



Market Design for Implementation (MDfI)

Core Flow Based Market Coupling Project

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Summary	This document contains the description of the entire business process for coupling day-ahead markets on Core bidding zone borders for the implementation phase and for the operational phase.	
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Previous versions

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0.1	27/03/2019	JWG	Finalized version for JSC approval
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1. Introduction

1.1. Purpose of this document

This document provides the so called Market Design for Implementation architecture for the normal operation of a flow-based day-ahead market coupling explicitly covering Austria, Belgium, Croatia, Czech Republic, France, Germany, Hungary, Luxembourg, Netherlands, Poland, Romania, Slovakia and Slovenia as fully integrated within the Single Day-ahead Coupling (“SDAC”). The document furthermore provides descriptions of entities, functions and information flows which are foreseen to be implemented from today’s point of view. Further it provides fall-back and roll back principles to be implemented as well by the project parties.

It includes available interfaces, data exchange files and processes (operational procedures will be developed) and the final market design, which will contain the final description of the flow-based day-ahead market coupling of the above-mentioned countries.

Annex 1 to this document and the definition list under Annex 5 to this document has no legal affect, and are recorded only for interpretative purposes. The documents consist from the following Annexes:

- Annex 1: List of abbreviations and definitions
- Annex 2: List of open issues to be decided prior to implementation
- Annex 3: Data files description and IT infrastructure design
- Annex 4: Shipping and cross-border clearing design
- Annex 5: Congestion Income Collection and Aggregation (CICA) design
- Annex 6: Fallback solution
- Annex 7: Rollback solution

1.2. Core FB MC Project Background

This Project will deliver processes and procedures for pre-coupling and post-coupling processes (including relevant IT Systems) that will be submitted for approval to all of the involved NRAs before their eventual application.

The following parties represent the project countries:

	AT	DE		SK	CZ	PL	HU	SI	HR	RO
TSO	APG	TenneT DE	50Hertz	SEPS	CEPS	PSE	MAVIR	ELES	HOPS	Transelectrica
NEMO	EXAA/ EPEX/ EMCO	EXAA/EPEX/ EMCO		OKTE	OTE	TGE/EPEX/ EMCO	HUPX	BSP	CROPEX	OPCOM



Further, based on the Core CCR TSOs' FB CC project agreement ("Core CoA") the following countries are represented by the additional parties:

	FR	DE*		BE	NL	LU
TSO	RTE	Amprion	TransnetBW	Elia	TenneT NL	CREOS

*Additionally to 50Hertz and TenneT GmbH

2. Process Architecture Overview

The high-level process architecture for the normal operation of a flow-based day-ahead market coupling in the Core CCR depicted below includes required systems, as well as produced and exchanged information.

The information produced and exchanged is represented in the diagram by arrows with a label. The small arrows point in the direction of the information flow. The circular arrows indicate information produced in intra-system processes. The labels refer to the information flow transferred or produced as shown in the table below. The numbering of the information flows does not necessarily respect the sequence of the actions. The numbering especially does not reflect possible parallelisation of actions.

It should be stressed that only information flows are shown in the diagram. Other flows, notably energy and financial flows are not taken into account.

2.1. Process architecture diagram

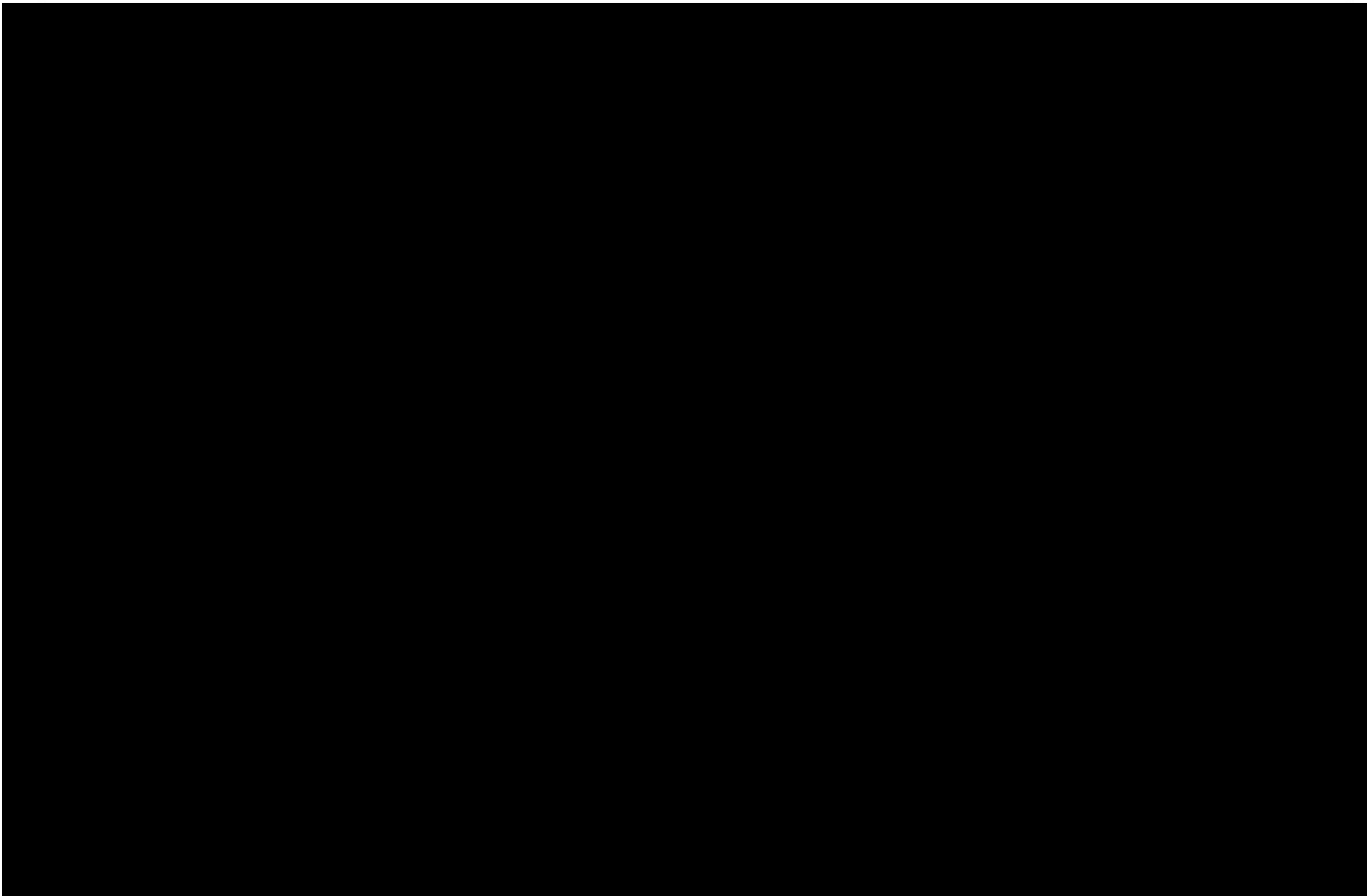


Figure 1: High-Level architecture overview for Core FB MC

2.2. Process description

Flow #	Info	Producer	Sender	Receiver	Predecessor
1	Local Capacity Calculation Preparation	Individual Core TSOs	-		-
2	Capacity Calculation Input Data Submission	-	Individual Core TSOs	TSOs' Joint Capacity Calculation Module	1
3	Coordinated process of Capacity domain data ("CDD") calculation (incl. CC results verification by Single Core TSOs)	TSOs' Joint Capacity Calculation Module	-	-	2

