274 %	100.00 %	100.00 %	1.274 %	1.274 %
Croatia	HOPS		0		50.00 %	50.00 %	0.439 %	0.439 %
Croatia	Cropex		1,580		50.00 %	50.00 %	0.439 %	0.439 %
Croatia		16,425	1,580	0.877 %	100.00 %	100.00 %	0.877 %	0.877 %
Czech Republic	CEPS		0		50.00 %	50.00 %	1.050 %	1.050 %
Czech Republic	OTE		19,767		50.00 %	50.00 %	1.050 %	1.050 %
Czech Republic		59,061	19,767	2.100 %	100.00 %	100.00 %	2.100 %	2.100 %
Denmark	ELSO		0		50.00 %	50.00 %	0.856 %	0.856 %
Denmark	NP EMCO		30,321		41.67 %	41.67 %	0.713 %	0.713 %
Denmark	EPEX		0		8.33 %	8.33 %	0.143 %	0.143 %
Denmark	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
Denmark		32,238	30,321	1.712 %	100.00 %	100.00 %	1.712 %	1.712 %
Estonia	Elering		0		50.00 %	50.00 %	0.406 %	0.406 %
Estonia	NP EMCO		8,562		50.00 %	50.00 %	0.406 %	0.406 %
Estonia	EPEX		0		0.00 %	0.00 %	0.000 %	0.000 %
Estonia		7,721	8,562	0.813 %	100.00 %	100.00 %	0.813 %	0.813 %
Finland	Fingrid		0		50.00 %	50.00 %	1.603 %	1.603 %
Finland	NP EMCO		55,081		41.67 %	41.67 %	1.336 %	1.336 %
Finland	EPEX		0		8.33 %	8.33 %	0.267 %	0.267 %
Finland	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
Finland		82,275	55,081	3.207 %	100.00 %	100.00 %	3.21 %	3.21 %

Table 08

Member State	Parties	Final consumption* of 2017 of SDAC Operational MS for SDAC costs in 2019	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Share with- in MS to be used for sharing of SDAC costs during Jan. - Feb. 2019	Share with- in MS to be used for sharing of SDAC costs during Feb. - Dec. 2019	Last updated CACM Shares - SDAC to be used for sharing of SDAC costs during Jan. - Feb. 2019	Last updated CACM Shares - SDAC to be used for sharing of SDAC costs during Feb. - Dec. 2019
France	RTE		0		50.00 %	50.00 %	5.657 %	5.657 %
France	EPEX		79,073		50.00 %	50.00 %	5.657 %	5.657 %
France	NP EMCO		0		0.00 %	0.00 %	0.000 %	0.000 %
France	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
France		443,493	79,073	11.315 %	100.00 %	100.00 %	11.315 %	11.315 %
Germany	50Hertz		0		21.96 %	21.96 %	3.318 %	3.318 %
Germany	Amprion		0		32.07 %	32.07 %	4.846 %	4.846 %
Germany	Tennet DE		0		28.44 %	28.44 %	4.298 %	4.298 %
Germany	Transnet		0		17.53 %	17.53 %	2.649 %	2.649 %
Germany	EPEX		190,216		0.00 %	0.00 %	0.000 %	0.000 %
Germany	NP EMCO		0		0.00 %	0.00 %	0.000 %	0.000 %
Germany	EXAA		0		0.00 %	0.00 %	0.000 %	0.000 %
Germany	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
Germany		531,324	190,216	15.111 %	100.00 %	100.00 %	15.111 %	15.111 %
Greece	ADMIE						0.000 %	
Greece	Henex						0.000 %	
Greece							0.000 %	
Hungary	Mavir		0		50.00 %	50.00 %	0.819 %	0.819 %
Hungary	HUPX		16,930		50.00 %	50.00 %	0.819 %	0.819 %
Hungary		39,641	16,930	1.638 %	100.00 %	100.00 %	1.638 %	1.638 %
Ireland	EirGrid (TSO)		0		50.00 %	50.00 %	0.779 %	0.779 %
Ireland	EirGrid (NEMO)		29,130		50.00 %	50.00 %	0.779 %	0.779 %
Ireland	NP EMCO		0		0.00 %	0.00 %	0.000 %	0.000 %
Ireland		25,968	29,130	1.558 %	100.00 %	100.00 %	1.558 %	1.558 %
Italy	Terna		0		50.00 %	50.00 %	5.310 %	5.310 %
Italy	GME		212,927		50.00 %	50.00 %	5.310 %	5.310 %
Italy		301,881	212,927	10.619 %	100.00 %	100.00 %	10.619 %	10.619 %
Latvia	AST		0		50.00 %	50.00 %	0.379 %	0.379 %
Latvia	NP EMCO		6,940		50.00 %	50.00 %	0.379 %	0.379 %
Latvia	EPEX		0		0.00 %	0.00 %	0.000 %	0.000 %
Latvia		6,485	6,940	0.758 %	100.00 %	100.00 %	0.758 %	0.758 %
Lithuania	Litgrid		0		50.00 %	50.00 %	0.465 %	0.465 %
Lithuania	NP EMCO		11,292		50.00 %	50.00 %	0.465 %	0.465 %
Lithuania	EPEX		0		0.00 %	0.00 %	0.000 %	0.000 %
Lithuania		10,958	11,292	0.929 %	100.00 %	100.00 %	0.929 %	0.929 %

Table 08

Member State	Parties	Final consumption* of 2017 of SDAC Operational MS for SDAC costs in 2019	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Share with- in MS to be used for sharing of SDAC costs during Jan. - Feb. 2019	Share with- in MS to be used for sharing of SDAC costs during Feb. - Dec. 2019	Last updated CACM Shares - SDAC to be used for sharing of SDAC costs during Jan. - Feb. 2019	Last updated CACM Shares - SDAC to be used for sharing of SDAC costs during Feb. - Dec. 2019
Luxembourg	CREOS						0.000 %	
Luxembourg	EPEX						0.000 %	
Luxembourg	NP EMCO						0.000 %	
Luxembourg	Nasdaq						0.000 %	
Luxembourg							0.000 %	
Netherlands	Tennet BV		0		50.00 %	50.00 %	1.688 %	1.688 %
Netherlands	EPEX		29,003		50.00 %	50.00 %	1.688 %	1.688 %
Netherlands	NP EMCO		0		0.00 %	0.00 %	0.000 %	0.000 %
Netherlands		111,445	29,003	3.376 %	100.00 %	100.00 %	3.376 %	3.376 %
Poland	PSE		0		50.00 %	50.00 %	1.849 %	1.849 %
Poland	TGE		4,591		38.89 %	38.89 %	1.438 %	1.438 %
Poland	EPEX		0		5.56 %	5.56 %	0.205 %	0.205 %
Poland	NP EMCO		0		5.56 %	5.56 %	0.205 %	0.205 %
Poland		146,425	4,591	3.698 %	100.00 %	100.00 %	3.698 %	3.698 %
Portugal	REN		0		50.00 %	50.00 %	1.216 %	1.216 %
Portugal	OMIE		52,885		50.00 %	50.00 %	1.216 %	1.216 %
Portugal		47,661	52,885	2.432 %	100.00 %	100.00 %	2.432 %	2.432 %
Romania	Transelectrica		0		50.00 %	50.00 %	0.963 %	0.963 %
Romania	OPCOM		22,280		50.00 %	50.00 %	0.963 %	0.963 %
Romania		48,861	22,280	1.927 %	100.00 %	100.00 %	1.927 %	1.927 %
Slovakia	SEPS		0		50.00 %	50.00 %	0.596 %	0.596 %
Slovakia	OKTE		6,736		50.00 %	50.00 %	0.596 %	0.596 %
Slovakia		27,016	6,736	1.192 %	100.00 %	100.00 %	1.192 %	1.192 %
Slovenia	ELES		0		50.00 %	50.00 %	0.460 %	0.460 %
Slovenia	BSP		7,442		50.00 %	50.00 %	0.460 %	0.460 %
Slovenia		13,623	7,442	0.919 %	100.00 %	100.00 %	0.919 %	0.919 %
Spain	REE		0		50.00 %	50.00 %	4.341 %	4.341 %
Spain	OMIE		174,933		50.00 %	50.00 %	4.341 %	4.341 %
Spain		241,869	174,933	8.683 %	100.00 %	100.00 %	8.683 %	8.683 %
Sweden	Affärsverket svenska kraftnät		0		50.00 %	50.00 %	2.861 %	2.861 %
Sweden	NP EMCO		142,417		41.67 %	41.67 %	2.384 %	2.384 %
Sweden	EPEX		0		8.33 %	8.33 %	0.477 %	0.477 %
Sweden	Nasdaq		0		0.00 %	0.00 %	0.000 %	0.000 %
Sweden		130,459	142,417	5.721 %	100.00 %	100.00 %	5.721 %	5.721 %

Table 08

Member State	Parties	Final consumption* of 2017 of SDAC Operational MS for SDAC costs in 2019	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Share with- in MS to be used for sharing of SDAC costs during Jan. - Feb. 2019	Share with- in MS to be used for sharing of SDAC costs during Feb. - Dec. 2019	Last updated CACM Shares - SDAC to be used for sharing of SDAC costs during Jan. - Feb. 2019	Last updated CACM Shares - SDAC to be used for sharing of SDAC costs during Feb. - Dec. 2019
UK (including Northern Ireland whose consumption is 9TWh)	National Grid		0		24.26 %	16.17 %	2.354 %	1.569 %
UK (including Northern Ireland whose consumption is 9TWh)	Britned		0		24.26 %	16.17 %	2.354 %	1.569 %
UK (including Northern Ireland whose consumption is 9TWh)	Nemo Link		0		0.00 %	16.17 %	0.000 %	1.569 %
UK (including Northern Ireland whose consumption is 9TWh)	Eleclink		0			0.00 %	0.000 %	0.000 %
UK (including Northern Ireland whose consumption is 9TWh)	EPEX		37,309		24.26 %	16.42 %	2.354 %	1.593 %
UK (including Northern Ireland whose consumption is 9TWh)	NP EMCO		107,453		24.26 %	32.10 %	2.354 %	3.114 %
UK (including Northern Ireland whose consumption is 9TWh)	SONI (TSO)		0		2.96 %	2.96 %	0.287 %	0.287 %
UK (including Northern Ireland whose consumption is 9TWh)	SONI (NEMO)		7,833		0.00 %	0.00 %	0.000 %	0.000 %
UK (including Northern Ireland whose consumption is 9TWh)		307,914	152,594	9.702 %	100.00 %	100.00 %	9.702 %	9.702 %
Norway	Statnett		0		50.00 %	50.00 %	2.770 %	2.770 %
Norway	EPEX		0		0.00 %	0.00 %	0.000 %	0.000 %
Norway	NP EMCO		140,946		50.00 %	50.00 %	2.770 %	2.770 %
Norway		121,958	140,946	5.540 %	100.00 %	100.00 %	5.540 %	5.540 %

* consumption of each concerned Member State, the latest available values included in the Eurostat Supply, transformation and consumption of electricity (nrg_cb_e) dataset. i. e. 2017 data are the latest available

1.3 The all NEMOs costs of establishing and amending the SDAC in 2019 consists of

- NEMO Committee costs in the amount of 149,064 €
- NEMOs only costs of establishing and amending the SDAC algorithm and DA MCO Function System in the amount of 985,298 €

as further detailed below.

Table 09

Related Task Force	Temporary activity	Costs of 2019
NEMO Committee PMO	NO	78,901 €
NEMO Committee Chairman	NO	76,387 €
Technical TF	NO	52,648 €
NEMO Committee - support	NO	45,866 €
Cost TF	NO	15,262 €
Legal TF	NO	15,084 €
Exceptional Contingency	YES	9,875 €
Procurement TF	YES	2,544 €
Procedural TF	NO	1,561 €
Total SUM		298,128 €

50 % of all costs encountered by Interim NEMO Committee in its tasks of preparation of CACM methodologies and proposals in 2019 in total of 149,063.85 €

In 2019 the NEMO Committee (NC) has been working on many activities, partly following up from 2018 ones, partly new and mostly following responsibilities and task given by CACM Regulation and approved MCO Plan.

1.3.1 NEMO cooperation

The NC finalized the signature and entry into force of the All NEMO Cooperation Agreement (ANCA), envisioned in the MCO Plan, which on 28/3/2019 replaced the interim NEMO cooperation Agreement (INCA) providing the legal basis for the enduring cooperation among NEMOs.

In this respect the NC welcomed the entrance of the first new NEMO from the CACM Regulation approval (Nasdaq) starting from 20/12/2018.

At the same time, the NC promoted the finalization, signature and entry into force on 28/3/2019 of the All NEMO Day-ahead Operational Agreement (ANDOA), providing the legal basis for the NEMO cooperation in the operation of the DA markets, in line with the mirroring agreement

signed in 2018 for the ID (s.c. ANIDOA) and implementing provisions related to CACM Regulation, Article 10.

1.3.2 NEMO-TSO cooperation

The NC, in cooperation with All TSOs, promoted the finalisation, signature and entry into force on 28/3/2019 of the Day-ahead Operational Agreement (DAOA), providing the legal basis for the joint NEMO-TSO cooperation in the operation of the DA markets, in line with the mirroring agreement signed in 2018 for the ID (s.c. IDOA) and implementing provisions related to CACM Regulation, Article 10.

The NC, together with ENTSO-E, also finalized the high-level design for a revised Joint Governance of the DA and ID processes, which aims at increasing efficiency in the coordination of the DA and ID processes and should be implemented based on amendments of DAOA and IDOA.

1.3.4 MCO governance and operation

The NC supported the debate on the efficiency of the MCO governance, launched by the European Commission during the May 2018 Florence Forum, coordinating common positions among NEMOs.

The NC also supported the process to identify solutions for the operational advancements related to SDAC (for example MNA go-live in March 2019 and Brexit management) and SIDC (for example the 2nd wave go-live, s.c. Transit Shipping arrangements and Remit reporting under SIDC).

1.3.5 Methodologies

On 31/7/2019 all NEMOs in cooperation with TSOs transmitted to All NRAs and ACER of the amended version of the Algorithm Methodology in accordance with Article 37 of CACM Regulation, which accommodates the provisions on Algorithm Change Control Methodology and Algorithm Monitoring Methodology for both the price coupling algorithm and continuous matching algorithm, already envisioned in the first approved version of the Algorithm Methodology. NEMOs have also sent to all NRAs and ACER the final version of the Minimum and Maximum price Methodology. According to articles 41 and 54 of CACM Regulation.

1.3.6 Intra Day Auctions (IDAs)

The NC finalized a high-level design for the implementation of the Intra Day Auctions, complying with ACER's decision on Intraday Cross Zonal Capacity Pricing. Such proposal has been delivered to the SIDC Steering Committee for the finalization of the technical requirements and the consequent implementation in upcoming years.

1.3.7 Communication and Stakeholders involvement

On 03/06/2019, the NC launched its website¹, to promote a transparent and effective spreading of all the information related to the NEMOs' activities and their compliance to CACM provisions.

On 20/09/2019, the NC published the 2018 Cost report prepared in cooperation with ENTSO-E and in compliance with CACM Regulation, Article 80.1.

On 10/12/2019, the NC published on its website the first CACM report on operations, monitoring and development of the SDAC and SIDC prepared in cooperation with

ENTSO-E and in compliance with provisions under Algorithm Methodology article x and with CACM Regulation Article 37.6.

- Rate of 925 €/MD was used for internal resources of NEMOs
- The external costs were included at costs without any surplus or commercial benefit for the contracting party.
- NEMO Committee costs consists of costs of the Chairman of NEMO Committee of the cost of external PMO support (costs of project management services provided by Indra Czech Republic s.r.o.) and the Costs related to other supportive tasks, mainly related to reporting and communication in order to define, prepare and perform reporting according to CACM Regulation.
- The external support for PMO services was selected based on a competitive tender finalized at the beginning of 2018.
- Technical TF was established as a merge of 3 TFs operating in 2017, namely Algorithm and product TF, DA Algorithm TF and ID Algorithm TF in order to deal with all technical methodologies in a centralized approach under the CACM Regulation.
- Procedural TF is responsible for the procedural issues related to CACM Regulation.
- COST TF is responsible for budgeting, validating and reviewing of costs associated with Interim NEMO Committee and preparation of Cost Report according to CACM Regulation.
- Legal TF is responsible for delivering the contractual framework in accordance with MCO Plan – especially the All NEMO Cooperation Agreement and coordination of work of legal task forces of NEMOs under SDAC and SIDC.
- Procurement TF is responsible for performing of necessary procurements processes.
- Communication TF was formed within 2019 and is responsible for NEMO Committee webpage, external communication, preparation of CACM reports and press releases of NEMO Committee

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

1 <http://www.nemo-committee.eu/>

Respective costs attributable to all NEMOs for establishment and amendment of SDAC algorithm and DA MCO Function System in total of 985,299 €

Table 10

Category	Temporary activity	Costs of 2019
Maintenance Contracts	NO	621,798 €
PMO – General Support	NO	198,822 €
Support Tasks	NO	64,708 €
Leader Remuneration	NO	59,223 €
NEMO only related Euphemia Releases	YES	40,746 €
Total SUM		985,299 €

- Rate of 925 €/MD was used for internal resources of NEMOs
- The external costs were included at costs without any surplus or commercial benefit for the contracting party.
- Maintenance costs refers to part of cost related to Maintenance contracts for Algorithm and Price Matcher and Broker (PMB) which is not related to production operational support and therefore refers to basic maintenance (so-called "offline maintenance") and change release management.
- External service provider in charge of maintenance of the Algorithm- N-SIDE SA was selected based on competitive tender prior to CACM entry into force.
- External service provider in charge of development and maintenance of the Price Matcher and Broker (PMB) – Unicorn Systems a.s. was selected based on competitive tender prior to CACM entry into force.
- PMO- General Support costs consist of costs of the of external support related to project management services provided by SIA Partners Belgium and costs of document management system provided by Project place International AB).
- The external support for PMO services was selected based on a competitive tender prior to CACM entry into force.
- Leader Remuneration refers to remuneration of Procedural Working Group and Legal Task Force (formerly Governance Working Group) leadership provided by internal resources of NEMOs.
- Support tasks 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.
- Governance WG (GOWG) is responsible for delivering the contractual framework of NEMOs within SDAC – especially the All NEMO Day-ahead Cooperation Agreement.
- Procedural WG (PWG) is responsible for drafting, improvement and testing of NEMOs procedures for SDAC – the coupling part.
- Costs associated to Euphemia releases refers to costs of Internal Simulations and Analysis, drafting work, tool automation for the benefit of all NEMOs provided internally by NEMOs resources.

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

The following sharing key was used for sharing of all NEMOs costs of establishing and amending the SDAC in 2019:

Table 11

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	Traded volume 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2019	CACM Share -SDAC to be used for sharing of SDAC costs in 2019
Austria	65,286	23,479	2.2626%	EPEX	75.8400%	1.7160%
		2,780		EXAA	12.8800%	0.2914%
		0		NP EMCO	11.2800%	0.2552%
Belgium	83,578	15,881	2.4709%	EPEX	90.0000%	2.2238%
		0		NP EMCO	10.0000%	0.2471%
Bulgaria	31,399	6,060	1.2189%	IBEX	100.0000%	1.2189%
Croatia	16,425	1,580	0.8319%	CROPEX	100.0000%	0.8319%
Czech Republic	59,060	19,767	2.0245%	OTE	100.0000%	2.0245%
Denmark	32,238	30,321	1.6412%	NP EMCO	77.7800%	1.2765%
		0		EPEX	11.1100%	0.1823%
		0		NASDAQ	11.1100%	0.1823%
Estonia	7,721	8,562	0.7668%	NP EMCO	83.3300%	0.6390%
		0		EPEX	16.6700%	0.1278%
Finland	82,275	55,081	3.0979%	NP EMCO	77.7800%	2.4095%
		0		EPEX	11.1100%	0.3442%
				NASDAQ	11.1100%	0.3442%
France	443,492	79,073	11.0312%	EPEX	33.3333%	3.6771%
				NASDAQ	33.3333%	3.6771%
		0		NP EMCO	33.3333%	3.6771%
Germany	531,324	190,216	14.7174%	EPEX	25.0000%	3.6794%
		0		NP EMCO	25.0000%	3.6794%
				NASDAQ	25.0000%	3.6794%
		0		EXAA	25.0000%	3.6794%
Greece	55,614	55,852	2.5547%	HENEX	100.0000%	2.5547%
Hungary	39,641	16,930	1.5722%	HUPX	100.0000%	1.5722%
Ireland	25,967	29,130	1.4906%	EirGRID	100.0000%	1.4906%
Italy	301,880	212,927	10.3115%	GME	100.0000%	10.3115%
Latvia	6,484	6,940	0.7140%	NP EMCO	83.3300%	0.5950%
		0		EPEX	16.6700%	0.1190%
Lithuania	10,957	11,292	0.8799%	NP EMCO	83.3300%	0.7332%
		0		EPEX	16.6700%	0.1467%
Luxembourg	6,393	0	0.5963%	EPEX	33.3333%	0.1988%
				NASDAQ	33.3333%	0.1988%
		0		NP EMCO	33.3333%	0.1988%

Table 11

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	Traded volume 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2019	CACM Share -SDAC to be used for sharing of SDAC costs in 2019
Netherlands	111,445	29,003	3.2710%	EPEX	100.0000%	3.2710%
		0		NP EMCO	0.0000%	0.0000%
Poland	146,424	4,591	3.5932%	TGE	77.7800%	2.7948%
		0		EPEX	11.1100%	0.3992%
		0		NP EMCO	11.1100%	0.3992%
Portugal	47,660	52,885	2.3394%	OMIE	100.0000%	2.3394%
Romania	48,860	22,280	1.8537%	OPCOM	100.0000%	1.8537%
Slovakia	27,016	6,736	1.1388%	OKTE	100.0000%	1.1388%
Slovenia	13,622	7,442	0.8712%	BSP	100.0000%	0.8712%
Spain	241,869	174,933	8.4260%	OMIE	100.0000%	8.4260%
Sweden	130,459	142,417	5.5355%	NP EMCO	77.7800%	4.3055%
		0		EPEX	11.1100%	0.6150%
		0		NASDAQ	11.1100%	0.6150%
UK (NI whose consumption is 9.000 GWh)	307,914	37,309	9.1549%	EPEX	70.4000% in H1 and 33.8483% in H2	6.4451% in H1 and 3.0988% in H2*
		107,453		NP EMCO	29.6000% in H1 and 66.1517% in H2	2.7099% in H1 and 6.0561% in H2*
Northern Ireland (calculated as part of 9 TWh of UK)		7,833	0.2756%	SONI	100.0000%	0.2756%
Norway	121,958	0	5.3582%	EPEX	0.0000%	0.0000%
		140,946		NP EMCO	100.0000%	5.3582%

* consumption of each concerned Member State, the latest available values included in the Eurostat Supply, transformation and consumption of electricity (nrg_cb_e) dataset. i. e. 2017 data are the latest available

1.4 NEMOs only costs of operating the SDAC in the amount of 446,313 €

Table 12

Category	Temporary activity	Costs of 2019
Maintenance Contracts	NO	351,308 €
Leader Remuneration	NO	91,379 €
PMO – General Support	NO	2,181 €
Support Tasks	NO	1,445 €
Total SUM		446,313 €

- Rate of 925 €/MD was used for internal resources of NEMOs
- The external costs were included at costs without any surplus or commercial benefit for the contracting party.
- Maintenance costs refers to part of cost related to Maintenance contracts for Algorithm and Price Matcher and Broker (PMB) which is directly related to production operational support and therefore refers to operational maintenance (so-called "online maintenance").
- PMO – General Support costs consist of costs of the of external support related to project management services provided by SIA Partners Belgium and costs of document management system provided by Project place International AB).
- The external support for PMO services was selected based on a competitive tender prior to CACM entry into force. Leader Remuneration refers to remuneration of Procedural Working Group, Algorithm Working Group and Legal Task Force (formerly Governance Working Group) leadership provided by internal resources of NEMOs for the benefit of operation of SDAC.
- Maintenance costs refers to part of cost related to Maintenance contracts for Algorithm and Price Matcher and Broker (PMB) which is directly related to production operational support and therefore refers to operational maintenance (so-called "online maintenance").
- Support tasks costs refer cost of ACER study performed by NEMOs on a yearly basis.

The following sharing key was used for sharing of all NEMOs costs of operating the SDAC in 2019:

Table 13

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	Traded volume 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2019	CACM Share -SDAC to be used for sharing of SDAC costs in 2019
Austria	65,286	23,479	2.3454 %	EPEX	75.8400 %	1.7788 %
		2,780		EXAA	12.8800 %	0.3021 %
				NP EMCO	11.2800 %	0.2646 %
Belgium	83,578	15,881	2.5551 %	EPEX	90.0000 %	2.2996 %
				NP EMCO	10.0000 %	0.2555 %
Bulgaria	31,399	6,060	1.2737 %	IBEX	100.0000 %	1.2737 %
Croatia	16,425	1,580	0.8772 %	CROPEX	100.0000 %	0.8772 %
Czech Republic	59,060	19,767	2.1003 %	OTE	100.0000 %	2.1003 %

Table 13

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	Traded volume 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2019	CACM Share -SDAC to be used for sharing of SDAC costs in 2019
Denmark	32,238	30,321	1.7121%	NP EMCO	83.3333%	1.4267%
				EPEX	16.6667%	0.2853%
Estonia	7,721	8,562	0.8128%	NP EMCO	83.3300%	0.6773%
				EPEX	16.6700%	0.1355%
Finland	82,275	55,081	3.2067%	NP EMCO	83.3333%	2.6723%
				EPEX	16.6667%	0.5345%
France	443,492	79,073	11.3147%	EPEX	100.0000%	11.3147%
Germany	531,324	190,216	15.1115%	EPEX	100.0000% in H1 and 33.3333% in H2	15.1115% in H1 and 5.0372% in H2
				NP EMCO	0.0000% in H1 and 33.3333% in H2	0.0000% in H1 and 5.0372% in H2
				EXAA	0.0000% in H1 and 33.3333% in H2	0.0000% in H1 and 5.0372% in H2
				NASDAQ	0.0000%	0.0000%
Hungary	39,641	16,930	1.6376%	HUPX	100.0000%	1.6376%
Ireland	25,967	29,130	1.5579%	EirGRID	100.0000%	1.5579%
Italy	301,880	212,927	10.6191%	GME	100.0000%	10.6191%
Latvia	6,484	6,940	0.7584%	NP EMCO	83.3300%	0.6320%
				EPEX	16.6700%	0.1264%
Lithuania	10,957	11,292	0.9291%	NP EMCO	83.3300%	0.7742%
				EPEX	16.6700%	0.1549%
Netherlands	111,445	29,003	3.3759%	EPEX	100.0000%	3.3759%
				NP EMCO	0.0000%	0.0000%
Poland	146,424	4,591	3.6977%	TGE	77.7800%	2.8761%
				EPEX	11.1100%	0.4108%
				NP EMCO	11.1100%	0.4108%
Portugal	47,660	52,885	2.4316%	OMIE	100.0000%	2.4316%
Romania	48,860	22,280	1.9267%	OPCOM	100.0000%	1.9267%
Slovakia	27,016	6,736	1.1921%	OKTE	100.0000%	1.1921%
Slovenia	13,622	7,442	0.9191%	BSP	100.0000%	0.9191%
Spain	241,869	174,933	8.6826%	OMIE	100.0000%	8.6826%
Sweden	130,459	140,946	5.7211%	NP EMCO	83.3333%	4.7676%
				EPEX	16.6667%	0.9535%

Table 13

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	Traded volume 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2019	CACM Share -SDAC to be used for sharing of SDAC costs in 2019
UK (NI whose consumption is 9.000 GWh)	307,914	37,309	9.4183%	EPEX	70.4000% in H1 and 33.8483% in H2	6.4451% in H1 and 3.0988% in H2**
		107,453		NP EMCO	29.6000% in H1 and 66.1517% in H2	2.7099% in H1 and 6.0561% in H2**
Northern Ireland (calculated as part of 9 TWh of UK)		7,833	0.2836%	SONI	100.0000%	0.2836%
Norway	121,958		5.5400%	EPEX	0.0000%	0.0000%

* consumption of each concerned Member State, the latest available values included in the Eurostat Supply, transformation and consumption of electricity (nrg_cb_e) dataset. i. e. 2017 data are the latest available

1.5 The TSO only costs of establishing and amending the SDAC in the amount of 3,272€ consists of:

Table 14

Category	Temporary activity	Costs of 2019
Legal Support TCDA	NO	2,179€
Legal Support PMO TCDA	NO	1,094€
Total SUM		3,272€

- The TSOs only costs for establishing and amending the SDAC, consist of external Legal Support to the TCDA Agreement (Bernard Energy) and Secretary costs of the TSO JSC (E-Bridge Consulting)
- The external Legal services have been provided based on the direct assignment, as a continuity of the selected service providers, by the SDAC TSOs JSC.
- The TSOs of the Budget Management Task Force (BMTF), are responsible for budgeting, validating and reviewing of costs, associated with the SDAC TSOs JSC, who provides the final cost approval.
- The cost sharing methodology for the 2019 Joint Actual costs, is based on the CACM sharing keys implemented in the TSO Cooperation Agreement for Single Day-Ahead Coupling (TCDA), which entered into force as of 28.03.2019.

1.5.1 Legal Support TCDA

- Finalization of the TCDA and arranging the signature process
- Costs for creating an original TCDA copy for each signatory party and postage
- Finalization of the TSO Cooperation Agreement for Single Day-Ahead Coupling ("TCDA"), monitoring of signature process
- Double checking on impact assessment on TCDA of switch from Interim to Enduring phase (4MMC & MRC parallel operations into on single operation)
- Preparation of Accession Forms for ElecLink (TCDA)
- Coordination of TSOs' only positions on legal matters

The following sharing key was used for sharing of all TSOs costs of establishing and amending the SDAC in 2019:

Table 15

Member State	TSOs	Final Consumption* of 2017 of SDAC Operational MS for SDAC costs in 2019	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	Share MS for 2019	Share within MS 2019	Shares per TSO 2019
Austria	APG		0		100.00%	2.263%
Austria	EPEX		23,479		0.00%	0.000%
Austria	EXAA		2,780		0.00%	0.000%
Austria	NP EMCO		0		0.00%	0.000%
Austria		65,286	26,259	2.263%	100.00%	2.263%
Belgium	ELIA		0		100.00%	2.471%
Belgium	EPEX		15,881		0.00%	0.000%
Belgium	NP EMCO		0		0.00%	0.000%
Belgium		83,579	15,881	2.471%	100.00%	2.471%
Bulgaria	ESO		0		100.00%	1.219%
Bulgaria	IBEX		6,060		0.00%	0.000%
Bulgaria		31,400	6,060	1.219%	100.00%	1.219%
Croatia	HOPS		0		100.00%	0.832%
Croatia	Cropex		1,580		0.00%	0.000%
Croatia		16,425	1,580	0.832%	100.00%	0.832%
Czech Republic	CEPS		0		100.00%	2.024%
Czech Republic	OTE		19,767		0.00%	0.000%
Czech Republic		59,061	19,767	2.024%	100.00%	2.024%
Denmark	ELSO		0		100.00%	1.641%
Denmark	NP EMCO		30,321		0.00%	0.000%
Denmark	EPEX		0		0.00%	0.000%
Denmark	Nasdaq		0		0.00%	0.000%
Denmark		32,238	30,321	1.641%	100.00%	1.641%

Table 15

Member State	TSOs	Final Consumption* of 2017 of SDAC Operational MS for SDAC costs in 2019	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	Share MS for 2019	Share within MS 2019	Shares per TSO 2019
Estonia	Elering		0		100.00%	0.767%
Estonia	NP EMCO		8,562		0.00%	0.000%
Estonia	EPEX		0		0.00%	0.000%
Estonia		7,721	8,562	0.767%	100.00%	0.767%
Finland	Fingrid		0		100.00%	3.098%
Finland	NP EMCO		55,081		0.00%	0.000%
Finland	EPEX		0		0.00%	0.000%
Finland	Nasdaq		0		0.00%	0.000%
Finland		82,275	55,081	3.098%	100.00%	3.098%
France	RTE		0		100.00%	11.031%
France	EPEX		79,073		0.00%	0.000%
France	NP EMCO		0		0.00%	0.000%
France		443,493	79,073	11.031%	100.00%	11.031%
Germany	50Hertz		0		21.96%	3.232%
Germany	Amprion		0		32.07%	4.720%
Germany	Tennet DE		0		28.44%	4.186%
Germany	Transnet		0		17.53%	2.580%
Germany	EPEX		190,216		0.00%	0.000%
Germany	NP EMCO		0		0.00%	0.000%
Germany	EXAA		0		0.00%	0.000%
Germany	Nasdaq		0		0.00%	0.000%
Germany		531,324	190,216	14.717%	100.00%	14.717%
Greece	ADMIE		0		100.00%	2.555%
Greece	Henex		55,852		0.00%	0.000%
Greece		55,614	55,852	2.555%	100.00%	2.555%
Hungary	Mavir		0		100.00%	1.572%
Hungary	HUPX		16,930		0.00%	0.000%
Hungary		39,641	16,930	1.572%	100.00%	1.572%
Ireland	EirGrid (TSO)		0		100.00%	1.491%
Ireland	EirGrid (NEMO)		29,130		0.00%	0.000%
Ireland	NP EMCO		0		0.00%	0.000%
Ireland		25,968	29,130	1.491%	100.00%	1.491%
Italy	Terna		0		100.00%	10.311%
Italy	GME		212,927		0.00%	0.000%
Italy		301,881	212,927	10.311%	100.00%	10.311%

Table 15

Member State	TSOs	Final Consumption* of 2017 of SDAC Operational MS for SDAC costs in 2019	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	Share MS for 2019	Share within MS 2019	Shares per TSO 2019
Latvia	AST		0		100.00%	0.714%
Latvia	NP EMCO		6,940		0.00%	0.000%
Latvia	EPEX		0		0.00%	0.000%
Latvia		6,485	6,940	0.714%	100.00%	0.714%
Lithuania	Litgrid		0		100.00%	0.880%
Lithuania	NP EMCO		11,292		0.00%	0.000%
Lithuania	EPEX		0		0.00%	0.000%
Lithuania		10,958	11,292	0.880%	100.00%	0.880%
Luxembourg	CREOS		0		100.00%	0.596%
Luxembourg	EPEX		0		0.00%	0.000%
Luxembourg	NP EMCO		0		0.00%	0.000%
Luxembourg	Nasdaq		0		0.00%	0.000%
Luxembourg		6,394	0	0.596%	100.00%	0.596%
Netherlands	Tennet BV		0		100.00%	3.271%
Netherlands	EPEX		29,003		0.00%	0.000%
Netherlands	NP EMCO		0		0.00%	0.000%
Netherlands		111,445	29,003	3.271%	100.00%	3.271%
Poland	PSE		0		100.00%	3.593%
Poland	TGE		4,591		0.00%	0.000%
Poland	EPEX		0		0.00%	0.000%
Poland	NP EMCO		0		0.00%	0.000%
Poland		146,425	4,591	3.593%	100.00%	3.593%
Portugal	REN		0		100.00%	2.339%
Portugal	OMIE		52,885		0.00%	0.000%
Portugal		47,661	52,885	2.339%	100.00%	2.339%
Romania	Transelectrica		0		100.00%	1.854%
Romania	OPCOM		22,280		0.00%	0.000%
Romania		48,861	22,280	1.854%	100.00%	1.854%
Slovakia	SEPS		0		100.00%	1.139%
Slovakia	OKTE		6,736		0.00%	0.000%
Slovakia		27,016	6,736	1.139%	100.00%	1.139%
Slovenia	ELES		0		100.00%	0.871%
Slovenia	BSP		7,442		0.00%	0.000%
Slovenia		13,623	7,442	0.871%	100.00%	0.871%

Table 15

Member State	TSOs	Final Consumption* of 2017 of SDAC Operational MS for SDAC costs in 2019	Traded volume (TV) 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	Share MS for 2019	Share within MS 2019	Shares per TSO 2019
Spain	REE		0		100.00%	8.426%
Spain	OMIE		174,933		0.00%	0.000%
Spain		241,869	174,933	8.426%	100.00%	8.426%
Sweden	Affärsverket svenska kraftnät		0		100.00%	5.535%
Sweden	NP EMCO		142,417		0.00%	0.000%
Sweden	EPEX		0		0.00%	0.000%
Sweden	Nasdaq		0		0.00%	0.000%
Sweden		130,459	142,417	5.535%	100.00%	5.535%
UK (including Northern Ireland whose consumption is 9TWh)	National Grid		0		32.35%	3.050%
UK (including Northern Ireland whose consumption is 9TWh)	Britned		0		32.35%	3.050%
UK (including Northern Ireland whose consumption is 9TWh)	Nemo Link		0		32.35%	3.050%
UK (including Northern Ireland whose consumption is 9TWh)	Eleclink		0		0.00%	0.000%
UK (including Northern Ireland whose consumption is 9TWh)	EPEX		37,309		0.00%	0.000%
UK (including Northern Ireland whose consumption is 9TWh)	NP EMCO		107,453		0.00%	0.000%
UK (including Northern Ireland whose consumption is 9TWh)	SONI (TSO)		0		2.96%	0.279%
UK (including Northern Ireland whose consumption is 9TWh)	SONI (NEMO)		7,833		0.00%	0.000%
UK (including Northern Ireland whose consumption is 9TWh)		307,914	152,594	9.431%	100.00%	9.431%
Norway	Statnett		0		100.00%	5.358%
Norway	EPEX		0		0.00%	0.000%
Norway	NP EMCO		140,946		0.00%	0.000%
Norway		121,958	140,946	5.358%	100.00%	5.358%

* consumption of each concerned Member State, the latest available values included in the Eurostat Supply, transformation and consumption of electricity (nrg_cb_e) dataset. i. e. 2017 data are the latest available

1.6 There were no costs categorized as all TSOs costs of operating the SDAC in 2019

The reason why no cost occurred for all TSOs cost of operating the SDAC, is due to the fact that the Day-Ahead of Operational Agreement (DAOA) is currently in "Interim Phase", meaning there are two parallel market couplings, one for MRC and one for 4MMC. Only when

the DAOA will enter the "Enduring Phase", meaning there will be only one Single Day-Ahead Coupling (MRC and 4MMC coupled), cost will be categorized under all TSOs operating costs.

2 Actual SIDC costs of 2019

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

SIDC algorithm and ID MCO Function System in the amount of 3,779,650 € as further detailed below.