Flow #	Info	Producer	Sender	Receiver	Precedence
4a	CDD Provision to NEMOs (for details cf. chapter 2.4 in the MDfI)	-	TSOs' Joint Capacity Calculation Module	Local NEMO Pre-Coupling Modules	3
4b	CDD Provision to Individual Core TSOs	-	TSOs' Joint Capacity Calculation Module	Individual Core TSOs	3
4c	CDD Provision to TSOs' Joint Verification Module	-	TSOs' Joint Capacity Calculation Module	TSOs' Joint Verification Module	3
4d	Selected CDD publication on ENTSO-E Transparency Platform (via JAO)	-	TSOs' Joint Capacity Calculation Module	Publication interfaces / Market Participants	3
5a	CDD provision to PMB Systems	-	Local NEMO Pre-Coupling Modules	PMB Systems	4a
5b	CDD provision to NEMO Local Trading Systems	-	Local NEMO Pre-Coupling Modules	Local NEMO Trading Systems	4a
5c	Selected CDD publication by NEMOs for Market Participants	-	Local NEMO Trading Systems	Publication interfaces / Market Participants	4a
6	Orders submission (Buy/Sell energy at local NEMOs)	-	Market Participants	Local NEMO Trading Systems	-
7	Aggregation of Local Orders for provision to PMB systems	Local NEMO Trading Systems	-	-	6
8a	Aggregated Orders provision to PMB systems	-	Local NEMO Trading Systems	PMB Systems	7
8b	Aggregated Orders provision to Local NEMO Verification Modules	-	Local NEMO Trading Systems	Local NEMO Verification Modules	7
9	Calculation of Market Coupling Results (Prices,	PMB Systems	-	-	5a, 8a

Flow #	Info	Producer	Sender	Receiver	Predecessor
	Net Positions, Scheduled Exchanges)				
10a	Sending of the Preliminary Results to the Local NEMO Trading Systems	-	PMB Systems	Local NEMO Trading Systems	9
10b	NEMOs validate the results	Local NEMO Trading Systems			10a
10c	Preliminary confirmation sending from local NEMO trading systems to PMB	Local NEMO Trading Systems	Local NEMO Trading Systems	PMB	10b
10d	Generation of global preliminary confirmation by the PMB	PMB			10c
10e	Sending of GPC from PMB to local NEMO trading systems		PMB	Local NEMO Trading systems	10d
10f	Publication of the Preliminary Results in the Local NEMO Trading Systems where mandatory	-	Local NEMO Trading Systems	Publication interfaces / Market Participants	10e
11a	Sending of the Preliminary Results to the Local NEMO Verification Modules	-	PMB Systems	Local NEMO Verification Modules	9
11b	Sending of the Preliminary Results to the TSOs' Joint Verification Module (for details cf. chapter 2.4 in the MDfI)	-	Local NEMO Verification Modules	TSOs' Joint Verification Module	11a
12	TSO Preliminary Results verification process	TSOs' Joint Verification Module	-	-	11b
13a	Sending of the Final Results confirmation to the Local NEMO Verification Module (for details cf. chapter 2.4 in the MDfI)	-	TSOs' Joint Verification Module	Local NEMO Verification Module	12

Flow #	Info	Producer	Sender	Receiver	Predecessor
13b	Sending of Final Confirmation to the PMB		Local NEMO Verification Modules	PMB System	13a
14	PMB system creates Global Final Confirmation	PMB System	-	-	13b
15a	Sending of the Global Final Confirmation to the Local NEMO Verification Modules	-	PMB Systems	Local NEMO Verification Modules	14
15b	Sending of the Global Final Confirmation to the TSOs' Joint Verification Module (for details cf. chapter 2.4 in the MDfI)	-	Local NEMO Verification Modules	TSOs' Joint Verification Module	15a
16	Publication of the Final Market Coupling Results in the Local NEMO Trading Systems	-	Local NEMO Trading Systems	Publication interfaces / Market Participants	15a
17a	Sending the Final Market Coupling Results to Individual Core TSOs	-	TSOs' Joint Verification Module	Individual Core TSOs	15b
17b	Sending the Final Market Coupling Results to CID entity	-	TSOs' Joint Verification Module	CID System	15b
17c	Sending the Final Market Coupling Results to TSOs Joint Post-Coupling Module	-	TSOs' Joint Verification Module	TSOs Joint Post-Coupling Module	15b
18a	Creating of Rights document	TSOs Joint Post-Coupling Module	-	-	17c
18b	Sending of Rights document and Scheduled Exchanges	-	TSOs Joint Post-Coupling Module	Individual Core TSOs	18a
18c	Sending of Rights document	-	TSOs Joint Post-Coupling Module	SAs Systems	18a
18d	Sending of Rights document	-	TSOs Joint Post-Coupling Module	CID System	18a



Flow #	Info	Producer	Sender	Receiver	Predecessor
19a	Sending the Final Market Coupling Results to Local NEMO Post-Coupling Modules	-	Local NEMO Verification Modules	Local NEMO Post-Coupling Modules	15a
19b	Sending the Final Market Coupling Results for XB and local Clearing and Settlement	-	Local NEMO Post-Coupling Modules	Local NEMO Clearing and Settlement Modules	19a
19c	Sending the Final Market Coupling Results for XB Clearing and Settlement	-	Local NEMO Clearing and Settlement Modules	CCPs/SAs	19b
20a	Sending XB trade report (congestion rent information) to the CID entity	-	CCP/SAs Systems	CID System	18b
20b	Sending of Congestion income	-	CCPs/SAs Systems	CID System	19c
21	Congestion Income calculation and verification	CID system	-	-	17b, 20a
22	Settlement of Congestion Income with Individual Core TSOs	-	CID system	Individual Core TSOs Accounting Systems	20b
23	Creation of nominations (local hub and cross border)	SAs Systems	-	-	19c
24	Cross border nominations	-	SAs Systems	Individual Core TSOs Scheduling Systems	21

2.3. Systems and Modules

The list of systems below reflects the current Core design regarding flow-based market coupling based on the current design of CWE regional project.