Table 16

Category	Temporary activity	Costs of 2019
IDSC	NO	56,809 €
Hosting & Maintenance of SIDC Technical solution	NO	1,436,745 €
Further development of SIDC technical solution	NO	1,334,619 €
XTG	NO	283,972 €
MSD	NO	190,523 €
QARM	NO	160,779 €
Travelling and meeting organisation	NO	93,954 €
LTC	YES	75,109 €
IDSC	NO	56,809 €
LTF	NO	43,488 €
BMSG	NO	30,233 €
Support systems	NO	24,716 €
ICT	NO	17,102 €
COMSG	NO	16,393 €
OTF	NO	15,208 €
Total SUM		3,779,650 €*

* The costs of ASR_010b dealing with analysis for Losses Part II - Slice 2 in the amount of 155,535 €, included in the 2019 IDOA cost resettlement, was committed already prior go-live of SIDC solution (Q4 2017) and therefore budgeted, reported, shared and invoice outside of SIDC 2019 costs as a standalone item

2019 was a significant year for SIDC based on 2 major cornerstones:

- Firstly, it was the first full year of successful SIDC operation in more than 14 countries following go-live in June 2018 and

- Secondly Release 2.0 was deployed in second half of 2019 followed by successful go-live of 2nd wave

An overview of the activities undertaken in the main groups within the SIDC and organisational structure are provided on the next pages.

2.1.1 Intraday Steering Committee (IDSC) Chaired by Jean Verseille, Artelys, and Stefano Alaimo, GME

The IDSC was responsible for ensuring that all unresolved issues were concluded before 2nd wave Go-Live and that all parties/all the Local Implementation Projects (LIPs) were ready for 2nd wave Go-Live. There were several difficult issues which had to be managed carefully. These included most importantly the issue of Transit Shipping, which was resolved for the interim period so that 2nd wave go-live can take place as planned. Finding the interim solution was assisted by the participation of the NRAs and European Commission during the crucial negotiations.

The IDSC also discussed and reviewed processes for R2.0. and preparation for R3.0. including decisions concerning the agile approach pilot for the R3.0. The IDSC reviewed and agreed the commercial provided by DBAG for the agile approach pilot.

SIDC project also use Projectplace solution for document management and teleconference meetings and ReQTest tool for tracking of ongoing tests, these systems are recognised as Support Systems.

2.1.3 Hosting & Maintenance of SIDC Technical solution and Further development of SIDC technical solution (DBAG costs)

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

Recurring Hosting & Maintenance cost: total sum of 2,554,674 € out of which 1,436,744 € represent costs of establishing and amending the SIDC and 1,117,930 € represents operating costs

This consists of elements such as:

- Cost for the hosting of the solution in 2 data centres
- Cost for the security services
- Cost for provision of solution's environments (productions, production-like, test environments) and the infrastructure

- Cost for the provision of the continuous IT support and operation
- Cost for availability of failover mechanism
- Cost for software licences
- Cost for corrective and preventive software corrections
- Cost for adaptive and perfective software enhancements

Every added functionality can have an impact on ongoing H&M cost depending on its scale and complexity.

Annual H&M cost consists of these quarterly parts:

- Q1 Hosting & Maintenance: 548 k €
- Q2 Hosting & Maintenance: 532 k €
- Q3 Hosting & Maintenance: 607 k €
- Q4 Hosting & Maintenance: 812 k €
Sudden increase of Hosting and Maintenance cost is due to functionality added in the Release 2.0 and deployed in Q4 2019.

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:

- In a nutshell:
 - › The charge for Individual Customer Testing Environment is understood as Establish & Amend Cost²
 - › 70 % of Maintenance costs of the remaining after the Individual CuTes deduction is Operating Cost; 30 % after the Cutes Deduction is EA cost.
 - › 50 % of hosting costs after deduction of Individual CuTes costs is in Operating category, the remaining 50 % of hosting costs is Establish & Amend Cost

3rd party support in the amount of 51,507 € which is a specific support from XBID Service Provider DBAG to each NEMO primarily for solving obstacles during the setup of LTS' connectivity to SIDC technical solution (hence considered as costs of establishing and amending the SIDC)

2 Individual environments of each NEMO which is used for the individual testing needs supporting the development of local trading solutions

New functionality or service in total amount of 1,334,618 €:

CR094 "Release 2.0, part 2": 912 k €

- Main price elements are:
 - › 150 k €: Expenditures for various release management actions of Release 2.0.
 - › 120 k €: UAT (user acceptance tests) support.
 - › 100 k €: LIP (local implementation projects) testing support.
 - › 343 k €: Performance upgrade to accommodate the uplift and increase due to 2nd wave parties.
 - › 100 k €: cost of one-off Hosting & Maintenance impact
 - › 69 k €: ACER reporting functionality
 - › 24 k €: Various additional functionalities

ASR014 "Relaxation Orderbook Limitation": 80 k

Analysis of possibility to remove the orderbook limit (introduced as a performance optimization) later implemented as part of the Performance upgrades under CR094 Release 2.0

ASR016 "Support Services for 2nd Wave Trial Period and Launch Phase": 117 k

Additional support services were requested from DBAG for the sake of successful launch preparation and launch phases of the 2nd wave go-live.

Agile Pilot: 141 k

Agile Pilot was requested as a Proof of Concept that switching the project approach to Agile would be beneficial for the sake of the project. Specific functions from the list of future CRs are to be implemented and delivered during the Agile Pilot.

3rd Party Support + LIP Support: 50 k

Individual support was provided by DBAG to either LIPs or individual parties (3rd party support) for the sake of readiness for the 2nd wave go-live.

Other minor Change Requests: 91 k €

2.1.4 XBID Testing Group (XTG) Co-chaired by representatives from EPEX and Nordpool NP EMCO and then by representatives from 50Hertz, EPEX and RTE

One of the main elements in ensuring that XBID 2.0 Go-Live was a success was the preparation and the execution of the R2.0 testing campaign. Release 2.0 was deployed on 2019/03/28. This was tested until the beginning of October (i.e. 2019/10/14) when the Exit Criteria were successfully met with all parties satisfied that the quality of the XBID solution was good. The exact R2.0 UAT planning timeline was as follows:

- UAT Phase I/III/R – Functional and Regression tests: from 2019/04/01 until 2019/06/21
- UAT Phase VI – DST tests: from 2019/06/24 until 2019/07/26
- UAT Phase V – Failover Tests: from 2019/07/29 until 2019/08/30
- UAT Phase II – Performance tests: from 2019/09/02 until 2019/10/04

The two following activities were performed before and after the R2.0 test campaign:

- Before the R2.0 test campaign: the hotfix release 1.5.9 has been successfully tested in coordination with OPSCOM.
- After the R2.0 test campaign: work on the design of the Agile Pilot and Transit Shipper Switch, OCC file and PMI LAT testing.

2.1.5 Market System Design (MSD) Chaired by representative from E-Bridge (PMO provided by the same representative)

MSD manages technical aspects of the joint project. This includes development of Change Requests having impact to IT solution, alignment on the changes specifications with DBAG, technical prioritization 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 implementation involving MSD in 2019 was related to 2nd wave go-live, in particular enhanced shipper functionality. Also, configuration for 2nd wave go-live including planning and sequencing of the activities to be executed by OPSCOM was delivered by MSD. MSD was furthermore involved to review of Algorithm Methodology especially the part dealing with indicators. Major Change Requests prepared by MSD were addressing Algorithm Methodology indicators, reporting of Offered Capacities to ENTSO-E, improving the enhanced shipper functionality for case when there would be no shipper active in all delivery areas and introducing possibility of combined capacity constraints for Poland. These change requests will be part of the discussion with DBAG in 2020.

Of particular note is also the work overseen by the MSD with regards to Losses on DC cables. A Proof of Concept for Losses implementation was executed in period September – December 2019. Focus of the Proof of Concept was to confirm implementation details including impact to file exchanges with local systems, prepare updated technical specifications of XBID Solution enabling local systems development preparation. Other major aspects to assess were performance impacts which resulted in a need to further investigate various mitigations options in the course of Q1 2020.

MSD also supported preparation of R&D WS with NRAs/ACER and workout plan for Flow-based support implementation by SIDC.

2.1.6 Quality Assurance and Release Management (QA&RM). Chaired by NEMO Project Manager, Indra (PMO provided by the same representative)

- The budgeted cost for QARM related activities for 2019 was 116 k € (spread among operational and establishment cost). A real cost was 160 k € and based on the changes in the attribution of the cost, all activities associated QARM were reported as entablement cost.

- QARM represent several types of activities focused on Quality Assurance and Release Management. In practicality it means
 - › translation of the business strategic needs in the project planning covering integration with the working level and system provider,
 - › establishment and management of the processes which monitor development of new releases including resolution of the situations causing deviation from the project plan and planned quality
 - › establishment and management of the processes associated with geographical extension of SIDC cooperation (2nd wave of go live)
- The main drivers leading in the increase of the with cost attributed in 2019 were mainly services associated with
 - › Delay in delivery Release 2.0 (assumption used in the budgeting process was to deliver R2.0 in the production in May/June 2019, however, it was delivered in October 2019),
 - › Extension of the processes for 2nd wave of the go-live (the same assumption as for Release 2.0 applies)
 - › Management of the QARM subgroup focused on the issues associated with the transit shipper.

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

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

All activities were related to 2nd Wave Go-Live LIP testing and preparation. These activities included Run2 and Run3 of the Functional tests with 2nd wave parties in period April-May, Simulation test phase Run 1 in May dealing with procedures testing by 2nd wave parties and Simulation test Run 2 in June and Run 3 in September where all 2nd wave and also already operational parties were involved. Simulation test Run 3 was also used to perform end-to-end test of Release 2.0 before its deployment to production in October. Simulation test Run 4 with selected parties was required in October to validate some late fixes on local systems side.

Work was organized with weekly calls of 2nd wave parties focusing to alignment concerning testing preparations and planning. During an active test phase (usual duration 1-2 weeks) a daily stand-up calls were organ-

ized to clarify/confirm the activities for given day and sum up results of previous test day.

2.1.8 Legal Task Force (LTF). 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:

- Updates of the Exhibit 7 and 12 so that it reflects the project desired practice
- Legal analysis for preparation of negotiations with DBAG
- EXAA exit plan preparation
- Slovak accession legal analysis
- Legal input for the transit shipping discussions and SIDC procedures update
- Enduring governance between SIDC and SDAC projects

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 Budget Management Subgroup (BMSG) Chaired by TSO Project Manager, National Grid. PMO provided by EY

The BMSG managed financial reporting and validation monthly.

The resettlement of the cost among all SIDC parties takes places quarterly (with Q1 and Q2 resettled together due to longer time needed for cost sharing keys determination for 2019)

In 2019 three cost sharing keys were used:

- Sharing Key for Establishing and Amending Cost;
- Operational cost sharing key before 2nd wave go-live and
- Operational cost sharing key after 2nd wave go-live.

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

The budget for 2020 and financial roadmap for 2021-2022 was developed and approved according to IDOA process.

2.1.10 Integrated Co-ordination Team (ICT) Chaired by TSO Project Manager, National Grid. PMO provided by Ernst and Young

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

2.1.11 Communications Subgroup (COM SG) Chaired by TSO Project Manager, National Grid. PMO provided by EY

In preparation for 2nd wave Go-Live, communications were managed using a number of channels. A large scale '2nd wave Pre-launch Event' was delivered on 1st October 2019, in Prague, Czech Republic, when approximately 100 market parties and stakeholders attended. Mr. René Neděla (Deputy Minister, Czech Ministry of Industry and Trade) and Mr. Nicolas Kuen from the European Commission the keynote address and presentations were given on many aspects of SIDC as well as future plans post 2nd wave Go-Live.

There were no User Group meetings held in 2019, however the project regularly reported and engaged with the stakeholders via the MESC meetings. A series of press releases were issued in preparation for, and at point of 2nd wave Go-Live.

The following sharing key was used for sharing of all TSOs and NEMOs costs of establishing and amending the SIDC in 2019:

Table 17

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	TSO/NEMO	Share within MS to be used for sharing of SIDC costs in 2019	CACM Share - SIDC to be used for sharing of SIDC costs in 2019	Contract shares (with-out OKTE and SEPS) - to be used for sharing of SIDC costs in 2019**
Austria	65,286	2.3691%	APG	50.0000%	1.1845%	1.1996%
			EPEX	37.9200%	0.8984%	0.9097%
			EXAA	6.4400%	0.1526%	0.1545%
			NP EMCO	5.6400%	0.1336%	0.1353%
Belgium	83,579	2.9031%	ELIA	50.0000%	1.4516%	1.4700%
			EPEX	44.5139%	1.2923%	1.3087%
			NP EMCO	5.4861%	0.1593%	0.1613%
Bulgaria	31,400	1.3797%	ESO	50.0000%	0.6899%	0.6986%
			IBEX	50.0000%	0.6899%	0.6986%
Croatia	16,425	0.9425%	HOPS	50.0000%	0.4713%	0.4772%
			CROPEX	50.0000%	0.4713%	0.4772%
Czech Republic	59,061	2.1873%	CEPS	50.0000%	1.0937%	1.1075%
			OTE	50.0000%	1.0937%	1.1075%
Denmark	32,238	1.4042%	ENDK	50.0000%	0.7021%	0.7110%
			NP EMCO	41.6650%	0.5851%	0.5925%
			EPEX	8.3350%	0.1170%	0.1185%
Estonia	7,721	0.6884%	Elering	50.0000%	0.3442%	0.3486%
			NP EMCO	41.6650%	0.2868%	0.2905%
			EPEX	8.3350%	0.0574%	0.0581%
Finland	82,275	2.8651%	Fingrid	50.0000%	1.4325%	1.4507%
			NP EMCO	41.6667%	1.1938%	1.2089%
			EPEX	8.3333%	0.2388%	0.2418%
France	443,493	13.4112%	RTE	50.0000%	6.7056%	6.7906%
			EPEX	25.0000%	3.3528%	3.3953%
			NP EMCO	25.0000%	3.3528%	3.3953%
Germany	531,324	15.9756%	50Hzt	21.9600%	3.5082%	3.5527%
			Amprion	32.0700%	5.1234%	5.1883%
			Tennet	28.4400%	4.5435%	4.6010%
			TransnetBW	17.5300%	2.8005%	2.8360%
			EPEX	0.0000%	0.0000%	0.0000%
			NP EMCO	0.0000%	0.0000%	0.0000%
			EXAA	0.0000%	0.0000%	0.0000%

Table 17

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	TSO/NEMO	Share within MS to be used for sharing of SIDC costs in 2019	CACM Share - SIDC to be used for sharing of SIDC costs in 2019	Contract shares (without OKTE and SEPS) - to be used for sharing of SIDC costs in 2019**
Greece	55,614	2.0867%	ADMIE	50.0000 %	1.0433%	1.0566 %
			HENEX	50.0000 %	1.0433%	1.0566 %
Hungary	39,641	1.6203%	MAVIR	50.0000 %	0.8102%	0.8204 %
			HUPX	50.0000 %	0.8102%	0.8204 %
Ireland	25,968	1.2211%	EirGRID T	50.0000 %	0.6106%	0.6183 %
			EirGRID N	50.0000 %	0.6106%	0.6183 %
			NP EMCO	0.0000 %	0.0000%	0.0000 %
Italy	301,881	9.2767%	Terna	50.0000 %	4.6384%	4.6972 %
			GME	50.0000 %	4.6384%	4.6972 %
Latvia	6,485	0.6523%	AST	50.0000 %	0.3261%	0.3303 %
			NP EMCO	41.6650 %	0.2718%	0.2752 %
			EPEX	8.3350 %	0.0544%	0.0551 %
Lithuania	10,958	0.7829%	LITGRID	50.0000 %	0.3914%	0.3964 %
			NP EMCO	41.6650 %	0.3262%	0.3303 %
			EPEX	8.3350 %	0.0653%	0.0661 %
Luxembourg	6,394	0.6496%	Creos	100.0000 %	0.6496%	0.6579 %
			EPEX	0.0000 %	0.0000%	0.0000 %
			NP EMCO	0.0000 %	0.0000%	0.0000 %
Netherlands	111,445	3.7167%	Tennet BV	50.0000 %	1.8584%	1.8819 %
			EPEX	49.8636 %	1.8533%	1.8768 %
			NP EMCO	0.1364 %	0.0051%	0.0051 %
Poland	146,425	4.7380%	PSE	50.0000 %	2.3690%	2.3990 %
			TGE	16.6667 %	0.7897%	0.7997 %
			EPEX	16.6667 %	0.7897%	0.7997 %
			NP EMCO	16.6667 %	0.7897%	0.7997 %
Portugal	47,661	1.8545%	REN	50.0000 %	0.9272%	0.9390 %
			OMIE	50.0000 %	0.9272%	0.9390 %
Romania	48,861	1.8895%	TEL	50.0000 %	0.9448%	0.9567 %
			OPCOM	50.0000 %	0.9448%	0.9567 %
Slovakia	27,016	1.2517%	SEPS	50.0000 %	0.6259%	0.0000 %
			OKTE	50.0000 %	0.6259%	0.0000 %
Slovenia	13,623	0.8607%	ELES	50.0000 %	0.4303%	0.4358 %
			BSP	50.0000 %	0.4303%	0.4358 %

Table 17

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	TSO/NEMO	Share within MS to be used for sharing of SIDC costs in 2019	CACM Share - SIDC to be used for sharing of SIDC costs in 2019	Contract shares (without OKTE and SEPS) - to be used for sharing of SIDC costs in 2019**
Spain	241,869	7.5246 %	REE	50.0000 %	3.7623 %	3.8100 %
			OMIE	50.0000 %	3.7623 %	3.8100 %
Sweden	130,459	4.2719 %	SVK	50.0000 %	2.1359 %	2.1630 %
			NP EMCO	41.6650 %	1.7799 %	1.8024 %
			EPEX	8.3350 %	0.3561 %	0.3606 %
United Kingdom	307,914	9.4529 %	NationalGrid	24.2693 %	2.2941 %	2.3232 %
			BritNed	24.2693 %	2.2941 %	2.3232 %
			EPEX	24.2693 %	2.2941 %	2.3232 %
			NP EMCO	24.2693 %	2.2941 %	2.3232 %
			SONI	2.9229 %	0.2763 %	0.2798 %
			SONI	0.0000 %	0.0000 %	0.0000 %
Norway	121,958	4.0237 %	Statnett	50.0000 %	2.0118 %	2.0373 %
			EPEX	0.0000 %	0.0000 %	0.0000 %
			NP EMCO	50.0000 %	2.0118 %	2.0373 %

* Consumption of each concerned Member State, the latest available values included in the Eurostat Supply, transformation and consumption of electricity (nrg_cb_e) dataset. i. e. 2017 data are the latest available

** As OKTE and SEPS have not signed the IDOA contract, the share of OKTE and SEPS is being pre-financed by other NEMOs and TSOs and will be invoiced to OKTE and SEPS after their adherence to the contract.

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

SIDC algorithm and ID MCO Function System operation in the amount of 2,135,459 € as further detailed below.

Table 18

Category	Temporary activity	Costs of 2019
Hosting & Maintenance of SIDC Technical solution	NO	1,117,930 €
IC SPOC	NO	586,007 €
OPSCOM	NO	224,079 €
MPLS	NO	64,405 €
BMSG	NO	30,504 €
Travelling and meeting organisation	NO	27,594 €
Support systems	NO	24,716 €
IDSC	NO	19,007 €
OTF	NO	15,208 €
LTF	NO	14,445 €
ICT	NO	5,925 €
COMSG	NO	5,637 €
Total SUM		2,135,459 €

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) 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 the cooperation of vital parties. There are high costs associated with this due to the fact 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) Chaired by NEMO representative on rotational basis, PMO provided by EY

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

2.2.3 Costs of MPLS

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

The following sharing key was used for sharing of all TSOs and NEMOs costs of operating the SIDC in 2019 prior to the 2nd wave go-live (Only Member States that are part of operation are included):

Table 19

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	TSO/NEMO	Share within MS to be used for sharing of SIDC costs in 2019	CACM Share - SIDC to be used for sharing of SIDC costs in 2019
Austria	65,286	3.8732 %	APG	50.0000 %	1.9366 %
			EPEX	43.5262 %	1.6859 %
			NP EMCO	6.4738 %	0.2507 %
Belgium	83,579	4.7082 %	ELIA	50.0000 %	2.3541 %
			EPEX	44.5139 %	2.0958 %
			NP EMCO	5.4861 %	0.2583 %
Denmark	32,238	2.3645 %	ENDK	50.0000 %	1.1823 %
			NP EMCO	41.6667 %	0.9852 %
			EPEX	8.3333 %	0.1970 %
Estonia	7,721	1.2453 %	Elering	50.0000 %	0.6227 %
			NP EMCO	50.0000 %	0.6227 %
Finland	82,275	4.6487 %	Fingrid	50.0000 %	2.3244 %
			NP EMCO	41.6667 %	1.9370 %
			EPEX	8.3333 %	0.3874 %
France	443,493	21.1384 %	RTE	50.0000 %	10.5692 %
			EPEX	49.7937 %	10.5256 %
			NP EMCO	0.2063 %	0.0436 %
Germany	531,324	25.1479 %	50Hzt	21.9600 %	5.5225 %
			Amprion	32.0700 %	8.0649 %
			Tennet	28.4400 %	7.1521 %
			TransnetBW	17.5300 %	4.4084 %
Latvia	6,485	1.1889 %	AST	50.0000 %	0.5944 %
			NP EMCO	50.0000 %	0.5944 %
Lithuania	10,958	1.3931 %	LITGRID	50.0000 %	0.6965 %
			NP EMCO	50.0000 %	0.6965 %
Netherlands	111,445	5.9804 %	Tennet BV	50.0000 %	2.9902 %
			EPEX	49.8636 %	2.9820 %
			NP EMCO	0.1364 %	0.0082 %

Table 19

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	TSO/NEMO	Share within MS to be used for sharing of SIDC costs in 2019	CACM Share - SIDC to be used for sharing of SIDC costs in 2019
Portugal	47,661	3.0686 %	REN	50.0000 %	1.5343 %
			OMIE	50.0000 %	1.5343 %
Spain	241,869	11.9342 %	REE	50.0000 %	5.9671 %
			OMIE	50.0000 %	5.9671 %
Sweden	130,459	6.8483 %	SVK	50.0000 %	3.4242 %
			NP EMCO	41.6650 %	2.8534 %
			EPEX	8.3350 %	0.5708 %
Norway	121,958	6.4603 %	Statnett	50.0000 %	3.2301 %
			NP EMCO	50.0000 %	3.2301 %

* Consumption of each concerned Member State, the latest available values included in the Eurostat Supply, transformation and consumption of electricity (nrg_cb_e) dataset. i. e. 2017 data are the latest available

The following sharing key was used for sharing of all TSOs and NEMOs costs of operating the SIDC in 2019 after the 2nd wave go-live (Only Member States that are part of operation are included):

Table 20

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	TSO/NEMO	Share within MS to be used for sharing of SIDC costs in 2019	CACM Share - SIDC to be used for sharing of SIDC costs in 2019
Austria	65,286	3.1094 %	APG	50.0000 %	1.5547 %
			EPEX	43.5262 %	1.3534 %
			EXAA	0.0000 %	0.0000 %
			NP EMCO	6.4738 %	0.2013 %
Belgium	83,579	3.8138 %	ELIA	50.0000 %	1.9069 %
			EPEX	44.5139 %	1.6977 %
			NP EMCO	5.4861 %	0.2092 %
Bulgaria	31,400	1.8044 %	ESO	50.0000 %	0.9022 %
			IBEX	50.0000 %	0.9022 %
Croatia	16,425	1.2278 %	HOPS	50.0000 %	0.6139 %
			CROPEX	50.0000 %	0.6139 %
Czech Republic	59,061	2.8696 %	CEPS	50.0000 %	1.4348 %
			OTE	50.0000 %	1.4348 %
Denmark	32,238	1.8367 %	ENDK	50.0000 %	0.9184 %
			NP EMCO	41.6667 %	0.7653 %
			EPEX	8.3333 %	0.1531 %

Table 20

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	TSO/NEMO	Share within MS to be used for sharing of SIDC costs in 2019	CACM Share - SIDC to be used for sharing of SIDC costs in 2019
Estonia	7,721	0.8926 %	Elering	50.0000 %	0.4463 %
			NP EMCO	50.0000 %	0.4463 %
			EPEX	0.0000 %	0.0000 %
Finland	82,275	3.7636 %	Fingrid	50.0000 %	1.8818 %
			NP EMCO	41.6667 %	1.5682 %
			EPEX	8.3333 %	0.3136 %
France	443,493	17.6738 %	RTE	50.0000 %	8.8369 %
			EPEX	49.7937 %	8.8004 %
			NP EMCO	0.2063 %	0.0365 %
Germany	531,324	21.0561 %	50Hzt	21.9600 %	4.6239 %
			Amprion	32.0700 %	6.7527 %
			Tennet	28.4400 %	5.9884 %
			TransnetBW	17.5300 %	3.6911 %
			EPEX	0.0000 %	0.0000 %
			NP EMCO	0.0000 %	0.0000 %
			EXAA	0.0000 %	0.0000 %
Hungary	39,641	2.1218 %	MAVIR	50.0000 %	1.0609 %
			HUPX	50.0000 %	1.0609 %
Latvia	6,485	0.8450 %	AST	50.0000 %	0.4225 %
			NP EMCO	50.0000 %	0.4225 %
			EPEX	0.0000 %	0.0000 %
Lithuania	10,958	1.0172 %	LITGRID	50.0000 %	0.5086 %
			NP EMCO	50.0000 %	0.5086 %
			EPEX	0.0000 %	0.0000 %
Netherlands	111,445	4.8869 %	Tennet BV	50.0000 %	2.4435 %
			EPEX	49.8636 %	2.4368 %
			NP EMCO	0.1364 %	0.0067 %
Poland	146,425	6.2339 %	PSE	50.0000 %	3.1170 %
			TGE	38.8889 %	2.4243 %
			EPEX	5.5556 %	0.3463 %
			NP EMCO	5.5556 %	0.3463 %
Portugal	47,661	2.4306 %	REN	50.0000 %	1.2153 %
			OMIE	50.0000 %	1.2153 %
Romania	48,861	2.4768 %	TEL	50.0000 %	1.2384 %
			OPCOM	50.0000 %	1.2384 %

Table 20

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	TSO/NEMO	Share within MS to be used for sharing of SIDC costs in 2019	CACM Share - SIDC to be used for sharing of SIDC costs in 2019
Slovenia	13,623	1.1198 %	ELES	50.0000 %	0.5599 %
			BSP	50.0000 %	0.5599 %
Spain	241,869	9.9094 %	REE	50.0000 %	4.9547 %
			OMIE	50.0000 %	4.9547 %
Sweden	130,459	5.6191 %	SVK	50.0000 %	2.8096 %
			NP EMCO	41.6650 %	2.3412 %
			EPEX	8.3350 %	0.4684 %
Norway	121,958	5.2917 %	Statnett	50.0000 %	2.6459 %
			EPEX	0.0000 %	0.0000 %
			NP EMCO	50.0000 %	2.6459 %

* Consumption of each concerned Member State, the latest available values included in the Eurostat Supply, transformation and consumption of electricity (nrg_cb_e) dataset. i. e. 2017 data are the latest available

2.3 The all NEMOs costs of establishing and amending the SIDC consists of:

- Interim NEMO Committee costs in the amount of 149,064 €
 - NEMOs only costs of establishing and amending the SIDC in the amount of 322,985 € as further detailed below.
- 50 % of all costs encountered by Interim NEMO Committee in its tasks of preparation of CACM methodologies and proposals in 2018 in total of 149,064 €

Table 21

Category	Temporary activity	Costs of 2019
NEMO Committee PMO	NO	78,901 €
NEMO Committee Chairman	NO	76,387 €
Technical TF	NO	52,648 €
NEMO Committee - support	NO	45,866 €
Cost TF	NO	15,262 €
Legal TF	NO	15,084 €
Exceptional Contingency	YES	9,875 €
Procurement TF	YES	2,544 €
Procedural TF	NO	1,561 €
Total SUM		298,128 €

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

Respective costs attributable to all NEMOs for establishment and amendment of SIDC in total of 322,985 €

Table 22

Category	Temporary activity	Costs of 2019
Project Management (PM)	NO	137,612 €
Technical WG (TWG)	NO	85,346 €
Expenses	YES	62,036 €
Legal WG (LWG)	NO	26,982 €
Procedures WG (PWG)	NO	11,009 €
Total SUM		322,985 €

- The external costs were included at costs without any surplus or commercial benefit for the contracting party.
- The resources for NEMOs only part of SIDC project were secured only 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 prior to CACM entry into force.
- The external support for LWG services was selected based on a direct assignment prior to CACM entry into force.
- Legal WG (LWG) is responsible for delivery of contractual framework needed by NEMOs in order to establish and operate the SIDC.
- Project Management (PM) is responsible for project management of NEMOs only bodies under the SIDC project.
- Procedures WG (PWG) is responsible for establishing the NEMOs only procedures of SIDC and NEMOs activities (drafting and review) related to joint NEMOs and TSOs procedures.
- Technical WG (TWG) is responsible for review of technical and functional specification of the SIDC MCO Function System.
- The NEMO Operational Committee is responsible for change control process on NEMOs site.

2.3.1 For PMO activities (NEMO ID SC and NEMO OPSCOM)

- PM/PMO represent several types of activities supporting NEMOs in the following project bodies: NEMO SIDC steering committee, SIDC steering committee with TSOs, joint steering committee with DBAG, NEMO and joint operational committee, SIDC cost management group, SIDC budget management subgroup, Release Control Board with DBAG, SIDC Integration and Coordination Task Force and Integration and Coordination Task Force with NEMO Committee.
- With regard to scope it focuses on daily activities related to the communication, agendas, minutes, reporting, preparation of the inputs for decision making processes, etc. and on delivery-oriented activities as negotiation with service provides, contracts and amendment to contracts, strategic planning etc.
- The main drivers associated with cost attributed in 2019 were mainly services associated with
 - › negotiation and delivery of Release 2.0 (assumption used in the budgeting process was to deliver R2.0 in the production in May/June 2019, however, it was delivered in October 2019),
 - › 2nd wave of the go live (the same assumption as for Release 2.0 applies)
 - › Regular integration with NEMO Committee and tasks stemming from the integration

2.3.2 NEMO Central Admin

The importance of the NEMO Central Admin is to ensure the necessary actions can be triggered on behalf of NEMOs during a critical incident or planned maintenance. With the involvement of so many parties in a joint project such as SIDC it is crucial to have a dedicated

individual to ensure the necessary actions are taken and the cooperation of vital parties. There are high costs associated with this due to the fact 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 Technical WG (TWG, PWG)

List of activities from January 2020:

- Update of specifications in relation to Losses – Functional Description SOB, XML Report Structure, AMQP Public Message Interface – Trading
- PMI Log Analysis tool – 2nd round re-test, connectivity test and go-live preparation

- ACER meeting on SIDC REMIT Reporting – feedback on discussion and timeline
- ACER reports for H1/2019 – cross-check
- H1 and H2 2019 ACER Report - WEIGHTED_AVERAGE_PRICE calculation issue clarification
- Orderbook performance improvements - analysis of the DBAG's proposal
- SLA Performance report for October and November 2019 review, managerial summary and growth estimation
- SLA KPI – Maximum Time Difference in Receiving Public Order Books Delta Report analysis and feedback
- Amendment 5 validation – Attachment 4B – Maintenance, Exhibit 20 and Appendix 20A
- 2019 NEMO Committee Annual report, SIDC part - validation of the templates

The following sharing key was used for sharing of all NEMOs costs of establishing and amending the SIDC in 2019:

Table 23

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	NEMO	NEMO share within MS to be used for sharing of SIDC costs in 2019	CACM share - SIDC to be used for sharing of SIDC costs in 2019	Contract shares (without OKTE) - to be used for sharing of SIDC costs in 2019**
Austria	65,286	2.3691%	EPEX	75.8400 %	1.7967%	1.8195 %
			EXAA	12.8800 %	0.3051%	0.3090 %
Belgium	83,579	2.9031%	NP EMCO	11.2800 %	0.2672%	0.2706 %
			EPEX	89.0277 %	2.5846%	2.6174 %
Bulgaria	31,400	1.3797%	NP EMCO	10.9723 %	0.3185%	0.3226 %
			IBEX	100.0000 %	1.3797%	1.3972 %
Croatia	16,425	0.9425 %	CROPEX	100.0000 %	0.9425%	0.9545 %
Czech Republic	59,061	2.1873 %	OTE	100.0000 %	2.1873 %	2.2150 %
Denmark	32,238	1.4042%	NP EMCO	83.3300 %	1.1701%	1.1849 %
			EPEX	16.6700 %	0.2341%	0.2370 %
Estonia	7,721	0.6884 %	NP EMCO	83.3300 %	0.5736 %	0.5809 %
			EPEX	16.6700 %	0.1148 %	0.1162 %
Finland	82,275	2.8651%	NP EMCO	83.3300 %	2.3875 %	2.4177 %
			EPEX	16.6700 %	0.4776 %	0.4837 %
France	443,493	13.4112 %	EPEX	50.0000 %	6.7056 %	6.7906 %
			NP EMCO	50.0000 %	6.7056 %	6.7906 %

Table 23

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	NEMO	NEMO share within MS to be used for sharing of SIDC costs in 2019	CACM share - SIDC to be used for sharing of SIDC costs in 2019	Contract shares (without OKTE) - to be used for sharing of SIDC costs in 2019**
Germany	531,324	15.9756 %	EPEX	50.0000 %	7.9878 %	8.0890 %
			NP EMCO	50.0000 %	7.9878 %	8.0890 %
Greece	55,614	2.0867 %	HEnEx	100.0000 %	2.0867 %	2.1131 %
Hungary	39,641	1.6203 %	HUPX	100.0000 %	1.6203 %	1.6409 %
Ireland	25,968	1.2211 %	EirGRID	100.0000 %	1.2211 %	1.2366 %
			NP EMCO	0.0000 %	0.0000 %	0.0000 %
Italy	301,881	9.2767 %	GME	100.0000 %	9.2767 %	9.3943 %
Latvia	6,485	0.6523 %	NP EMCO	83.3300 %	0.5436 %	0.5504 %
			EPEX	16.6700 %	0.1087 %	0.1101 %
Lithuania	10,958	0.7829 %	NP EMCO	83.3300 %	0.6524 %	0.6606 %
			EPEX	16.6700 %	0.1305 %	0.1322 %
Luxembourg	6,394	0.6496 %	EPEX	50.0000 %	0.3248 %	0.3289 %
			NP EMCO	50.0000 %	0.3248 %	0.3289 %
Netherlands	111,445	3.7167 %	EPEX	99.7272 %	3.7066 %	3.7536 %
			NP EMCO	0.2728 %	0.0101 %	0.0103 %
Poland	146,425	4.7380 %	TGE	33.3333 %	1.5793 %	1.5994 %
			EPEX	33.3333 %	1.5793 %	1.5994 %
			NP EMCO	33.3333 %	1.5793 %	1.5994 %
Portugal	47,661	1.8545 %	OMIE	100.0000 %	1.8545 %	1.8780 %
Romania	48,861	1.8895 %	OPCOM	100.0000 %	1.8895 %	1.9135 %
Slovakia	27,016	1.2517 %	OKTE	100.0000 %	1.2517 %	0.0000 %
Slovenia	13,623	0.8607 %	BSP	100.0000 %	0.8607 %	0.8716 %
Spain	241,869	7.5246 %	OMIE	100.0000 %	7.5246 %	7.6200 %
Sweden	130,459	4.2719 %	NP EMCO	83.3300 %	3.5597 %	3.6049 %
			EPEX	16.6700 %	0.7121 %	0.7211 %
United Kingdom	307,914	9.4529 %	EPEX	48.5386 %	4.5883 %	4.6464 %
			NP EMCO	48.5386 %	4.5883 %	4.6464 %
			SONI	2.9229 %	0.2763 %	0.2798 %
Norway	121,958	4.0237 %	EPEX	0.0000 %	0.0000 %	0.0000 %
			NP EMCO	100.0000 %	4.0237 %	4.0747 %

* Consumption of each concerned Member State, the latest available values included in the Eurostat Supply, transformation and consumption of electricity (nrg_cb_e) dataset. i. e. 2017 data are the latest available

** As OKTE and SEPS have not signed the IDOA contract, the share of OKTE and SEPS is being pre-financed by other NEMOs and will be invoiced to OKTE and SEPS after their adherence to the contract.

2.4 The all NEMOs costs of operating the SIDC in the amount of 234,963 €

Table 24

Category	Temporary activity	Costs of 2019
Expenses	YES	96,438 €
Technical WG (TWG)	NO	80,645 €
Project Management (PM)	NO	36,821 €
Legal WG (LWG)	NO	8,994 €
Procedures WG (PWG)	NO	8,539 €
Operational Committee (OPSCOM)	NO	3,527 €
Total SUM		234,963 €

- The external costs were included at costs without any surplus or commercial benefit for the contracting party.
- The resources for NEMOs only part of SIDC project were secured only 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 prior to CACM entry into force.
- The external support for LWG services was selected based on a direct assignment prior to CACM entry into force.
- Legal WG (LWG) is responsible for advising on operational questions related to the operation of SIDC.
- Project Management (PM) is responsible for project management of NEMOs only bodies under the SIDC project.
- Procedures WG (PWG) is responsible for operational review of the NEMOs only procedures of SIDC and NEMOs activities (drafting and review) related to joint NEMOs and TSOs procedures.
- Technical WG (TWG) is responsible for review of technical and functional specification of the SIDC MCO Function System.
- The NEMO Operational Committee is responsible for incident management process on NEMOs site.