A System can be understood as a set of related functions or processes for which it is convenient to consider them as a separate entity. The governance of these systems is not within the primary scope of this section, although for some systems it might already be generally accepted to assign them either to the TSOs' or NEMOs' domain.

In the high-level architecture diagram, the systems expected to play a role in the Market Coupling are indicated with rectangles. These systems may either be existing systems adapted to the Market Coupling or systems to be newly built or established.



A Module is an integral part of a System with specific functionality for the execution of processes described in the table above.

Systems and Modules are described with purpose of understanding the relationships between TSOs and NEMOs, respective data flows and responsibilities. As nature of TSOs' and NEMOs' governance and operations vary, the System and Module description with respective processes might be implemented differently.

Local Core TSOs' Systems: The Capacity Calculation Systems of the TSOs consist of internal manual or automated processes and functions (a) to provide input data for the Joint Capacity Calculation and (b) to validate its results. Its establishment and the operation of this system are in each TSO's sole discretion and therefore out of the scope of this document.

TSOs' Joint Capacity Calculation Module (CCCs): The TSOs' Joint Capacity Calculation Module comprises all common TSO processes which (a) produce the CDD via the coordinated capacity calculator and (b) allow for an effective capacity data validation process and (c) serves as a centralised capacity data source towards NEMOs and individual Core TSOs.

Local NEMO Systems: consist of own systems of each participating NEMO.

Local NEMO Pre-Coupling Modules: Pre-Coupling modules are used to receive the CCD from the Core Joint Capacity Calculation System and provide this information to the PMB system and to NEMO Local Trading System. This NEMO Pre-Coupling Module could be provided by another PCR full member on behalf of a given NEMO.

Local NEMO Trading System: NEMO Local Trading Systems collect the Orders from the respective Market Participants of its respective Bidding Zone(s) and provide them (the Market Participants) with their individual results. For that to happen, Orders are forwarded (in the form of aggregated bid ask curves and list of anonymised block bids) to the PMB to which the Local Trading System is connected. The Local Trading System then validates the results are received from the PMB.

PMB Systems: Refer to the decentralised setup of PCR Matcher and Brokers systems ("PMBs").

Local NEMO Verification Modules: NEMO Verification Modules interact with the TSO Joint Verification System for the purpose of results validation. NEMO Verification System(s) is a local task which handles the communication between NEMOs' and TSOs' Joint Verification Modules.

Local NEMO Post-Coupling Modules: Post-Coupling Modules are used to receive the Market Coupling Results. NEMO Post-Coupling Module(s) is/are used to fulfil local NEMO tasks, i.e. sending the Market Coupling Results and local transactions for clearing and settlement to the CCP Clearing and Settlement (C&S) Systems.

TSOs' Joint Verification Module: According to Article 48 (2) of CACM each TSO shall verify that the single day-ahead coupling results of the price coupling algorithm have been calculated in accordance with the allocation constraints and validated cross-zonal capacity as provided to Local NEMO Pre-Coupling Systems. The TSOs' Joint Verification Module verifies, if the single day-ahead coupling results of the price coupling algorithm, incl. Scheduled Exchanges on the non-Core interconnectors (when required by the relevant TSOs) were calculated in accordance with the CDD provided by Core TSOs for the market coupling. Besides validation processes it provides TSOs, TSO SAs and the CID entity with relevant post-coupling information.



TSOs' Joint Post-Coupling Module:

The TSOs' Joint Post-Coupling Module will provide the Rights document (programming authorizations) and Scheduled Exchanges (nomination file) if and where needed.

Local NEMO Clearing and Settlement Systems: These are the respective local general C&S systems for Market Participants C&S, can be also used for the purpose of XB Clearing and Settlement (XB C&S).

XB Physical Shipping Systems: These systems will nominate the XB schedules at the respective TSOs and are operated by the designated institutions (SAs) for XB Scheduling. Depending on local implementation, this system might be the same as Post coupling NEMO Modules.

CCP/SA Clearing and Settlement Systems: These systems will perform the local (where applicable) and XB Clearing and Settlement process and are operated by the designated institutions for local and/or XB C&S.

Scheduling Systems: The TSO Scheduling System refers to the respective local TSO systems which receive, process and either acknowledge or reject cross border schedules.

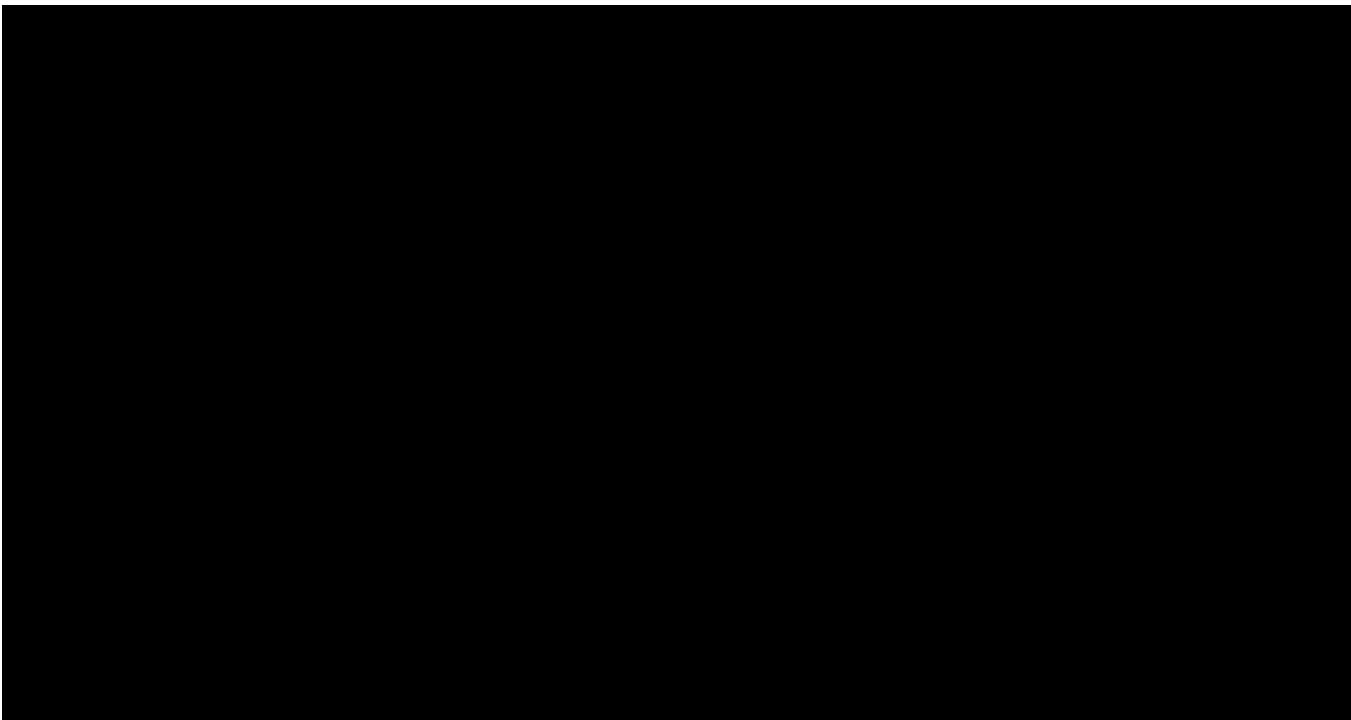
Congestion Income Distribution System: The CID System distributes the respective shares of the Congestion Income to each TSO based on the congestion income sharing methodology agreed commonly by TSOs. Further the CID System receives and checks the Congestion Income from CCPs or other institution designated for XB Clearing and Settlement.

Accounting Systems: This refers to all individual TSO systems with regard to the invoicing (i.e. validation of self-billing invoices/credit notes), the accounting and actual handling of payments of Congestion Income with the Congestion Income Distributor.

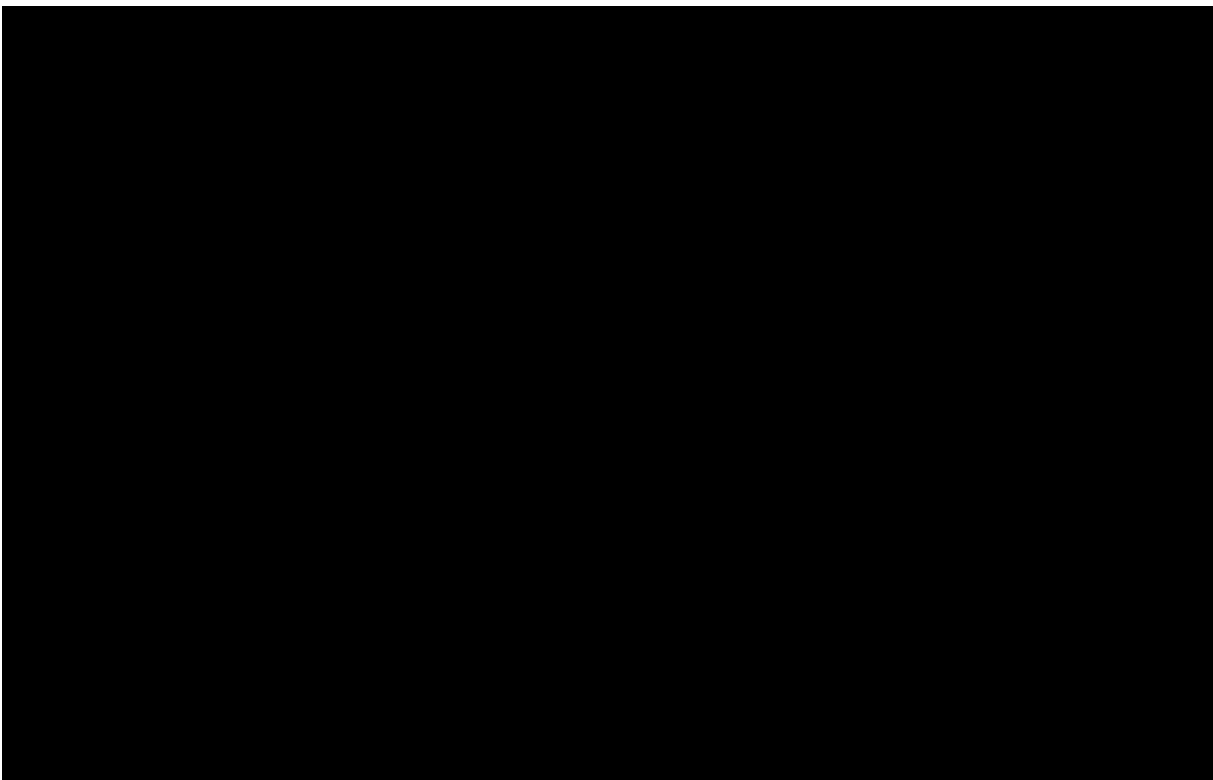
Systems are interconnected via Interfaces. Each Interface serves one or more information flows. The different information flows are defined in section 2.2 with an indicative sequence.

2.4. Data exchange

The following solution shall be used for data exchange between NEMOs (individually or jointly) and TSOs (individually or jointly):

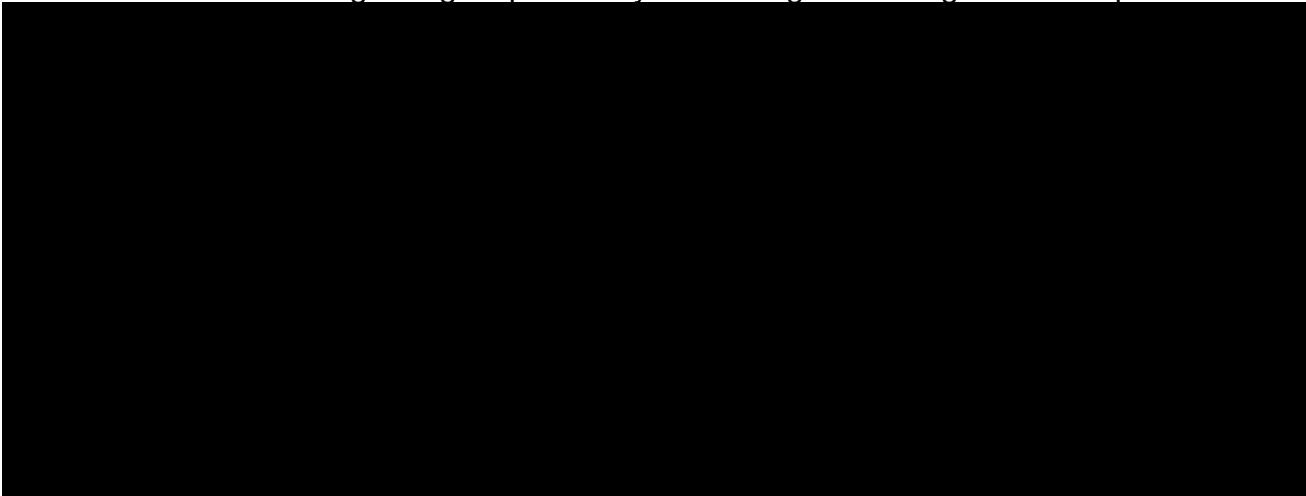


The following data exchange files will be used:





- CDD Network data will be provided via the following separate files, where the detailed rules regarding responsibility and timings will be agreed in the procedures.



The Scheme description for each Standard and the related XSD for each file as well as the expected specification of mechanism for communication between TSOs and individual NEMOs via the NEMOs' Central Interface Point (CIP) is available in Annex 3. As soon as the files are successfully imported and checked by the Core NEMOs an ACK will be sent to TSO CS (Core CC tool).