The following sharing key was used for sharing of all NEMOs costs of operating the SIDC in 2019 prior to 2nd wave go-live (Only Member States that are part of operation are included):

Table 25

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	NEMO	NEMO share within MS to be used for sharing of SIDC costs in 2019	CACM share - SIDC to be used for sharing of SIDC costs in 2019	Contract shares (without OKTE) - to be used for sharing of SIDC costs in 2019**
Austria	65,286	3.8038 %	EPEX	87.0523 %	3.3113 %	3.3113 %
			EXAA	0.0000 %	0.0000 %	0.0000 %
			NP EMCO	12.9477 %	0.4925 %	0.4925 %
Belgium	83,579	4.6360 %	EPEX	89.0277 %	4.1273 %	4.1273 %
			NP EMCO	10.9723 %	0.5087 %	0.5087 %
Bulgaria			IBEX	100.0000 %	0.0000 %	0.0000 %
Croatia			CROPEX	100.0000 %	0.0000 %	0.0000 %
Czech Republic			OTE	100.0000 %	0.0000 %	0.0000 %
Denmark	32,238	2.3001 %	NP EMCO	83.3300 %	1.9167 %	1.9167 %
			EPEX	16.6700 %	0.3834 %	0.3834 %
Estonia	7,721	1.1846 %	NP EMCO	100.0000 %	1.1846 %	1.1846 %
			EPEX	0.0000 %	0.0000 %	0.0000 %
Finland	82,275	4.5767 %	NP EMCO	83.3300 %	3.8138 %	3.8138 %
			EPEX	16.6700 %	0.7629 %	0.7629 %
France	443,493	21.0116 %	EPEX	99.5875 %	20.9249 %	20.9249 %
			NP EMCO	0.4125 %	0.0867 %	0.0867 %
Germany	531,324	25.0077 %	EPEX	50.0000 %	12.5039 %	12.5039 %
			NP EMCO	50.0000 %	12.5039 %	12.5039 %
Greece			HEnEx	100.0000 %	0.0000 %	0.0000 %
Hungary			HUPX	100.0000 %	0.0000 %	0.0000 %
Ireland			EirGRID	100.0000 %	0.0000 %	0.0000 %
			NP EMCO	0.0000 %	0.0000 %	0.0000 %
Italy			GME	100.0000 %	0.0000 %	0.0000 %
Latvia	6,485	1.1284 %	NP EMCO	100.0000 %	1.1284 %	1.1284 %
			EPEX	0.0000 %	0.0000 %	0.0000 %
Lithuania	10,958	1.3319 %	NP EMCO	100.0000 %	1.3319 %	1.3319 %
			EPEX	0.0000 %	0.0000 %	0.0000 %
Luxembourg	6,394	1.1243 %	EPEX	50.0000 %	0.5621 %	0.5621 %
			NP EMCO	50.0000 %	0.5621 %	0.5621 %
Netherlands	111,445	5.9039 %	EPEX	99.7272 %	5.8878 %	5.8878 %
			NP EMCO	0.2728 %	0.0161 %	0.0161 %

Table 25

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	NEMO	NEMO share within MS to be used for sharing of SIDC costs in 2019	CACM share - SIDC to be used for sharing of SIDC costs in 2019	Contract shares (without OKTE) - to be used for sharing of SIDC costs in 2019**
Poland			TGE	33.3333 %	0.0000 %	0.0000 %
			EPEX	33.3333 %	0.0000 %	0.0000 %
			NP EMCO	33.3333 %	0.0000 %	0.0000 %
Portugal	47,661	3.0018 %	OMIE	100.0000 %	3.0018 %	3.0018 %
Romania			OPCOM	100.0000 %	0.0000 %	0.0000 %
Slovakia			OKTE	100.0000 %	0.0000 %	0.0000 %
Slovenia			BSP	100.0000 %	0.0000 %	0.0000 %
Spain	241,869	11.8380 %	OMIE	100.0000 %	11.8380 %	11.8380 %
Sweden	130,459	6.7690 %	NP EMCO	83.3300 %	5.6406 %	5.6406 %
			EPEX	16.6700 %	1.1284 %	1.1284 %
United Kingdom			EPEX	0.0000 %	0.0000 %	0.0000 %
			NP EMCO	0.0000 %	0.0000 %	0.0000 %
			SONI	0.0000 %	0.0000 %	0.0000 %
Norway	121,958	6.3822 %	EPEX	0.0000 %	0.0000 %	0.0000 %
			NP EMCO	100.0000 %	6.3822 %	6.3822 %

* Consumption of each concerned Member State, the latest available values included in the Eurostat Supply, transformation and consumption of electricity (nrg_cb_e) dataset. i. e. 2017 data are the latest available

** As OKTE and SEPS have not signed the IDOA contract, the share of OKTE and SEPS is being pre-financed by other NEMOs and will be invoiced to OKTE and SEPS after their adherence to the contract.

The following sharing key was used for sharing of all NEMOs costs of operating the SIDC in 2019 after the 2nd wave go-live (Only Member States that are part of operation are included):

Table 26

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	NEMO	NEMO share within MS to be used for sharing of SIDC costs in 2019	CACM share - SIDC to be used for sharing of SIDC costs in 2019	Contract shares (without OKTE) - to be used for sharing of SIDC costs in 2019**
Austria	65,286	3.0753 %	EPEX	87.0523 %	2.6771%	2.6771 %
			EXAA	0.0000 %	0.0000%	0.0000 %
			NP EMCO	12.9477 %	0.3982%	0.3982 %
Belgium	83,579	3.7777%	EPEX	89.0277 %	3.3632%	3.3632 %
			NP EMCO	10.9723 %	0.4145%	0.4145 %
Bulgaria	31,400	1.7740 %	IBEX	100.0000 %	1.7740%	1.7740 %
Croatia	16,425	1.1989 %	CROPEX	100.0000 %	1.1989%	1.1989 %
Czech Republic	59,061	2.8362 %	OTE	100.0000 %	2.8362%	2.8362 %
Denmark	32,238	1.8062 %	NP EMCO	83.3300 %	1.5051%	1.5051 %
			EPEX	16.6700 %	0.3011%	0.3011 %
Estonia	7,721	0.8647%	NP EMCO	100.0000 %	0.8647%	0.8647 %
			EPEX	0.0000 %	0.0000%	0.0000 %
Finland	82,275	3.7276 %	NP EMCO	83.3300 %	3.1062%	3.1062 %
			EPEX	16.6700 %	0.6214%	0.6214 %
France	443,493	17.5988 %	EPEX	99.5875 %	17.5262%	17.5262 %
			NP EMCO	0.4125 %	0.0726%	0.0726 %
Germany	531,324	20.9716 %	EPEX	50.0000 %	10.4858%	10.4858 %
			NP EMCO	50.0000 %	10.4858%	10.4858 %
Greece			HEnEx	100.0000 %	0.0000%	0.0000 %
Hungary	39,641	2.0904 %	HUPX	100.0000 %	2.0904%	2.0904 %
Ireland			EirGRID	100.0000 %	0.0000%	0.0000 %
			NP EMCO	0.0000 %	0.0000%	0.0000 %
Italy			GME	100.0000 %	0.0000%	0.0000 %
Latvia	6,485	0.8172 %	NP EMCO	100.0000 %	0.8172%	0.8172 %
			EPEX	0.0000 %	0.0000%	0.0000 %
Lithuania	10,958	0.9890 %	NP EMCO	100.0000 %	0.9890%	0.9890 %
			EPEX	0.0000 %	0.0000%	0.0000 %
Luxembourg	6,394	0.8137%	EPEX	50.0000 %	0.4069%	0.4069 %
			NP EMCO	50.0000 %	0.4069%	0.4069 %
Netherlands	111,445	4.8478 %	EPEX	99.7272 %	4.8346%	4.8346 %
			NP EMCO	0.2728 %	0.0132%	0.0132 %

Table 26

Member State	Final consumption* in 2017 according to Report nrg_cb_e (25.04.19) in GWh	MS share to be used for sharing of SIDC costs in 2019	NEMO	NEMO share within MS to be used for sharing of SIDC costs in 2019	CACM share - SIDC to be used for sharing of SIDC costs in 2019	Contract shares (without OKTE) - to be used for sharing of SIDC costs in 2019**
Poland	146,425	6.1911 %	TGE	77.7778 %	4.8153 %	4.8153 %
			EPEX	11.1111 %	0.6879 %	0.6879 %
			NP EMCO	11.1111 %	0.6879 %	0.6879 %
Portugal	47,661	2.3984 %	OMIE	100.0000 %	2.3984 %	2.3984 %
Romania	48,861	2.4445 %	OPCOM	100.0000 %	2.4445 %	2.4445 %
Slovakia			OKTE	100.0000 %	0.0000 %	0.0000 %
Slovenia	13,623	1.0913 %	BSP	100.0000 %	1.0913 %	1.0913 %
Spain	241,869	9.8562 %	OMIE	100.0000 %	9.8562 %	9.8562 %
Sweden	130,459	5.5780 %	NP EMCO	83.3300 %	4.6481 %	4.6481 %
			EPEX	16.6700 %	0.9298 %	0.9298 %
United Kingdom			EPEX	0.0000 %	0.0000 %	0.0000 %
			NP EMCO	0.0000 %	0.0000 %	0.0000 %
			SONI	0.0000 %	0.0000 %	0.0000 %
Norway	121,958	5.2515 %	EPEX	0.0000 %	0.0000 %	0.0000 %
			NP EMCO	100.0000 %	5.2515 %	5.2515 %

* Consumption of each concerned Member State, the latest available values included in the Eurostat Supply, transformation and consumption of electricity (nrg_cb_e) dataset. i. e. 2017 data are the latest available

** As OKTE and SEPS have not signed the IDOA contract, the share of OKTE and SEPS is being pre-financed by other NEMOs and will be invoiced to OKTE and SEPS after their adherence to the contract.

2.5 The all TSOs costs of establishing and amending the SIDC consists of:

All TSOs PMO and WG support in the amount of 606,127 € as further detailed below.

Table 27

Item	Category	Temporary activity	Costs of 2019
1	Costs for project management	No	412,940 €
2	Costs related to information and communication channels	No	152,620 €
3	External administration costs related to SIDC Solution	No	11,685 €
4	Cost for procurement	Yes	28,882 €
	Total SUM		606,127 €

The following activities were undertaken under these categories:

2.5.1 Item 1

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

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

The following activities were undertaken:

- Attendance of IDSC (and facilitation in case of TSO chair), NEMO IDSC, RCB, MESC, EC meetings, DBAG HLM, TCG meetings, 1-1 with XTG, MSD conveners, etc. including preparations/follow-ups
- Support in risk and issue management of the joint NEMO and TSO SIDC. In 2019 amongst others the following important deliverables were in focus of the TSO project management team
 - › R2.0 testing configuration activities (CMM, SM), R2.0 UAT testing
 - › 2nd wave go-live including LIP testing, transit shipping, catalyst for LIP 16 risk process
 - › Agreement of scope for R3.0 incl. DBAG pricing policy and agreement of running an agile pilot
 - › AMM & ACCM: review of methodologies incl. alignment with NEMOs and ensuring SIDC perspective is incorporated

- Preparation for, running of and follow-up for TSO SC
- Budgeting, reporting and managing quarterly resettlement of TSO-only common costs, input for 2017 & 2018 NRA reporting, setting up a process for DBAG ECP costs invoicing from NEMOs to TSOs
- Drafting, agreement and signature of 1st amendment TCID, drafting and agreement of the SLA for external testing resources and 1st amendment of JAO SLA for Central Admin
- CR095 - interface between CMM and ENTSO-E's Transparency Platform: change request agreed to be delivered with R2.0 so that offered capacity and changes can be published within 15 minutes (ACER requirement).
- Questionnaire on implementation of 15 min products completed and roadmap established
- XBID testing support: agreement, preparation and execution of an EU tender on behalf of all TSOs to contract external testing resources to support TSO XBID testing. The activities hereunder comprise the clarification of the business scope, preparation of all documentation for the RfO, evaluation of the offers, running interviews and final selection of the successful tenderers (SYSQA and Sogeti).
- Identification and appointment of TSO XTG co-conveners (twice, in April and December)
- Meeting with ACER: discussions and close out for the Losses on DC cables single side reporting consultation, response to ACER re. REMIT and associated issues

2.5.2 Item 2

Under this category 50% of the costs for providing and maintaining the ECP/MPLS communication channel are summarized. 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
- Hosting and Maintenance of the ECP node: DBAG

2.5.3 Item 3

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

2.5.4 Item 4

Costs of TTN for running the EU tender for external testing services on behalf of all TSOs.

2.6 The all TSOs costs of operating the SIDC consists of:

All TSOs PMO and WG support in the amount of 374,463 € as further detailed below.

Table 28

Item	Category	Temporary activity	Costs of 2019
1	Costs for project management	No	45,882 €
2	Costs related to information and communication channels	No	152,620 €
3	External administration costs related to SIDC Solution	No	163,705 €
4	Costs for operational reporting	Yes	12,256 €
	Total SUM		374,463 €

The following activities were undertaken under these categories:

Item 1: under this category the remaining 10% of the costs for project management activities are summarised. See chapter 2.e) for details.

Item 2: under this category 50% of the costs for providing and maintaining the ECP/MPLS communication channel are summarized. See chapter 2.5 for details.

Item 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 on-call service fee

Item 4: costs of ČEPS for preparing monthly operational indicators.

The following sharing key was used for sharing of all TSOs costs of the SIDC in quarter 1 2019:

Table 29

Member State	Final consumption in 2016 according to Report 105a (data from 04.06.2018) (in GWh)	TSO	Establishment and amendment			Operational	
			Share within MS	Share per TSO (including SEPS)	Share per TCID signatory party *	Share within MS	Share per operational TSO
Austria	61,852	APG	100.000 %	2.3335 %	2.3623 %	100.000 %	3.797 %
Belgium	81,725	Elia	100.000 %	2.9345 %	2.9707 %	100.000 %	4.731 %
Bulgaria	28,939	ESO	100.000 %	1.3381 %	1.3546 %	0.000 %	0.000 %
Croatia	15,300	HOPS	100.000 %	0.9257 %	0.9371 %	0.000 %	0.000 %
Czech Republic	57,997	ČEPS	100.000 %	2.2169 %	2.2443 %	0.000 %	0.000 %
Denmark	31,152	Energinet/ ELSO	100.000 %	1.4051 %	1.4224 %	100.000 %	2.356 %
Estonia	7,139	Elering	100.000 %	0.6789 %	0.6872 %	100.000 %	1.228 %
Finland	80,759	Fingrid	100.000 %	2.9053 %	2.9411 %	100.000 %	4.685 %
France	440,971	RTE	100.000 %	13.7988 %	13.9690 %	100.000 %	21.601 %
Germany	517,377	50 Hertz	21.960 %	3.5376 %	3.5813 %	21.960 %	5.532 %
		Amprion	32.070 %	5.1663 %	5.2300 %	32.070 %	8.078 %
		TTG	28.440 %	4.5815 %	4.6381 %	28.440 %	7.164 %
		TransnetBW	17.530 %	2.8240 %	2.8588 %	17.530 %	4.416 %
Greece	53,463	ADMIE	100.000 %	2.0798 %	2.1054 %	0.000 %	0.000 %
Hungary	37,541	MAVIR	100.000 %	1.5983 %	1.6180 %	0.000 %	0.000 %
Ireland	26,099	EirGrid	100.000 %	1.2522 %	1.2677 %	0.000 %	0.000 %
Italy	286,027	Terna	100.000 %	9.1130 %	9.2254 %	0.000 %	0.000 %
Latvia	6,482	AST	100.000 %	0.6590 %	0.6671 %	100.000 %	1.197 %
Lithuania	9,750	Litgrid	100.000 %	0.7578 %	0.7672 %	100.000 %	1.351 %
Luxembourg	6,372	CREOS	100.000 %	0.6557 %	0.6638 %	0.000 %	0.000 %
Netherlands	105,332	TTN	100.000 %	3.6484 %	3.6934 %	100.000 %	5.839 %
Poland	132,839	PSE	100.000 %	4.4803 %	4.5355 %	0.000 %	0.000 %
Portugal	46,353	REN	100.000 %	1.8648 %	1.8878 %	100.000 %	3.070 %
Romania	43,569	Trans- electrica	100.000 %	1.7806 %	1.8025 %	0.000 %	0.000 %
Slovakia	24,987	SEPS	100.000 %	1.2186 %	0.0000 %	0.000 %	0.000 %
Slovenia	13,026	ELES	100.000 %	0.8569 %	0.8675 %	0.000 %	0.000 %
Spain	233,172	REE	100.000 %	7.5145 %	7.6072 %	100.000 %	11.843 %
Sweden	127,496	Svk	100.000 %	4.3187 %	4.3720 %	100.000 %	6.880 %
UK (including NI whose consumption is 9.000 GWh)	303,902	BritNed	48.519 %	4.6838 %	4.7416 %	0.000 %	0.000 %
		NGIC	48.519 %	4.6838 %	4.7416 %	0.000 %	0.000 %
		SONI	2.961 %	0.2859 %	0.2894 %	0.000 %	0.000 %
Norway	113,709	Statnett	100.000 %	3.9017 %	3.9499 %	100.000 %	6.233 %

* SEPS as only TSOs did not sign TCID and hence their MS share of 1.2186 % has been distributed on all other TSOs using the CACM sharing key.

The following sharing key was used for sharing of all TSOs costs of the SIDC in quarters 2–4 2019:

Table 30

Member State	Final consumption in 2017 according to Report 105a (data from 04.06.2019) (in GWh)	TSO	Establishment and amendment			Operational	
			Share within MS	Share per TSO (including SEPS)	Share per TCID signatory party *	Share within MS	Share per operational TSO
Austria	65,286	APG	100.000 %	2.3604 %	2.3902 %	100.000 %	3.8577 %
Belgium	83,774	Elia	100.000 %	2.8977 %	2.9343 %	100.000 %	4.6972 %
Bulgaria	31,445	ESO	100.000 %	1.3769 %	1.3943 %	0.000 %	0.0000 %
Croatia	16,425	HOPS	100.000 %	0.9403 %	0.9522 %	0.000 %	0.0000 %
Czech Republic	60,930	ČEPS	100.000 %	2.2338 %	2.2620 %	0.000 %	0.0000 %
Denmark	32,242	Energinet/ ELSO	100.000 %	1.4000 %	1.4177 %	100.000 %	2.3570 %
Estonia	7,721	Elering	100.000 %	0.6874 %	0.6960 %	100.000 %	1.2435 %
Finland	82,271	Fingrid	100.000 %	2.8540 %	2.8901 %	100.000 %	4.6290 %
France	452,078	RTE	100.000 %	13.6018 %	13.7737 %	100.000 %	21.4227 %
Germany	531,324	50 Hertz	21.960 %	3.4927 %	3.5369 %	21.960 %	5.4947 %
		Amprion	32.070 %	5.1007 %	5.1652 %	32.070 %	8.0244 %
		TTG	28.440 %	4.5234 %	4.5805 %	28.440 %	7.1161 %
		TransnetBW	17.530 %	2.7881 %	2.8234 %	17.530 %	4.3863 %
Greece	55,614	ADMIE	100.000 %	2.0793 %	2.1056 %	0.000 %	0.0000 %
Hungary	40,098	MAVIR	100.000 %	1.6283 %	1.6489 %	0.000 %	0.0000 %
Ireland	26,834	EirGrid	100.000 %	1.2428 %	1.2586 %	0.000 %	0.0000 %
Italy	301,881	Terna	100.000 %	9.2366 %	9.3533 %	0.000 %	0.0000 %
Latvia	6,485	AST	100.000 %	0.6514 %	0.6597 %	100.000 %	1.1873 %
Lithuania	10,958	Litgrid	100.000 %	0.7814 %	0.7913 %	100.000 %	1.3905 %
Luxembourg	6,393	CREOS	100.000 %	0.6488 %	0.6570 %	0.000 %	0.0000 %
Netherlands	111,557	TTN	100.000 %	3.7052 %	3.7520 %	100.000 %	5.9589 %
Poland	146,425	PSE	100.000 %	4.7185 %	4.7782 %	0.000 %	0.0000 %
Portugal	47,660	REN	100.000 %	1.8481 %	1.8715 %	100.000 %	3.0572 %
Romania	49,001	Trans- electrica	100.000 %	1.8871 %	1.9110 %	0.000 %	0.0000 %
Slovakia	27,016	SEPS	100.000 %	1.2481 %	0.0000 %	0.000 %	0.0000 %
Slovenia	13,623	ELES	100.000 %	0.8589 %	0.8697 %	0.000 %	0.0000 %
Spain	243,339	REE	100.000 %	7.5352 %	7.6304 %	100.000 %	11.9434 %
Sweden	130,459	Svk	100.000 %	4.2545 %	4.3083 %	100.000 %	6.8173 %
UK (including NI whose consumption is 9.000 GWh)	308,197	BritNed	48.519 %	4.6838 %	4.7416 %	0.000 %	0.000 %
		BritNed	48.540 %	4.5725 %	4.6303 %	0.000 %	0.0000 %
		NGIC	48.540 %	4.5725 %	4.6303 %	0.000 %	0.0000 %
Norway		SONI	2.920 %	0.2751 %	0.2786 %	0.000 %	0.0000 %
	121,641	Statnett	100.000 %	3.9982 %	4.0488 %	100.000 %	6.4168 %

* SEPS as only TSOs did not sign TCID and hence their MS share of 1.2481 % has been distributed on all other TSOs using the CACM sharing key.