The file naming convention for corresponding flow number (available in mapping document referenced above) was agreed between NEMOs and implemented by TSO's Service Provider into the TSO CCCT, where the link between Flow number, Flow description from this document and actual name of the file for the exchange between TSOs and NEMOs via CIP is described.

For details see Annex 8 Naming convention table.

The Time Intervals in XML will be handled as Single Capacity Time Series for the given border, i.e. it has a Time Interval covering the whole business day and having 23/24/25 positions and respective value for each.

Core naming of files differs from current practices in CWE. This should not be an issue, as XML headers remain the same apart from some small differences (different EIC of Core domain, different number of Message Definition) and these are relevant for system communication.

There is no automated backup solution for data exchange expected. In case of difficulties, email exchange will be used as a backup data exchange solution.

Daily operational Results File will be filtered to cover the scope that is currently provided in CWE and includes all relevant shadow price information and possible PMB result xsd modification (extension compared to today's CWE scope).



3. The Market Coupling Process Step-by-Step

3.1. Pre-Coupling

For Pre-Coupling activities, the following tasks have to be managed:

1. **CDD calculation** - TSOs are fully responsible for capacity data domain provision, verification, adjustment and approval of final CDD, as well as delivering them to NEMOs (CIP).
2. **Final CDD publication** - TSOs are responsible for publication of final CDD on the relevant platform. NEMOs may publish final CDD data on a voluntary basis.
3. **Collection of energy buy/sell orders and their processing** - NEMOs are responsible for collecting and aggregation of market participants buy/sell energy orders. NEMOs deliver aggregated orders to PMBs. NEMOs are responsible for delivering final CDD to PMB.

3.2. Coupling

Market coupling results containing at least but not limited to:

- a single clearing price for each bidding zone and market time unit in EUR/MWh and;
- a single net position for each bidding zone and each market time unit and;
- information which enables determination of an execution status of orders;
- scheduled exchanges;
- shadow prices in the so called FlowBasedTimeSeries;
 - o ShadowPriceAmount
 - o IntuitiveShadowPriceAmount

Market coupling results are calculated by NEMOs via PMB Systems in accordance with the SDAC process and related procedures.

The Coupling itself is not a part of the pre- and post-coupling design and is under the responsibility of NEMOs. However, the TSOs are responsible for providing the final confirmation of the results (validation of market coupling results).

The Market coupling results specification as approved by Core JSC for development phase. Appendix can be modified by Core OPSCOM in operational phase and will be included as an appendix to the high-level design document in annex 8 of the Core DAOA.

3.3. Post-Coupling

The post-coupling activities consist of XB physical shipping (Cross border scheduling) based on programming authorisations, local nominations, CCP-CCP/SA clearing link process, clearing and settlement of scheduled exchanges (XB and internal) and handling of Congestion Income. Transfer of the energy from one bidding zone to another bidding zone (i.e. XB bilateral, internal or hub-to-hub), is performed by a NEMOs/CCPs/SAs (same or a different designated institution) for cross-border scheduling and cross-border clearing and settlement. Congestion income is



collected by designated institutions performing cross-border clearing and settlement and transferred to the congestion income distributor (“CID”) which shares the Congestion Income between concerned TSOs.

For post-coupling activities, the following cross-border relevant tasks have to be performed:

- Creation of programming authorisation by TSOs, based on provided scheduled exchanges and shipping arrangement on each border;
- Cross border scheduling, cross border clearing and settlement;
- Collection and transfer of the congestion income to CID;
- Calculation and distribution of congestion income shares by CID (on multilateral basis between CID and TSOs).

SDAC procedures will be adopted for the post-coupling processes in Core.

3.3.1. Scheduled Exchange Calculation

The scheduled exchange calculation is based on market coupling results and provided by NEMOs via PMB Systems (in the role of Scheduled Exchange Calculator).

3.3.2. Cross border scheduling, cross border clearing and settlement

Cross-Border shipping consists of physical and financial shipping and is in detail described in Annex 4.

3.3.3. Collection and transfer of the Congestion Income to Congestion Income Distributor (CID)

The congestion income arising from market coupling for a specific business hour for a specific border, if any, will be collected by the respective CCP(s) or institution designated for performing cross-border clearing and settlement and will be transferred to the CID assigned by TSOs (task to be performed by JAO). Detailed solution is available in Annex 5.

3.3.4. Fallback solution

In case the day-ahead market coupling cannot be run with the normal timings and backup procedures do not solve the issue, it may be needed to proceed with different decoupling situations and to allocate respective cross border capacities via a fallback solution (applying fallback procedures). Detailed solution is available in Annex 6 and Annex 9.

3.3.5. Rollback solution

During the first six (6) weeks after the Core FB MC project go-live, if the TSOs and/or the NEMOs are facing regular serious problems, which cannot be solved within acceptable period, a Rollback Situation can be triggered to avoid persistent uncertainties for Market Participants. The Rollback will end with the resolution of the problems and the announcement of new Go-live by the Core JSC. Detailed solution is available in Annex 7.



4. Harmonization of Market Characteristics

The basic principles and characteristics of the market coupling are to be harmonised among parties and markets in accordance with respective methodologies developed under the CACM Regulation. This implies especially harmonisation of timings (gate closure times, publication of capacities and results, nomination deadlines, data formats (communication interfaces, standardised file types), values formats (number of decimals, minimal/maximal values of prices and possibly volumes, tick size, price step, rounding).

The presented list of harmonised issues is not exhaustive, and the timings might be modified before go-live based on outputs of the drafting the procedures and testing.

Timings are relevant for Core FB MC Go-Live but could be modified when decided by SDAC.

Time zone	CET/CEST	
Implemented countries	SDAC	Core CCR
Type of coupling	ATC based MC	FB based MC
Providing the Capacities to NEMOs	10:20	10:30
Standard Publication of Capacities	10:30	10:30
Orderbook DA Market Gate Closure Time of NEMOs	12:00	12:00
Standard Publication of preliminary Results by NEMOs	12:45	12:45
Standard Publication of Final Results by NEMOs and TSOs	12:57	12:57 for NEMOs After 12:57 for TSOs
Nomination Deadline (XB)	14:30	14:30 ¹
Cross-border Flow decimals [MWh]		One digit
Price step of Market clearing price [€/MWh]		Two digits

¹ The deadline 14:30 applies if the MC results are available between 12:56 and 13:20. If the MC results are available after 13:20, the deadline is postponed according to the relevant Core backup procedure. For the Netherlands the nomination deadline is 14:00 (this deadline is postponed in case MC results are available after 13:05).



Min/Max prices [€/MWh]		-500/+3000
Second Auction Trigger [€/MWh]		-150/+1500 where applicable
Volume Tick size of bids [MWh]		One digit
Price step for bids [€/MWh]		Two digits



5. Timeline for System development and testing

Local IT development should be finalized and ready for testing according to the Core FB MC roadmap.

The testing phase will consist of isolated testing, integration testing and connectivity testing. Simulation and procedural testing, SDAC tests, Member tests and Acceptance tests.

1. Isolated testing means testing of individual systems under responsibility of individual Parties or set of Parties. At the end of isolated testing the systems shall be fully ready for connectivity testing.
2. Integration and connectivity testing consist of two phases:
 1. Connectivity testing, which verifies if systems can communicate with each other (on infrastructure level) and can exchange respective files (checking the access rights and security settings)
 2. Integration testing which verifies the functionality systems based on isolated test cases.
After finalization of integration testing all systems shall be fully functioning and ready for testing with procedural testing and testing with market participants.
3. Simulation and procedural testing where the procedures will be tested and readiness of operators and specific situations such as DST.
4. SDAC tests where all SDAC parties are invited to perform a subset of selected test scenarios from simulation and procedural testing phase.
5. Member tests where market participants are invited to perform organized daily trading process.
6. Acceptance tests where normal day scenario is executed for a certain period.

Detailed description of each test phase and its entry and exit criteria will be described in the Master Test Plan.



Annex 1: List of abbreviations and definitions

In case an inconsistency discovered between a definition in this Annex and a definition in Annex 1 of Core DAOA or SDAC DAOA the latter shall prevail.

Abbreviation	Term	Definition
4M MC	4M Market Coupling	means the day-ahead electricity market organised by 4MMC Parties based on implicit cross-border capacity allocation on Czech-Slovak-Hungarian-Romanian borders operating on the basis of ATC day-ahead implicit allocation process;
ATC	Available Transfer Capacity	Available Transmission Capacity
CACM		means the Commission Regulation (EU) 2015/1222 of 24 July 2015 establishing a guideline on capacity allocation and congestion management, as amended from time to time
CC	Capacity Calculation	Process of the determination of available cross zonal capacity for the respective capacity allocation process. Capacity Calculation can be run NTC or flow-based.
CCP	Central Counter Party	Means the entity or entities with the task of entering into contracts with market participants, by novation of the contracts resulting from the matching process, and of organising the transfer of net positions resulting from capacity allocation with other central counter parties or shipping agents. As defined in art. 2. 42 of CACM.
CDD	Capacity Domain Data	Set of data provided by the TSOs to the NEMOs as the input for implicit allocation.
CEE	Central Eastern Europe	Geographical region containing Austria, Croatia, Czech Republic, Germany, Hungary, Poland, Slovakia and Slovenia.
CID	Congestion Income Distributor	The entity, specified in Annex 14, appointed by the TSOs to receive the collected Congestion Income and to distribute it amongst TSOs.
C&S	Clearing and Settlement with market participants	The Central Counter Parties shall ensure the clearing and settlement of all Matched Orders. The Central Counter Parties shall act as the counterparty to Market Participants for all their Trades with regard to the financial rights and obligations arising from these Trades.



CWE	Central Western Europe	Geographical region containing Belgium, France, Germany, Luxemburg and The Netherlands.
GFC	Global Final Confirmation	This Global Final Confirmation file as provided by the NEMOs confirms the final market coupling results.
GPC	Global Preliminary Confirmation	This Global Preliminary Confirmation file contains a fixed time at which the NEMOs may publish the preliminary Market Coupling Results towards the TSOs and, if applicable, the Market Participants (for validating and / or challenging the results). This fixed time can never be earlier than 12:42.
IBWT	Italian Borders Working Table	Italian Borders Working Table project – regional implementation/operation project for market coupling on Italian borders.
MRC	Multi Regional Coupling	means the day-ahead electricity market organised by NWE, SWE and IBWT Parties based on implicit cross-border capacity allocation.
NEMO	Nominated Electricity Market Operator	Means any legal person designated as a “nominated electricity market operator” from time to time pursuant to the CACM Regulation and Applicable Law
NRA	National Regulatory Authority	Means the respective national regulatory authorities designated at national level on the basis of article 57 of Directive 2019/944/EU of the European Parliament and of the Council of 5 June 2019 on common rules for the internal market for electricity and amending Directive 2012/27/EU or, in case of a country for which this directive does not apply, the national regulatory authorities designated at national level by similar legal provisions.
NTC	Net Transfer Capacity	NTC values represent the value of the maximum possible commercial exchange between two neighbouring electric power systems. Net Transfer Capacity (intended for commercial purposes) represents the difference between the total transfer capacity and the transmission reliability margin.
NWE	North Western Europe	Geographical region containing the CWE region, Norway, Sweden, Finland, Denmark and Great-Britain.

PCR	Price Coupling of Regions	<p>Price Coupling of Regions (PCR) is the initiative of seven European Power Exchanges, to develop a single price coupling solution to be used to calculate electricity prices across Europe and allocate cross-border capacity on a day-ahead basis. This is crucial to achieve the overall EU target of a harmonised European electricity market. The integrated European electricity market is expected to increase liquidity, efficiency and social welfare.</p> <p>PCR is a decentralised approach to price coupling between different bidding areas managed by several NEMOs.</p>
Rights document	Also known as Programming Authorization	Rights Document means a document containing the information of the maximum amount of allocated Physical Transmission Rights that can be nominated by a market participant per Bidding Zone border per day per hour and per direction.
EUPHEMIA	PCR Algorithm	The PCR Algorithm System is the actual algorithm (EUPHEMIA) that does the calculation. It produces the prices, matched energies, accepted and rejected bids, and net positions area/flows between all PCR price areas.
PMB	PCR Matcher and Broker	PCR Matcher-broker. The PCR broker is an application running at the NEMO's installations that provide the necessary control and data interchange functionalities to make the PCR run. The PCR broker is connected to the PCR matcher, to the NEMO Information & Trading Systems, and to the other PCR brokers The PCR matcher is an application intermediary between the broker and the algorithm.
-	Scheduled Exchange	'scheduled exchange' means an electricity transfer scheduled between two bidding zones or two scheduling areas or two NEMO hubs, for each market time unit and for a given direction.
SA	Shipping Agent	Shipping Agent means the entity or entities with the task of transferring Net Position(s) between different Central Counter Parties. As defined in art. 2.43 of CACM.
TSO	Transmission System Operator	means a transmission system operator having signed or adhered to the Agreement, as identified on the identification pages;
XB C&S	Clearing and Settlement between bidding zones	Central Counter Parties or any other institution designated for cross border clearing and settlement shall act as counterparty to each other for the exchange of energy between Bidding Zones with regard to the



		financial rights and obligations arising from these energy exchanges.
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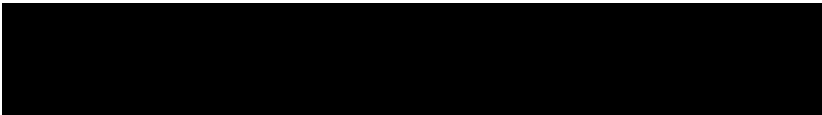
Annex 2: List of open issues to be decided prior to implementation