3 Forecast of SDAC costs for 2020

3.1 The joint all TSOs and all NEMOs costs of establishing and amending the SDAC in the amount of 3,322,745 € consists of:

Table 31

Category	Temporary activity	Budget 2020
ICG	NO	60,000 €
SF Training Users	NO	10,000 €
SF CR Contingency	NO	30,000 €
SF Adaptation 4MMC	NO	3,000 €
SF Architecture update	NO	85,825 €
SF Adaption for Euphemia releases	NO	30,000 €
MSD TF budget for support of TF members	NO	18,500 €
SDAC Technical Solution R&D	NO	1,258,456 €
Exceptional contingency concerning CHP	NO	120,000 €
MSD NEMOs & TSOs co leader (ES)	NO	212,750 €
MSD PMO + organizational aspects	NO	148,000 €
MSD TF general contingency	NO	125,000 €
Coordination TF - Development & design of 15min MTU	NO	97,606 €
Procedures TF Coordination (ES)	NO	15,667 €
JSC Secretary (ES)	NO	55,000 €
Travel Expenses JSC Secretary (ES)	NO	1,500 €
Communications TF Coordination (ES)	NO	20,250 €
Legal TF Coordination (ES)	NO	52,500 €
SDAC Technical Solution Euphemia Releases	NO	451,711 €
SDAC Technical Solution Leader Remuneration	NO	204,518 €
SDAC Technical Solution MNA Project	NO	55,500 €
SDAC Technical Solution PMB Releases	NO	110,100 €
SDAC Technical Solution ALWG Training	NO	20,813 €
Functional Model Working Group (FMWG)	NO	25,000 €
SDAC Technical Solution Support Tasks	NO	9,250 €
Project Place Users	NO	1,800 €
Contingency	NO	100,000 €
Total SUM		3,322,745 €

- The budget of 2020 establishing and amending costs was calculated, based on the Joint NEMOs and TSOs SDAC costs in 2019.
- The total of 2020 budget was increased by 1 953 k € for the Joint SDAC establishment costs, comparing to the 2019 actuals, which is mainly caused by the introduction of the Joint SDAC MSD cost element and the increased budget for SDAC Technical Solution costs.

3.2 The joint all TSOs and all NEMOs costs of operating the SDAC in the amount of 396,862 € consists of:

Table 32

Category	Temporary activity	Budget 2020
Legal TF Coordination (OP)	NO	17,500 €
SF Operational	NO	240,000 €
JSC Secretary (OP)	NO	55,000 €
Travel Expenses JSC Secretary (OP)	NO	1,500 €
Communications TF Coordination (OP)	NO	6,750 €
Procedures TF (OP)	NO	26,112 €
Contingency	NO	50,000 €
Total SUM		396,862 €

- The total of 2020 budget was increased by 132 k € for the Joint NEMOs and TSOs operating costs, comparing to the 2019 actuals.
- In order align the costs the best way to the appropriate groups, the TF Leaders, provided the split of their cost reporting activities, between the establishment and the operational costs.
- As of 2019 the Simulation Facility is accessible to all NEMOs and all TSOs, therefore it is considered as joint costs.
- The costs of operation of MRC and 4 MMC shall be considered as joint all TSOs and all NEMOs costs of operating the SDAC only once the enduring solution is reached and the two regions are merged

JSC Secretary and ICT PMO:

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

3.3 The all NEMOs costs of establishing and amending the SDAC consists of:

Table 33

Category	Temporary activity	Budget 2020
Chairman	NO	110,303 €
PMO and administrative costs	NO	155,304 €
Legal Task Force	NO	41,717 €
Cost Task Force	NO	27,600 €
Reporting and communication Task Force	NO	40,700 €
Intraday Auctions Task Force	YES	41,717 €
Technical Task Force	NO	71,225 €
Exceptional contingency	YES	50,000 €
Total SUM		538,566 €

All NEMO Committee costs in the amount of 269,283 €.

All NEMOs PMO and WG support in the amount of 1,033,589 € as further detailed below

50 % of all costs forecasted for 2020 for All NEMO Committee in its tasks of preparation of CACM methodologies and proposals in total of 269,283 €

Compared to actuals of 2019:

- There is expected increase related to administrative tools used by NEMO Committee based on the additional communication and reporting requirements.

- The budget includes new task of Intraday Auctions Task Force, which aim is to design the process of IDAs which shall be later further developed and implemented by SIDC project.

- The exceptional contingency of 50 k € is included in order to be able to cover unexpected tasks in 2020, however its usage must be first approved by the NEMO Committee and in standard situation is not expected to be used.

Respective costs attributable to all NEMOs for establishment and amendment of SDAC algorithm and MCO Function System for 2020 in total 1,033,589 €

Table 34

Category	Temporary activity	Budget 2020
Offline Maintenance	NO	604,919 €
Total Administrative Fee	NO	207,391 €
Total Leader Remuneration Fee	NO	68,654 €
PMB development	NO	9,250 €
Euphemia development	NO	13,875 €
Support tasks	YES	129,500 €
Total SUM		1,033,589 €

- The budget is refined to better cope with CACM costs categorization.

- The development of PMB and Euphemia is considered as joint NEMOs and TSOs costs as of 2019 and only activities performed solely for the benefit of all NEMOs are considered as NEMOs only costs

- Support tasks now include all internal contribution of NEMOs resources in NEMOs only working groups.
- So called offline maintenance fee was extracted from algorithm working group budget in order to split the amounts for maintenance and for development.
- The forecast is comparable to 2019 actuals (In the amount of 985 k€)

3.4 The all NEMOs costs of operating the SDAC in the amount of 566.034€

The forecasted costs of 2020 represent slight increase (of 100 k€) compared to actuals of 2019 due to the nature of the operational costs.

Table 35

Category	Temporary activity	Budget 2020
Offline Maintenance	NO	389,105 €
Total Administrative Fee	NO	43,640 €
Total Leader Remuneration Fee	NO	102,328 €
PMB development	NO	9,000 €
Euphemia development	NO	16,469 €
Support tasks	YES	5,492 €
Total SUM		566,034 €

3.5 The all TSOs costs of establishing and amending the SDAC in the amount of 27,500€ consist of:

Table 36

Category	Temporary activity	Budget 2020
Legal Support TCDA	NO	15,000 €
TSO JSC Secretary (ES)	NO	12,500 €
Total SUM		27,500 €

3.6 The all TSOs costs of operating the SDAC in the amount of 12,500€ consist of:

Table 37

Category	Temporary activity	Budget 2020
TSO JSC Secretary (OP)	NO	12,500 €
Total SUM		12,500 €

- The budget for 2020 was calculated, based on the TSOs only 2019 SDAC actuals costs.
- The budget for cost element TSO JSC Secretary has been split equally between categorization establishing and amending the SDAC and operating the SDAC.

TSO JSC Secretary:

- The roles are all performed by an external service provider, E-Bridge Consulting.
- The activities of this role focuses on the facilitation TSO-only Steering Committee meetings and the facilitation of ICT which is responsible for coordination of all deliverables across all task forces.
 - › Preparation and facilitation of the TSO JSC meetings and conference calls, including drafting meeting minutes and ensuring timely completion of agreed actions
 - › Support the co-chairs in day-to-day project management of SDAC
- › Preparation and moderation of monthly ICT calls and bi-annually meetings. These meetings were held to coordinate dependencies and risks across TFs, agree high-level planning, discuss overall strategy and prepare for TSO JSC meetings. Issues were highlighted to the TSOs JSC Co-Chairs and mitigations agreed.
- › Contract management and taking care of new party adherence
- › Single point of contact for request of TSOs JSC members
- Finalization of the TCDA and arranging the signature process
- Costs for creating an original TCDA copy for each signatory party and postage

4 Forecast of SIDC costs for 2020

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

Table 38

Category	Temporary activity	Budget 2020
Aggregated Project Management costs	NO	1,136,561 €
Technical support tools (ProjectPlace, ReQTest)	NO	26,092 €
DBAG costs - related to future Local implementation projects	YES	251,612 €
DBAG costs - development + Change requests	NO	2,628,440 €
DBAG costs - hosting/maintenance ongoing	NO	1,380,792 €
DBAG costs - hosting/maintenance increase with Change requests	NO	96,820 €
Intraday Auctions implementation	YES	250,000 €
Total SUM		5,770,317 €

- Costs related to establishing and amending of SIDC in 2020 in total of 5,770,317 €

In 2020 the Joint all TSOs' and all NEMOs' budget for Establishing and Amending the SIDC is 5,770 m€. This is an increase of nearly 2 m€ compared with the actual out turn in 2019 of 3,780 m€ (which was an under-

spend against budget). The 2020 cost drivers include an increase for development of SIDC Solution of more than 1.3 m€ due to expected implementation of Release 3.0 and other Change Requests, introduction of new budget element for Intraday Auction implementation and increase in the Hosting and Maintenance costs for Change Requests.

4.2 The joint all TSOs and all NEMOs costs of operating the SIDC consists of:

Table 39

Category	Temporary activity	Budget 2020
Aggregated Project Management Costs	NO	377,712 €
MPLS costs prefinanced by NEMOs respectively TSOs and defined as joint costs	NO	61,764 €
Technical support tools (ProjectPlace, ReQTest)	NO	26,092 €
DBAG costs - hosting/maintenance ongoing	NO	1,088,527 €
DBAG costs - hosting/maintenance increase with Change Requests	NO	153,576 €
IC SPOC	NO	586,007 €
Total SUM		2,293,679 €

- Costs related to operation of SIDC in 2020 in total of 2,293,679 €

In 2020 the Joint all TSOs' and all NEMOs' budget for Operating the SIDC is 2,294 m€. This is slight increase over 2019 actuals of 2,135 m€. The increase is corresponding increase in Hosting & Maintenance.

4.3 The all NEMOs costs of establishing and amending the SIDC consists of:

Table 40

Category	Temporary activity	Budget 2020
Chairman	NO	110,303 €
PMO and administrative costs	NO	155,304 €
Legal Task Force	NO	41,717 €
Cost Task Force	NO	27,600 €
Reporting and communication Task Force	NO	40,700 €
Intraday Auctions Task Force	YES	41,717 €
Technical Task Force	NO	71,225 €
Exceptional contingency	YES	50,000 €
Total SUM		538,566 €

- 50 % of all costs forecasted for 2020 for All NEMO Committee in its tasks of preparation of CACM methodologies and proposals in total of 269,283 €

Respective costs attributable to all NEMOs for establishment and amendment of SIDC in total of 512,901 € related to:

Table 41

Category	Temporary activity	Budget 2020
NEMOs organization	NO	442,501 €
Costs of adaptation of PMI LAT	YES	15,400 €
Procurement	YES	11,000 €
Other costs and contingency	YES	44,000 €
Total SUM		512,901 €

For the NEMOs organization budget for 2020 is expected of nearly 200K higher magnitude as for 2019 due to increasing workload connected to new releases expected in 2020.

4.4 The all NEMOs costs of operating the SIDC consist of:

Table 42

Category	Temporary activity	Budget 2020
Central Admin (NEMOs rotation)	NO	736,000 €
NEMOs organization	NO	167,827 €
Other costs and contingency	YES	33,000 €
Total SUM		936,827 €

- Main task of NEMO Central Admin is foreseen to be charged before the 2nd wave joins operation as for the first wave all NEMOs are taking the same share.
- For the NEMOs organization there is an increase compared to year 2019 based on the fact that in 2019 the costs of the NEMO Central Admin was not included in 2019 common costs.

4.5 The all TSOs forecasted costs of establishing and amending the SIDC consists of:

Table 43

Item	Category	Temporary activity	Budget 2020
1	Costs for project management	NO	389,700 €
2	Costs related to information and communication channels	NO	83,256 €
3	External administration costs related to SIDC Solution	NO	2,880 €
4	Costs for external testing support	NO	200,000 €
5	Contingency	YES	60,000 €
	Total SUM		735,836 €

- For item 1, the budget estimate for 2020 was made in Aug 2019 and the actuals for the 1st HY 2019 were used as input. On top 10 % contingency were added. It was assumed that the project management costs would stay at fairly same level as the TSO SC meetings and joint NEMOTSO meetings attended by the TSO chair and TSO project manager continue running in the same frequency as in 2019.
- For item 2, the budget is significantly lower since the 13,295 €/month ECP Hosting & Maintenance costs invoiced by DBAG are regarded as joint NEMO and TSO costs as of 2020.
- For item 3, these are variable costs for configuring the testing environments. The estimate is based on actuals for variable costs reported by JAO between 07/2018-06/2019. For the variable costs 5 % contingency has been added. The reason for the reduction in budget compared to 2019 is, that when estimating the 2019 budget no actuals were available yet on which an estimate could have been based.
- Item 4 is a new budget item for testing support services provided by SYSQA.
- Item 5, contingency, was added for the case of that tenders need to be run or in case new agreements are required increasing costs.

4.6 The all TSOs forecasted cost of operating the SIDC consist of:

Table 44

Item	Category	Temporary activity	Budget 2020
1	Costs for project management	NO	43,300 €
2	Costs related to information and communication channels	NO	83,256 €
3	External administration costs related to SIDC Solution	NO	177,975 €
4	External costs related to reporting to EMFIP	NO	22,000 €
5	Costs for operational reporting	YES	16,800 €
6	Contingency	YES	60,000 €
	Total SUM		403,331 €

- For item 1, see item 1, chapter 4.5) for details.
- For item 2 see item 2, chapter 4.5) for details.
- Item 3: these are variable costs for configuring the operational environment and fixed monthly instalments for general availability and on-call services provided by JAO. The estimate was made based on the known fixed monthly instalments (12.0833 €/month) and actuals for variable costs reported by JAO between 07/18-06/19. For the variable costs 5% contingency has been added. The reason for the slight reduction in budget compared to 2019 is, that when estimating the 2019 budget no actuals were available yet on which an estimate could have been based.
- Item 4 summarises the costs of JAO who will create an "ECP bridge" between the XBID ECP and ENTSO-E Transparency Platform ECP. The ECP bridge is required in order to automatically report TSO transparency data (for example available capacity) from the XBID Solution to the ENTSO-E Transparency Platform. The estimate is based on an annual fee agreed with JAO.
- Item 5 summarises the costs of ČEPS for preparing monthly operational indicators. The estimate is based on 2019 actuals.
- For item 6 see explanation for item 5, chapter 4.6) .

Chapter B

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

Following projects where NEMOs or TSOs cooperating in certain region in line with CACM Article 80 (2)(b) were recognized in 2019:

Table 45

Day-ahead regional projects	Intraday regional projects
1 CWE project	11 LIP 14 – XBID + CRIDA project, including GR-BG border for Intra Day
2 CORE FB MC project	12 LIP 15 project
3 Nordic project	13 LIP 16 project
4 Italian Borders Working Table project including GR-BG border project	
5 MRC project	
6 4M MC project	
7 SEM-GB project	
8 Nordic MNA project	
9 Baltic MNA project	
10 DE-AT-PL-4M MC Project (Interim Coupling)	

Following table provides overview of total actual common regional costs in 2019:

Table 46

		Costs of establishing and amending		Costs of operating	
Day ahead regional related common costs	All NEMOs and all TSOs costs	1.1	1,060,640 €	1.2	101,356 €
	All NEMOs costs	1.3	–	1.4	139,311 €
	All TSOs costs	1.5	918,180 €	1.6	667,110 €
Intraday regional related common cost	All NEMOs and all TSOs costs	2.1	52,999 €	2.2	–
	All NEMOs costs	2.3	–	2.4	–
	All TSOs costs	2.5	–	2.6	–
Total			2,031,819 €		907,777 €

Following table provides overview of forecast of common regional costs for 2020:

Table 47

		Costs of establishing and amending		Costs of operating	
Day ahead regional related common costs	All NEMOs and all TSOs costs	3.1	836,201 €	3.2	345,480 €
	All NEMOs costs	3.3	–	3.4	169,800 €
	All TSOs costs	3.5	970,191 €	3.6	504,097 €
Intraday regional related common cost	All NEMOs and all TSOs costs	4.1	–	4.2	–
	All NEMOs costs	4.3	–	4.4	–
	All TSOs costs	4.5	–	4.6	–
Total			1,806,392 €		1,019,377 €

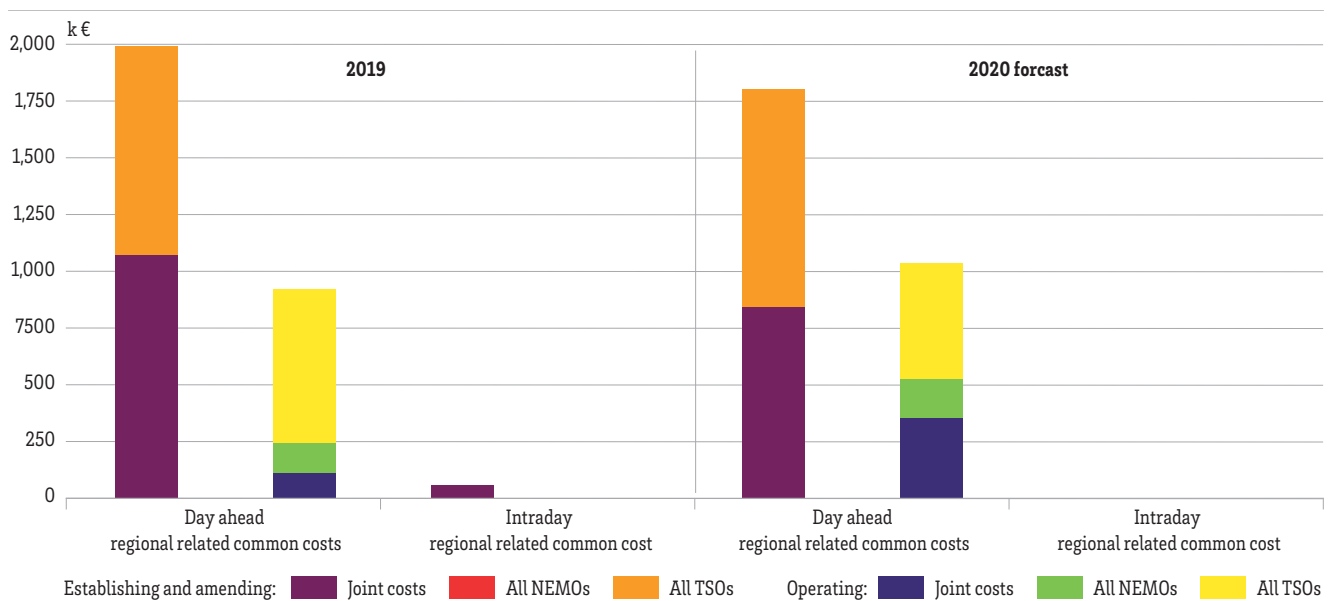


Figure 06

1 Regional projects of the Day-ahead Timeframe

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

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

The default CACM sharing key applies for the CWE project.

1.1.1 Actual costs for 2019

Following table provides overview of total actual regional common costs in 2019:

Table 48

Regional costs	Costs of establishing and amending 2019	Costs of operating 2019
NEMOs costs	–	117,911 €
TSOs costs	–	12,309 €
NEMOs and TSOs costs	709 905 €	32,842 €

The **NEMOs** only costs of operational costs in the amount of 117,911 € consist of:

Table 49

Details	Temporary activity	Costs of 2019
CIP costs	YES	117,911 €
Total SUM		117,911 €

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 in the amount of 12,309 € consist of:

Table 50

Details	Temporary activity	Costs of 2019
MPLS costs	YES	12,309 €
Total SUM		12,309 €

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.