Based on the information, which was available at the moment of the finalisation of this document, not all high level processes and information could be defined in such a detail in order to be sufficient enough for incorporation into the market design and start of implementation phase. Following issues need to be elaborated in detail for HLMD for implementation:

None

Annex 3: Data files description and IT infrastructure design

The relevant files descriptions that are mentioned in Chapter 2.4 can be found on Project Place via the following link:



The IT infrastructure design details can be found on Project Place via the following link:





Annex 4: Shipping and cross-border clearing design

General introduction

The Task Force Shipping (TFS) of the Core Flow-Based Market Coupling project was requested to detail the design of the physical and financial shipping in alignment to the high-level Market Design (HLMD) approved by the Core JSC. In light of the above this document contains a high-level description and overall principles of cross-border shipping for the implementation of the Core FB MC project.

This document distinguishes between activities related to:

1. 'Physical shipping', which comprises all activities for arranging the physical cross-border flow of electricity across the respective bidding zone border / scheduling area border by means of cross-border nominations, and
2. 'Financial shipping', which comprises all activities related to financial clearing and settlement of energy transferred between CCPs.²

Out of scope of this document are:

- detailed scheduling processes (e.g. Scheduled Exchange Calculation & Inter-TSO scheduling & matching process (incl. formats, timings, nominations, etc.) based on the Synchronous Area Framework Agreement Policy on Scheduling);
- procedures (normal, backup, fall-back, rollback);
- contractual issues (i.e. liability).

In line with Article 7(1) (g) of CACM Regulation, it is a NEMO task to act as Central Counter Party (CCP). According to its definition, it is a CCPs task to organise the exchange of energy resulting from single day-ahead coupling with other CCPs or shipping agents. Additionally, Article 68(6) of CACM Regulation states that a shipping agent may act as a counter party between different central counter parties for the exchange of energy, if the parties concerned conclude a specific agreement to that effect. Consequently, tasks related to cross-border physical and financial shipping could be performed together or separately by any legal entity/ies, which could be different entities on each border, i.e. by CCPs or Shipping Agents. CCPs and Shipping Agents could be Transmission System Operator(s), NEMO(s) or any other legal entity selected or established for this purpose. These tasks could be performed in centralized or (partially or fully) decentralized manner for parties involved in the Core FB MC framework.

A decentralized solution for XB scheduling and XB clearing and settlement was chosen by the parties, meaning that shipping solutions are based on Border-to-Border principles (in the following called "B2B"). In this decentralized solution relevant contracting parties are free to setup bilaterally the XB physical shipping and XB clearing and settlement details (e.g. nomination setup, standard membership conditions, pricing rules, payment deadline and

² Intra-zonal shipping (incl. scheduling area) in case of multiple Nemo setup will be taken into consideration as far as this impacts cross-border physical and financial shipping.



frequency, invoicing details, etc.) while ensuring compatibility with the parties’ regulatory obligations. The local parties have to ensure that their arrangements are compatible with all regulatory provisions stemming from CACM and related methodologies and procedures commonly agreed on under the Single Day-Ahead Coupling, especially in terms of timing.

This document provides a high-level description of Shipping Solution for Core FB MC go-live to JSC and Joint Working Group MC (JWG MC). Detailed border specific arrangements are within the responsibility of the relevant parties.

In the Annexes of this document detailed border specific arrangements on Shipping are provided.

The following scheduling area borders / bidding zone borders are in scope of this document³:

Germany (50Hertz) – Poland	Slovakia – Czech Republic
Germany (50Hertz) – Czech Republic	Slovakia – Hungary
Germany (TenneT) – Czech Republic	Austria – Hungary
Poland – Czech Republic	Austria – Slovenia
Poland – Slovakia	Austria – Czech Republic
Hungary – Slovenia	Hungary – Romania
Hungary – Croatia	Slovenia – Croatia
CWE	
Germany (TenneT) – Netherlands	Germany (Amprion) - Netherlands
France – Germany (Amprion)	Belgium – Netherlands
France – Germany (TransnetBW)	Germany (Amprion) – Austria Germany (TenneT) – Austria Germany (TransnetBW) – Austria
France - Belgium	Germany (Amprion) - Belgium ⁴

Physical & Financial Shipping solution for Core FB MC

³ Table represents status of March 2019. In case updates are needed this will be done in a subsequent version of this document.

⁴ Implemented via evolved flow based: 2 virtual Hubs in FB domain connected to Belgium and Germany and an external ATC link between them.



Generals

Due to the current stage of development (considering currently applied XB scheduling processes in the CEE Region and needed harmonization with Financial Shipping in some countries) this document describes an integrated physical & financial shipping solutions based on Border-to-Border principles (in the following called “B2B”) in line with the new regulatory obligations and TSO as well as NEMO process evolutions.

Background to Physical Shipping solution

In the proposed approach of B2B XB scheduling, individual solutions for each of the borders are aligned between the involved parties.

In line with the provision of the Methodology for the price coupling algorithm in accordance with Article 37(5) of CACM, results of the single day-ahead coupling include net positions (per Bidding Zone, Scheduling Area and NEMO Trading Hub), Bidding zone prices as well as scheduled exchanges between Bidding Zones, Scheduling Areas and NEMO Trading Hubs. These scheduled exchanges are determined according to the Methodology for calculating Scheduled Exchanges resulting from single day-ahead coupling in accordance with Article 43 of CACM and serve as a basis for physical shipping.

Each of the entities involved in physical shipping may provide a balance group to enable the physical shipping of energy. Those entities are: “MP” (= Market Participant), “CCP” (= Central Counter Party) and/or “Shipping Agent”. Although a CCP may itself act as Shipping Agent, this entity is mentioned for the sake of completeness. However, the used balance groups and the responsibilities for these balance groups may differ in the border specific agreements as described in the annexes.

The task of nominating XB schedules is fulfilled by the Shipping Agent who nominates all relevant schedules to the TSO operating a scheduling area in accordance with the relevant local market rules. The shipping agent must be the rights holder of the physical transmission right corresponding to each Scheduled Exchange, either at Bidding Zone, Scheduling Area or NEMO Trading Hub level. The TSOs also have to receive the physical transmission right from a dedicated system to run their scheduling process, unless described different in the individual border description.

For the sake of clarity, in the proposed B2B XB Physical Shipping process all TSOs operating in a scheduling area remain responsible for carrying out the relevant B2B SOSO-Matching procedures (cf. Implementation Guide CEE TSO Scheduling – Version 3.0) to confirm the nominated schedules.