The joint **TSOs and NEMOs** costs of establishing and amending in the amount of 709,905 € consist of:

Table 51

Details	Temporary activity	Costs of 2019
Joint PMO	YES	501,629 €
MNA TF	YES	208,276 €
Total SUM		709,905 €

- Rate of 925 €/MD was used for CWE internal resources
- MNA TF is responsible for MNA implementation in CWE region.

The joint **NEMOs and TSOs** operational costs in the amount of 32,842 € consist of:

Table 52

Details	Temporary activity	Costs of 2019
CWE OPSCOM	YES	11,798 €
FBvTF	YES	6,244 €
JLG	YES	925 €
Joint PMO	YES	2,197 €
SC WG	YES	10,291 €
Support to FBvTF	YES	1,388 €
Total SUM		32,842 €

Table 53

- 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, update of CWE procedures and organization of testing activities.
- FBvTF: Task Force for convening and providing technical support to the CWE Flow Based Validation.
- The JLG (Joint Legal Group) provides support to the Joint CWE project.
- The Stakeholder Coordination WG (SC WG) is responsible for communication with external stakeholders (CWE NRAs, Market parties)

The detail disaggregation of the CWE **NEMOs and TSOs** regional costs is available in the following table:

Member State	Entity	Share within MS	NEMO split within MS
Austria	APG	50.00 %	–
	EPEX	37.92 %	75.84 %
	EXAA	6.44 %	12.88 %
	NP	5.64 %	11.28 %
Belgium	ELIA	50.00 %	–
	EPEX	45.00 %	90.00 %
	NP	5.00 %	10.00 %
France	RTE	50.00 %	–
	EPEX	25.00 %	50.00 %
	NP	25.00 %	50.00 %
Germany	Amprion	41.09 %	–
	Tennet	36.44 %	–
	TransnetBW	22.46 %	–
	EPEX	–	–
	NP	–	–
	EXAA	–	–
Luxembourg	Creos	100.00 %	–
	EPEX	–	–
	NP	–	–
Netherlands	Tennet BV	50.00 %	–
	EPEX	50.00 %	100.00 %
	NP	–	–

Table 54

Member State	Share_MS(i) for 2017	Share_MS(i) for 2018–2019
Establishing and amending costs		
Austria	7.02 %	7.12 %
Belgium	7.32 %	7.23 %
France	31.27 %	30.82 %
Germany	42.52 %	42.93 %
Luxembourg	2.41 %	2.41 %
Netherlands	9.46 %	9.49 %
Operating costs		
Austria	7.45 %	7.55 %
Belgium	7.76 %	7.67 %
France	31.81 %	31.36 %
Germany	43.08 %	43.48 %
Luxembourg	–	–
Netherlands	9.91 %	9.94 %

1.1.2 Forecasts for 2020

Following table provides overview of forecast of regional common costs for 2020:

Regional costs	Budgeted costs of establishing and amending for 2020	Budgeted costs of operating for 2020
NEMOs costs	–	169,800 €
TSOs costs	–	40,139 €
NEMOs and TSOs costs	–	243,525 €

The budgeted **NEMOs** only costs of operating in the amount of 169,800 € consist of:

Details	Temporary activity	Budget 2020
CIP costs	YES	169,800 €
Total SUM		169,800 €

The budgeted **TSOs** only costs of operating in the amount of 40,139 € consist of:

Details	Temporary activity	Budget 2020
MPLS costs	YES	40,139 €
Total SUM		40,139 €

The budgeted joint **TSOs and NEMOs** costs of operating in the amount of 243,525 € consist of:

Details	Temporary activity	Budget 2020
PMO	YES	180,027 €
Joint Steering Committee	YES	12,950 €
SC WG	YES	8,437 €
CWE OPSCOM	YES	13,986 €
Joint Legal Group	YES	2,775 €
Budget Management Activities	YES	19,800 €
Questions & Answers site	YES	1,800 €
MNA Project	YES	3,750 €
Total SUM		243,525 €

- Cost items FBvTF and Support to FBvTF have been closed since the MNA go-live in June 2019.
- The signature of the Budget Management Entity service level agreement for CWE MNA between JAO SA and the CWE Regional parties entered into force as of 1st of January 2020.
- The Budget Management Entity shall provide services for the process of sharing, budgeting, monitoring, provide resettlement calculations and report towards CWE Regional NEMOs and TSOs.

No costs have been budgeted for the Joint NEMOs and TSOs establishing and amending costs.

1.2 Costs of CORE FB MC project (DA)

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

A specific regional sharing key approved by the competent national authorities of each Member States in the region on the 5/20/2015 applies in the Core Flow-based market coupling project.

1.2.1 Actual costs for 2019

Following table provides overview of total actual regional common costs in 2019:

Regional costs	Costs of establishing and amending 2019	Costs of operating 2019
NEMOs costs	-	-
TSOs costs	-	-
NEMOs and TSOs costs	332,466 €	-

The joint **TSOs and NEMOs** costs of establishing and amending and costs of operating consist of:³

Details	Temporary activity	Costs of 2019
PMO	YES	275,017 €
Convenorships	YES	57,449 €
Total SUM		332,466 €

- Rate of 925 €/MD was used for the Joint Working Group (JWG) convenorship provided by a NEMO
- The external support for PMO services as of January 2018 was selected based on a competitive tender finalized at the mid of 2017.

1.2.1 Forecasts for 2020

Following table provides overview of forecast of regional common costs for 2020:

Regional costs	Budgeted costs of establishing and amending for 2020	Budgeted costs of operating for 2020
NEMOs costs	-	-
TSOs costs	-	-
NEMOs and TSOs costs	814,120 €	-

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

Details	Temporary activity	Budget 2020
PMO	YES	393,070 €
Cost of flow based user Group & Market Training	YES	182,315 €
3rd party services	YES	10,080 €
Convenorships	YES	160,237 €
Specific common deliverables	YES	53,003 €
Operational costs of simulations	YES	15,415 €
Total SUM		814,120 €

- Rate of 925 €/MD is used for the convenorships provided by NEMOs
- The external support for PMO services as of January 2018 was selected based on a competitive tender finalized at the beginning of 2017.
- The 3rd party services consist of cost for an external economic study and an external legal review of contractual documentation.
- The specific common deliverables relate to specific deliverables to be prepared by:
 - › JWG (e.g. Validation report)
 - › Testing TF (e.g. test scripts)
 - › Legal Supportive Task Force (e.g. legal support)
 - › Communication & Regulation TF (e.g. press releases)

³ Project is in development phase so only Joint TSOs and NEMOs costs of establishing and amending costs occur until go live. After the go-live permanent costs (operational cost) will occur.

1.3 Nordic project (DA)

The objective of the Nordic project is to ensure the robustness of the current operation of the single day-ahead coupling in the Nordic region.

A specific regional sharing key is used for that project.

1.3.1 Actual costs for 2019

Following table provides overview of total actual regional common costs in 2019:

Regional costs	Costs of establishing and amending 2019	Costs of operating 2019
NEMOs costs	-	
TSOs costs	-	269,680 €
NEMOs and TSOs costs	-	

The TSOs costs of operating consist of:

Details	Temporary activity	Costs of 2019
Administrative fees	YES	2,894 €
Estimated total cost of the verification of market coupling results and congestion income distribution	YES	266,786 €
Total SUM		269,680 €

- The administrative fees in the above table cover the costs of the Project Place licenses for the operational Nordic day-ahead project.
- The regional operational costs in the above table encompass the cost of verifying the market coupling flow results during the market coupling session, and the distribution of the congestion income generated in the single day-ahead coupling.

1.3.2 Forecasts for 2020

Following table provides overview of forecast of regional common costs for 2020:

Regional costs	Budgeted costs of establishing and amending for 2020	Budgeted costs of operating for 2020
NEMOs costs	-	-
TSOs costs	-	196 608 €
NEMOs and TSOs costs	-	-

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

Details	Temporary activity	Budget 2020
Administrative fees	YES	2,894 €
Estimated total cost of the verification of market coupling results and congestion income distribution	YES	193,714 €
Total SUM		196,608 €

- The administrative fees in the above table cover the costs of the Project Place licenses for the operational Nordic day-ahead project.
- The regional operational costs in the above table encompass the cost of verifying the market coupling flow results during the market coupling session, and the distribution of the congestion income generated in the single day-ahead coupling.

1.4 Italian Borders Working Table (IBWT) project for day-ahead market, including GR-BG border for day-ahead market coupling

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

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

A specific regional sharing key applies for this project.

1.4.1 Actual costs for 2019

Following table provides overview of total actual regional common costs in 2019:

Regional costs	Costs of establishing and amending 2019	Costs of operating 2019
NEMOs costs	-	-
TSOs costs	-	-
NEMOs and TSOs costs	18,269 €	-

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

Details	Temporary activity	Costs of 2019
IPT Convener	YES	18,269 €
Total SUM		18,269 €

- Common costs stated above were covered by parties requesting the change, in this case HOPS and CROPEX with usage of equal sharing key
- Rate of 925 €/MD was used for internal resources of NEMOs

1.4.2 Forecasts for 2020

Following table provides overview of forecast of regional common costs for 2020:

Regional costs	Budgeted costs of establishing and amending for 2020	Budgeted costs of operating for 2020
NEMOs costs	-	-
TSOs costs	-	-
NEMOs and TSOs costs	22,081 €	-

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

Details	Temporary activity	Budget 2020
IPT and TWG Convener	YES	22,081 €
Total SUM		22,081 €

- Common costs stated above will be covered by parties requesting the change
- Rate of 925 €/MD was used for internal resources of NEMOs

1.5 MRC project for Day-ahead Market

1.5.1 Actual costs for 2019

Following table provides overview of total actual regional common costs in 2019:

Regional costs	Costs of establishing and amending 2019	Costs of operating 2019
NEMOs costs	–	485,534 €
TSOs costs	–	337,171 €
NEMOs and TSOs costs	–	68,514 €

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

Details	Temporary activity	Costs of 2019
Legal TF Coordination	YES	22,317 €
Secretarial OPSCOM	YES	43,381 €
Procedures TF Coordination (MRC)	YES	2,816 €
Total SUM		68,514 €

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

Member State	Parties	Share per party 1–31 Jan 2019	Share per party 1 Feb 2019–31 Dec 2019
Austria	APG	1.261%	1.261%
Austria	EPEX	0.956%	0.956%
Austria	EXAA	–	–
Austria	NP EMCO	0.142%	0.142%
Austria		2.360%	2.360%
Belgium	ELIA	1.374%	1.374%
Belgium	EPEX	1.236%	1.236%
Belgium	NP EMCO	0.137%	0.137%
Belgium		2.748%	2.748%
Bulgaria	ESO	–	–
Bulgaria	IBEX	1.370%	1.370%
Bulgaria		1.370%	1.370%
Croatia	HOPS	0.472%	0.472%
Croatia	Cropex	0.472%	0.472%
Croatia		0.943%	0.943%
Czech Republic	CEPS	–	–
Czech Republic	OTE	–	–
Czech Republic		–	–
Denmark	ELSO	0.921%	0.921%
Denmark	NP EMCO	0.767%	0.767%
Denmark	EPEX	0.153%	0.153%
Denmark		1.841%	1.841%
Estonia	Elering	0.437%	0.437%
Estonia	NP EMCO	0.437%	0.437%
Estonia	EPEX	–	–
Estonia		0.874%	0.874%
Finland	Fingrid	1.724%	1.724%
Finland	NP EMCO	1.437%	1.437%
Finland	EPEX	0.287%	0.287%
Finland		3.448%	3.448%

Table 73

Member State	Parties	Share per party 1–31 Jan 2019	Share per party 1 Feb 2019– 31 Dec 2019
France	RTE	6.084 %	6.084 %
France	EPEX	6.084 %	6.084 %
France	NP EMCO	–	–
France		12.167 %	12.167 %
Germany	50Hertz	3.569 %	3.569 %
Germany	Amprion	5.211 %	5.211 %
Germany	Tennet DE	4.622 %	4.622 %
Germany	Transnet	2.849 %	2.849 %
Germany	EPEX	–	–
Germany	NP EMCO	–	–
Germany	EXAA	–	–
Germany		16.250 %	16.250 %
Greece	ADMIE	–	–
Greece	Henex	–	–
Greece		–	–
Hungary	Mavir	–	–
Hungary	HUPX	–	–
Hungary		–	–
Ireland	EirGrid (TSO)	0.838 %	0.838 %
Ireland	EirGrid (NEMO)	0.838 %	0.838 %
Ireland	NP EMCO	–	–
Ireland		1.675 %	1.675 %
Italy	Terna	5.710 %	5.710 %
Italy	GME	5.710 %	5.710 %
Italy		11.419 %	11.419 %
Latvia	AST	0.408 %	0.408 %
Latvia	NP EMCO	0.408 %	0.408 %
Latvia	EPEX	–	–
Latvia		0.816 %	0.816 %

Table 73

Member State	Parties	Share per party 1–31 Jan 2019	Share per party 1 Feb 2019– 31 Dec 2019
Lithuania	Litgrid	0.500 %	0.500 %
Lithuania	NP EMCO	0.500 %	0.500 %
Lithuania	EPEX	–	–
Lithuania		0.999 %	0.999 %
Luxembourg	CREOS	–	–
Luxembourg	EPEX	–	–
Luxembourg	NP EMCO	–	–
Luxembourg		–	–
Netherlands	Tennet BV	1.815 %	1.815 %
Netherlands	EPEX	1.815 %	1.815 %
Netherlands	NP EMCO	–	–
Netherlands		3.630 %	3.630 %
Poland	PSE	1.988 %	1.988 %
Poland	TGE	1.546 %	1.546 %
Poland	EPEX	0.221 %	0.221 %
Poland	NP EMCO	0.221 %	0.221 %
Poland		3.976 %	3.976 %
Portugal	REN	1.307 %	1.307 %
Portugal	OMIE	1.307 %	1.307 %
Portugal		2.615 %	2.615 %
Romania	Transelectrica	–	–
Romania	OPCOM	–	–
Romania		–	–
Slovakia	SEPS	–	–
Slovakia	OKTE	–	–
Slovakia		–	–
Slovenia	ELES	0.494 %	0.494 %
Slovenia	BSP	0.494 %	0.494 %
Slovenia		0.988 %	0.988 %
Spain	REE	4.668 %	4.668 %
Spain	OMIE	4.668 %	4.668 %
Spain		9.337 %	9.337 %

Table 73

Member State	Parties	Share per party 1–31 Jan 2019	Share per party 1 Feb 2019–31 Dec 2019
Sweden	Affärsverket svenska kraftnät	3.076 %	3.076 %
Sweden	NP EMCO	2.563 %	2.563 %
Sweden	EPEX	0.513 %	0.513 %
Sweden		6.152 %	6.152 %
UK (including Northern Ireland whose consumption is 9TWh)	National Grid	2.531 %	1.687 %
UK (including Northern Ireland whose consumption is 9TWh)	Britned	2.531 %	1.687 %
UK (including Northern Ireland whose consumption is 9TWh)	Nemo Link	–	1.687 %
UK (including Northern Ireland whose consumption is 9TWh)	EPEX	2.531 %	1.713 %
UK (including Northern Ireland whose consumption is 9TWh)	NP EMCO	2.531 %	3.349 %
UK (including Northern Ireland whose consumption is 9TWh)	SONI (TSO)	0.309 %	0.309 %
UK (including Northern Ireland whose consumption is 9TWh)	SONI (NEMO)	–	–
UK (including Northern Ireland whose consumption is 9TWh)		10.433 %	10.433 %
Norway	Statnett	2.979 %	2.979 %
Norway	EPEX	–	–
Norway	NP EMCO	2.979 %	2.979 %
Norway		5.958 %	5.958 %

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

Table 74

Details	Temporary activity	Costs of 2019
Coordinator/ Hot Backup Remuneration	NO	449,540 €
Incident committee conference call lines	NO	21,830 €
MRC results monitoring/ market indicators analysis	YES	14,048 €
Technical support from WGs	YES	116 €
Total SUM		68,514 €

Coordinator/Hot Backup

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

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

Member State	Final consumption in 2017 according to Report nrg_cb_e (25.04.19) in GWh	Traded volume 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2019 (Q1 & Q2)	NEMO share within MS to be used for sharing of SDAC costs in 2020 (Q3 & Q4)	CACM Share -SDAC to be used for sharing of SDAC costs in 2019 (Q1 & Q2)	Table 75 -SDAC to be used for sharing of SDAC costs in 2019 (Q3 & Q4)
Austria	65,286	23,474	2.5526 %	EPEX	75.8400 %	75.8400 %	1.9359 %	1.9359 %
		2,793		EXAA	12.8800 %	12.8800 %	0.3288 %	0.3288 %
		0		NP EMCO	11.2800 %	11.2800 %	0.2879 %	0.2879 %
Belgium	83,578	13,386	2.7318 %	EPEX	90.0000 %	90.0000 %	2.4586 %	2.4586 %
		0		NP EMCO	10.0000 %	10.0000 %	0.2732 %	0.2732 %
Bulgaria	31,399	4,233	1.3834 %	IBEX	100.0000 %	100.0000 %	1.3834 %	1.3834 %
Croatia	16,425	139	0.9697 %	CROPEX	100.0000 %	100.0000 %	0.9697 %	0.9697 %
Denmark	32,238	25,447	1.7893 %	NP EMCO	83.3333 %	83.3333 %	1.4911 %	1.4911 %
		0		EPEX	16.6667 %	16.6667 %	0.2982 %	0.2982 %
Estonia	7,721	8,767	0.9300 %	NP EMCO	83.3300 %	83.3300 %	0.7749 %	0.7749 %
		0		EPEX	16.6700 %	16.6700 %	0.1550 %	0.1550 %
Finland	82,275	52,249	3.4112 %	NP EMCO	83.3333 %	83.3333 %	2.8426 %	2.8426 %
		0		EPEX	16.6667 %	16.6667 %	0.5685 %	0.5685 %
France	443,492	85,697	12.1999 %	EPEX	100.0000 %	100.0000 %	12.1999 %	12.1999 %
Germany	531,324	196,356	16.2071 %	EPEX	100.0000 %	33.3333 %	16.2071 %	5.4024 %
		0		NP EMCO	0.0000 %	33.3333 %	0.0000 %	5.4024 %
				EXAA	0.0000 %	33.3333 %	0.0000 %	5.4024 %
				NASDAQ	0.0000 %	0.0000 %	0.0000 %	0.0000 %
Ireland	25,967	22,600	1.5954 %	EirGRID	100.0000 %	100.0000 %	1.5954 %	1.5954 %
Italy	301,880	210,918	11.2777 %	GME	100.0000 %	100.0000 %	11.2777 %	11.2777 %
Latvia	6,484	7,191	0.8732 %	NP EMCO	83.3300 %	83.3300 %	0.7277 %	0.7277 %
		0		EPEX	16.6700 %	16.6700 %	0.1456 %	0.1456 %
Lithuania	10,957	8,799	1.0038 %	NP EMCO	83.3300 %	83.3300 %	0.8365 %	0.8365 %
		0		EPEX	16.6700 %	16.6700 %	0.1673 %	0.1673 %
Netherlands	111,445	28,232	3.6335 %	EPEX	100.0000 %	100.0000 %	3.6335 %	3.6335 %
		0		NP EMCO	0.0000 %	0.0000 %	0.0000 %	0.0000 %
Poland	146,424	4,048	3.9844 %	TGE	77.7800 %	77.7800 %	3.0991 %	3.0991 %
		0		EPEX	11.1100 %	11.1100 %	0.4427 %	0.4427 %
		0		NP EMCO	11.1100 %	11.1100 %	0.4427 %	0.4427 %
Portugal	47,660	52,007	2.6230 %	OMIE	100.0000 %	100.0000 %	2.6230 %	2.6230 %
Slovenia	13,622	6,816	1.0280 %	BSP	100.0000 %	100.0000 %	1.0280 %	1.0280 %
Spain	241,869	184,377	9.4348 %	OMIE	100.0000 %	100.0000 %	9.4348 %	9.4348 %
Sweden	130,459	142,873	6.1552 %	NP EMCO	83.3333 %	83.3333 %	5.1294 %	5.1294 %
		0		EPEX	16.6667 %	16.6667 %	1.0259 %	1.0259 %

Table 76

Member State	Final consumption in 2017 according to Report nrg_cb_e (25.04.19) in GWh	Traded volume 2018 DA (GWh) to be used for sharing of SDAC costs in 2019	MS share to be used for sharing of SDAC costs in 2019	Entity	NEMO share within MS to be used for sharing of SDAC costs in 2019 (Q1 & Q2)	NEMO share within MS to be used for sharing of SDAC costs in 2020 (Q3 & Q4)	CACM Share -SDAC to be used for sharing of SDAC costs in 2019 (Q1 & Q2)	CACM Share -SDAC to be used for sharing of SDAC costs in 2019 5Q3 & Q4)
UK (NI whose consumption is 9.000 GWh)	307,914	42,822	10.0414 %	EPEX	70.4000 %	36.4056 %	7.0692 %	3.6556 %
		101,806		NP EMCO	29.6000 %	63.5944 %	2.9723 %	6.3858 %
Northern Ireland (calculated as part of 9 TWh of UK)		7,600	0.3023 %	SONI	100.0000 %	100.0000 %	0.3023 %	0.3023 %
Norway	121,958	0	5.8720 %	EPEX	0.0000 %	0.0000 %	0.0000 %	0.0000 %
		137,895		NP EMCO	100.0000 %	100.0000 %	5.8720 %	5.8720 %

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

Table 77

Details	Temporary activity	Costs of 2019
Central Settlement Entity Fees	YES	198,273 €
Travel and Meeting Arrangements	YES	28,678 €
JSC PMO Services	YES	110,219 €
Total SUM		337,171 €

Central Settlement Entity

The signature of the Central Settlement Entity service level agreement between JAO SA and the SDAC parties entered into force as of 28th of March 2019.

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

- The TSOs of the Budget Management Task Force (BMTF) members are responsible for budgeting, validating and reviewing of costs, associated with the SDAC JSC, who provides the final cost approval.
- The cost sharing methodology for the 2019 Joint Actual costs, is based on the CACM sharing keys implemented in the TCDA Agreement, which entered into force as of 28.03.2019.

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

Table 78

Member State	Parties	Share per TSO 2019
Austria	APG	2.562 %
Austria	EPEX	0.000 %
Austria	NP EMCO	0.000 %
Austria		2.562 %
Belgium	ELIA	2.791 %
Belgium	EPEX	0.000 %
Belgium	NP EMCO	0.000 %
Belgium		2.791 %
Bulgaria	IBEX	0.000 %
Bulgaria		0.000 %

Table 78

Member State	Parties	Share per TSO 2019
Croatia	HOPS	0.970 %
Croatia	Cropex	–
Croatia		0.970 %
Denmark	ELSO	1.873 %
Denmark	NP EMCO	–
Denmark	EPEX	–
Denmark		1.873 %
Estonia	Elering	0.899 %
Estonia	NP EMCO	–
Estonia	EPEX	–
Estonia		0.899 %
Finland	Fingrid	3.495 %
Finland	NP EMCO	–
Finland	EPEX	–
Finland		3.495 %
France	RTE	12.303 %
France	EPEX	–
France	NP EMCO	–
France		12.303 %
Germany	50Hertz	3.605 %
Germany	Amprion	5.264 %
Germany	Tennet DE	4.668 %
Germany	Transnet	2.878 %
Germany	EPEX	–
Germany	NP EMCO	–
Germany		16.415 %
Ireland	EirGrid (TSO)	1.706 %
Ireland	EirGrid (NEMO)	–
Ireland	NP EMCO	–
Ireland		1.706 %

Table 78

Member State	Parties	Share per TSO 2019
Italy	Terna	11.530 %
Italy	GME	–
Italy		11.530 %
Latvia	AST	0.840 %
Latvia	NP EMCO	–
Latvia	EPEX	–
Latvia		0.840 %
Lithuania	Litgrid	1.025 %
Lithuania	NP EMCO	–
Lithuania	EPEX	–
Lithuania		1.025 %
Luxembourg	CREOS	–
Luxembourg	EPEX	–
Luxembourg	NP EMCO	–
Luxembourg		–
Netherlands	Tennet BV	3.682 %
Netherlands	EPEX	–
Netherlands	NP EMCO	–
Netherlands		3.682 %
Poland	PSE	4.034 %
Poland	TGE	–
Poland	EPEX	–
Poland	NP EMCO	–
Poland		4.034 %
Portugal	REN	2.653 %
Portugal	OMIE	–
Portugal		2.653 %
Slovenia	ELES	1.014 %
Slovenia	BSP	0.000 %
Slovenia		1.014 %

Table 78

Member State	Parties	Share per TSO 2019
Spain	REE	9.431 %
Spain	OMIE	–
Spain		9.431 %
Sweden	Affärsverket svenska kraftnät	6.216 %
Sweden	NP EMCO	–
Sweden	EPEX	–
Sweden		6.216 %
UK (including Northern Ireland whose consumption is 9 TWh)	National Grid	3.410 %
UK (including Northern Ireland whose consumption is 9 TWh)	Britned	3.410 %
UK (including Northern Ireland whose consumption is 9 TWh)	Nemo Link	3.410 %
UK (including Northern Ireland whose consumption is 9 TWh)	EPEX	–
UK (including Northern Ireland whose consumption is 9 TWh)	NP EMCO	–
UK (including Northern Ireland whose consumption is 9 TWh)	SONI (TSO)	0.312 %
UK (including Northern Ireland whose consumption is 9 TWh)	SONI (NEMO)	–
UK (including Northern Ireland whose consumption is 9 TWh)		10.541 %
Norway	Statnett	6.020 %
Norway	EPEX	–
Norway	NP EMCO	–
Norway		6.020 %

1.5.2 Forecasts for 2020

Following table provides overview of forecast of common costs for 2020:

Table 79

Regional costs	Budgeted costs of establishing and amending for 2020	Budgeted costs of operating for 2020
NEMOs costs	–	–
TSOs costs	–	240,800 €
NEMOs and TSOs costs	–	55,455 €

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

Table 80

Details	Temporary activity	Budget 2020
Secretarial OPSCOM	NO	45,000 €
Procedures TF Coordination (MRC)	NO	10,445 €
Total SUM		55,445 €

- The 2020 budget for the Joint operating costs of MRC has been reduced by 13 k€ comparing to the 2019 actuals, this due to the cost element Legal TF to be shifted to different cost category.

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

Table 81

Details	Temporary activity	Budget 2020
Central Settlement Entity Fees	NO	200,800 €
Travel and Meeting Arrangements	NO	40,000 €
Total SUM		240,800 €

- The budget for 2020 was calculated, based to the TSOs only 2018 MRC actuals costs.
- The total of 2020 budget has been reduced by 100 k€ for the TSOs only MRC operating costs, comparing to the 2019 actuals, mainly due to the removal of cost element JSC PMO Services.

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

4MMC is day-ahead NTC market coupling between Czech Republic, Slovakia, Hungary and Romania launched in 2014, project operates based on PCR solution and uses centralized TSO system “so called” the mTMF⁴ TSO module which enables 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 2019

Following table provides overview of total regional common costs in 2019:

Regional costs	Costs of establishing and amending 2019	Costs of operating 2019
NEMOs costs*	–	–
TSOs costs	–	26,550 €**
NEMOs and TSOs costs*	–	–

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

** Since these regional activities are not performed on CCR level as defined by decision of ACER 06/2016, 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	Costs of 2019
Administrative and hosting fees	YES	26,550 €
Total SUM		26,550 €

- Daily operation of the mTMF TSO module

1.6.2 Forecasts for 2020

Following table provides overview of forecast of regional common costs for 2020:

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

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

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

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

Details	Temporary activity	Costs of 2019
Administrative and hosting fees	YES	26,550 €
Total SUM		26,550 €

Daily operation of the mTMF TSO module

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

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

1.7 SEM-GB regional project

The SEM-GB Regional Framework has been established to implement single day-ahead market coupling within the Ireland-UK (IU) region in compliance with Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management (CACM) and an interim intraday solution with implicit auctions

A Specific regional sharing key approved by the competent national authorities of each Member States in the region on the 6/14/2017 applies in this project.

1.7.1 Actual costs for 2019

Following table provides overview of total actual regional common costs in 2019:

Regional costs	Costs of establishing and amending 2019	Costs of operating 2019
NEMOs costs	-	21,400 €
TSOs costs	-	21,400 €
NEMOs and TSOs costs	-	-

1.7.2 Forecasts for 2020

Following table provides overview of forecast of regional common costs for 2020:

Regional costs	Budgeted costs of establishing and amending for 2020	Budgeted costs of operating for 2020
NEMOs costs	-	5,000 €
TSOs costs	-	5,000 €
NEMOs and TSOs costs	-	-

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

Details	Temporary activity	Costs of 2019
PMO	NO	5,000 €
Total SUM		5,000 €

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

Details	Temporary activity	Costs of 2019
PMO	NO	5,000 €
Total SUM		5,000 €

1.8 Nordic MNA

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

A specific regional sharing key applies for this project.

1.8.1 Actual costs for 2019

Following table provides overview of total actual regional common regional costs in 2019:

Regional costs	Costs of establishing and amending 2019	Costs of operating 2019
NEMOs costs	-	-
TSOs costs	918,180 €	-
NEMOs and TSOs costs	-	-

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

Details	Temporary activity	Costs of 2019
PMO costs	YES	548,280 €
Other administrative costs	YES	36,900 €
System development costs	YES	333,000 €
Total SUM		918,180 €

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

1.8.2 Forecasts for 2020

Following table provides overview of forecast of regional common regional costs for 2020:

Regional costs	Budgeted costs of establishing and amending for 2020	Budgeted costs of operating for 2020
NEMOs costs	-	-
TSOs costs	567,984 €	-
NEMOs and TSOs costs	-	46,500 €

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

Details	Temporary activity	Budget 2020
PMO costs	YES	300,984 €
Other administrative costs	YES	20,000 €
System development costs	YES	247,000 €
Total SUM		567,984 €

- The PMO cost in the above table encompass the cost of PMO services needed to facilitate the execution of all tasks to complete the objectives of the Nordic MNA project.
- The other administrative costs cover the Project Place licenses of the Nordic MNA project.
- The system development costs encompass the development costs of an IT solution for data exchange of the results of the single day-ahead coupling.
- Note: Budgeted TSOs regional costs of operating are missing from the above table as they depend on the Nordic NRAs' decision concerning the reasonable congestion income collection fee, which is still pending. The NRAs' decision is expected prior the Nordic MNA go-live, currently foreseen in June 2020.

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

Table 94

Details	Temporary activity	Budget 2020
PMO costs	YES	39,000 €
Other administrative costs	YES	7,500 €
Total SUM		46,500 €

- The PMO cost in the above table encompass the cost of PMO services needed after the Nordic MNA go-live, currently foreseen in June 2020.
- The other administrative costs cover the Project Place licenses after the Nordic MNA go-live.
- Note: CACM sharing key will be used for sharing the above costs.

1.9 Baltic MNA

This project concerns the regional costs for amending and establishing the Baltic day-ahead and intraday solutions to become MNA compatible. Baltic MNA proposal. Currently Baltic TSOs and engaged NEMOs are expecting to finish all necessary documentation by the end of the year 2020 and when additional NEMO will express its readiness to become operational in Baltic bidding zones aim for completion of the project and secure Go-Live the Baltic MNA solution.

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

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

No regional costs in 2019, nor budgeted costs in 2020 for this project as project parties are awaiting for a second NEMO to become operational in the area.

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

The project DE-AT-PL-4M MC Project ('Interim Coupling') aims to couple the 4M MC and Poland and the Multi-Regional Coupling (MRC) by introducing NTC-based implicit allocation on 6 borders (PL-DE, PL-CZ, PL-SK, CZ-DE, CZ-AT, HU-AT) and implement Single Day-Ahead Coupling (SDAC). The project intends to be a stepwise transition on the afore-mentioned borders from current NTC-based explicit allocation towards the flow-based implicit allocation which is to be implemented in the framework of the Core Flow-Based Market Coupling Project as target solution required by regulation.

A Specific regional sharing key is used for the project. This Sharing key was approved by the competent national authorities of each Member States in the region, on the 4th June 2019.

1.10.1 Actual costs for 2019

There were no actual costs incurred in 2019.

1.10.2 Forecasts for 2020

There are no budgeted common regional costs for 2020.

The TSOs costs of establishing and amending budgeted for 2020 consist of:

Table 95

Details	Temporary activity	Budget 2020
Joint TSO system development costs	YES	365,643 €
Contingency	YES	36,564 €
Total SUM		402,207 €

- The joint TSO system development costs encompass the development costs of a centralized IT solution for pre- and post-coupling processes for TSOs.
- Project parties have included 10 % contingency in the budget.

So far, no operational costs have been identified, therefore no such costs have been budgeted. Potential future operational costs are under evaluation by project parties.

2 Regional projects of the Intraday Timeframe

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

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

The involved parties are:

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

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

The expected go live is included in the roadmap of the Cross-Border Intraday Project (SIDC) and expected for Q1 2021. In 2019, no costs were incurred for this project. Whilst, for 2020 : 40 k € have been allocated to the 2020 budget (deriving from the recently drafted PMO contract)

2.2 LIP 15

LIP 15 is one of the implementation projects of pan-European intra-day coupling project, XBID. NEMOs and TSOs from ten European countries (Austria, Bulgaria, Croatia, Czech Republic, Germany, Hungary, Poland, Romania, Slovenia), BSP, Cropex, EPEX, HUPX, IBEX, Nord Pool, OPCOM, OTE, 50Hertz, APG, CEPS, ELES, ESO, HOPS, MAVIR, PSE, Transelectrica, TTG are active within LIP 15 project.

The default CACM sharing key applies for this project.

2.2.1 Actual costs for 2019⁵

The invoiced joint **TSO and NEMO** costs of establishing and amending and costs of operating consist of:

Table 96

Details	Temporary activity	Costs of 2019
PMO support	YES	1,475 €
Total SUM		1,475 €

Costs of the PMO support for the LIP Testing, originally budgeted for 2018, however invoiced only in 2019. There are no additional joint TSOs and NEMOs costs foreseen or budgeted in 2020.

2.2.2 Forecasts for 2020

There is no forecasted cost for 2020 as the project went live in November and TSO and NEMO from the above countries are now operating parties of the SIDC.

⁵ The main part of the costs for the LIP 15 PMO service (total 15,694.15 €) has already been accrued in 2018 (14,219.62 €) and therefore not calculated anymore in this report - only 1,474.53 € accrued in 2019.

2.3 LIP 16

This project is the set to implement the XBID Solution for Lithuania, Poland and Sweden

Specific regional sharing key, the sharing key was reported by individual parties to their respective NRAs.

2.3.1 Actual costs for 2019

Following table provides overview of total actual regional common costs in 2019:

Regional costs	Costs of establishing and amending 2019	Costs of operating 2019
NEMOs costs	–	–
TSOs costs	–	–
NEMOs and TSOs costs	51,525 €	–

The joint **TSO and NEMO** costs of establishing and amending and costs of operating consist of:

Details	Temporary activity	Costs of 2019
PMO support	YES	51,525 €
Total SUM		51,525 €

- The external costs were included at costs without any surplus or commercial benefit for the contracting party.
- The external support for PMO services as of October 2018 was selected based on a competitive tender finalized September 2018. The project starts October 2018.
- The PMO support ended in 2019

2.3.2 Forecasts for 2020

There is no forecast for 2020 as the project went live in November and TSO and NEMOS from Poland are now operating parties of the SIDC.

Chapter C

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

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

Glossary

4M MC	4M Market Coupling between Czech Republic, Slovakia, Hungary, Romania?	CPLEX	IBM High-performance mathematical programming solver for linear programming, mixed-integer programming and quadratic programming
50Hertz	50Hertz Transmission GmbH	CWE	Central-West Europe
ACER	Agency for the Cooperation of Energy Regulators	CZ	Czech Republic
ALWG	Algorithm Working Group	DA	Day-Ahead
ANCA	All NEMO Cooperation Agreement	DAOA	Day-Ahead Operational Agreement
ANIDOA	All Nemos Intra-Day Operational Agreement	DBAG	Deutsche Börse AG
ANDOA	All NEMOs Day-Ahead operational agreement	DC	Direct Current
APG	Austrian Power Grid AG	DE	Germany
AS	XBID Accession Stream	DK	Denmark
AST	AS Augstsprieguma tikls	ECP	Energy Communication Platform. It's a private communication network and the platform provides message delivery capabilities comprising message routing, and reliable delivery of messages between ECP communication endpoints.
AT	Austria	Elia	Elia System Operator SA
BE	Belgium	ESO	Electroenergien Systemen Operator EAD
BG	Bulgaria	ES	Spain
BMSG	Budget Management Support Group	EU	European Union
BMTF	Budget Management Task Force	FB	Flow based
CA	Cooperation Agreement	FMWG	Functional Model Working Group
CACM	Capacity Allocation and Congestion Management	FR	France
CCR	Capacity Calculation Region	GB	Great Britain
CIP	CWE NEMOs interface platform	GCT	Gate Closure Time
CMM	Capacity Management Module	GOT	Gate Opening Time
COMSG	Communication Support Group	GOWG	Governance WG
		GR	Greece
		HEEx	Hellenic Energy Exchange S.A.

HOPS	Croatian Transmission System Operator Ltd.	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.
HU	Hungary	MSD	Market and System Design
HVDC	High Voltage Direct Current	NC	NEMO Committee
IC	Incident Committee	NEMO	Nominated Electricity Market Operator or Power Exchange
IC SPOC	Incident Committee single point of contact	NI	Northern Ireland
ICG	Implementation Coordination Group	NL	Netherlands
ICT	Integrated Co-ordination Team	NO	Norway
ID	Intraday	NOS BiH	Nezavisni operator sustava u Bosni i Hercegovini
IDA	Intraday Auction	NP EMCO	Nord Pool EMCO AS
IDOA	Intraday Operational Agreement	NTC	Net Transmission Capacity
IDSC	Intraday Steering Committee	NRA	National Regulatory Authority
INCA	interim NEMO cooperation Agreement	NWE	North-West Europe
IT	Italy	OPSCOM	Operational Committee
JAO	Joint Allocation Office	OTF	Operational Task Force
JSC	Joint Steering Committee	PCR	Price Coupling of Regions
JWG	Joint Working Group	PL	Poland
LIP	Local Implementation Project	PMB	PCR Matcher and Broker IT system
LU	Luxembourg	PMI	Public Message Interface
LTA	Long Term Allocation	PMI LAT	Public Message Interface Log Analysis tool
LTF	Legal Task Force	PMO	Project Manager Office
LWG	Legal Working Group	PSE	Polskie Sieci Elektroenergetyczne
MC	Market Coupling	PT	Portugal
MAVIR	Magyar Villamosenergia-ipari Átviteli Rendszerirányító Zártkörűen Működő Részvénytársaság	PUN	National Single Price
MCO	Market Coupling Operator	PWG	Procedural WG
MESC	Market Stakeholder Committee		
MEPSO	Macedonian Transmission System Operator AD		
MNA	Multiple NEMOs Arrangements		
MRC	Multi Regional Coupling		

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

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

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