Background to Financial Shipping solution

Article 77(2) of CACM Regulation requires CCPs and shipping agents to seek efficient clearing and settlement arrangements avoiding unnecessary costs and reflecting the risk incurred. Furthermore, the cross-border clearing and settlement arrangements shall be subject to approval by the relevant national regulatory authorities.

- CACM allows for shipping agents acting as a counter party between different central counter parties for the exchange of energy. Financial shipping may therefore be considered to be indirect or direct, depending on whether a shipping agent undertakes the responsibility for the settlement of payments for the exchanged energy
- **Direct** financial shipping – when the same entity acts as CCP for all market participants as well as for cross-border exchange of energy;
- **Indirect** financial shipping – when the entity who acts as CCP for payments for cross-border exchanges of energy is different from the one who acts as CCP for market participants at local level.

In the pictures below only entities responsible for financial settlement (for contracts resulting from the matching process and for the transfer of net positions resulting from capacity allocation) are represented. Therefore, the direct financial shipping solution is represented showing only CCPs while indirect financial shipping solution is represented showing CCPs as well as SAs (Shipping Agent). According to CACM Regulation the role of a CCP is assigned to NEMOs (see Art. 7(1) lit. (g)) and can be delegated to another entity (see Art. 81(1) CACM). The CCPs can also take over shipping activities in accordance with art. 68(3) CACM. The task of SA in accordance with Art. 68(6) CACM can be assigned to TSOs (see Art. 8(2), lit. (l) CACM) and can be delegated to another entity (see Art. 81(1) CACM).

Financial shipping may be considered also to be unidirectional or bidirectional related to one profile (connection between two neighbouring hubs) depending on the number of entities that provide invoices according to the direction of the commercial flows:

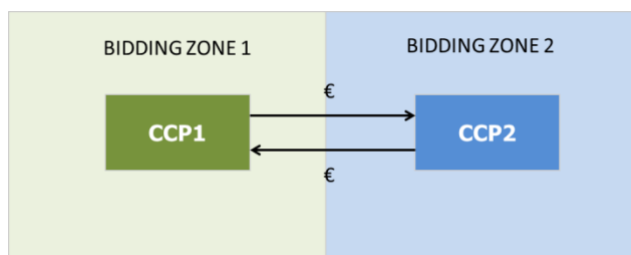
- **Unidirectional** financial shipping – considers that only one entity issues invoices whatever the direction of commercial flow is. This solution is represented in pictures below by one double arrowed line connecting two CCPs or a CCP and SA;
- **Bidirectional** financial shipping – when there are two entities who issue the invoices depending on the direction of the commercial flows (the seller in the relevant exchange). This solution is represented in pictures below by two arrows in opposite direction connecting two CCPs or a CCP and SA.

There are different ways to approach financial shipping between scheduling areas ⁵ and it depends on the solution planned and implemented on each side of the border. For clarity reason all possible financial shipping options are generically presented below. Considering the general options for adoption a payment scheme, respectively direct/indirect through an entity between

⁵ Border between two neighbouring countries/bidding zones involving one TSO from each country/bidding zone. In case more TSOs are within one bidding zone, each profile involving two TSOs considers all interconnections (lines) being within the responsibility of the TSOs involved.

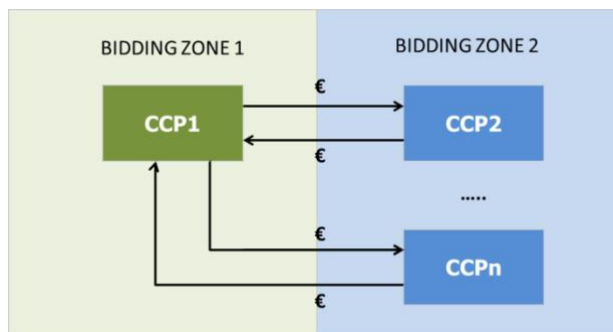
local CCPs as well as Unidirectional/Bidirectional invoicing, there could be practically following solutions represented, but not limiting to them:

1. B2B/direct/bidirectional – cross border payments are transferred directly between two CCPs located in adjacent bidding zones. CCP ensures financial settlement for both MPs and cross-border exchanges for each zone. In the example below two bidding zones with one NEMO in each area are represented, each of them with own CCP;



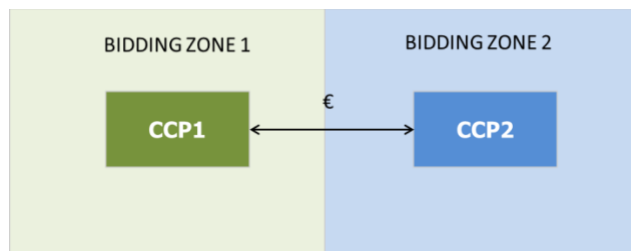
In case more than one NEMO are operating in one bidding zone (Bidding zone 2), the solution can be represented both:

- as above in case the same CCP (CCP2) ensures financial settlement for all NEMOs in the respective bidding zone in their relation with relevant MPs and
- as in the next picture where there are different CCPs for different NEMOs. Each CCP provides financial settlement both for relevant MPs and shipping.

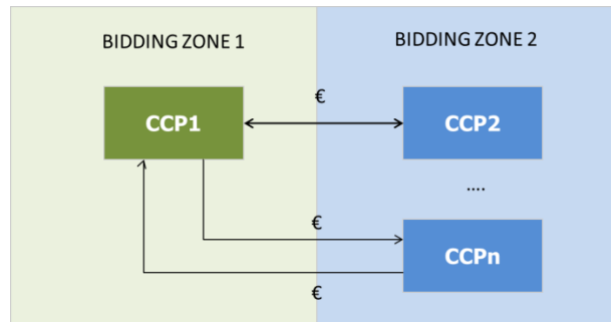


There is also possible to have the same CCP for all NEMOs in both countries and to have CCP for other NEMOs' combination according to the local agreements.

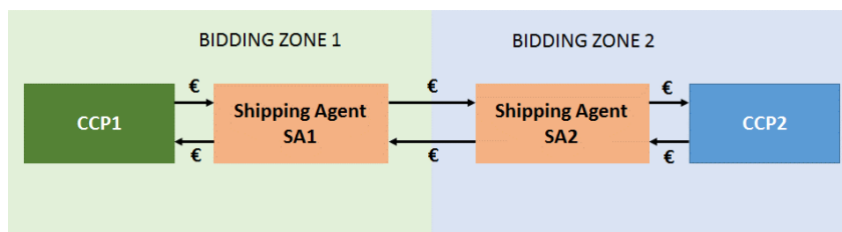
2. B2B/direct/unidirectional – cross border payments are transferred directly between two CCPs located in adjacent bidding zones and it is agreed that one entity issues invoices for all cross-border energy exchanges whatever the commercial flows direction is;



In case more than one NEMO are operating in one bidding area (Bidding zone 2), the solution is represented in the same way as above in case CCP is common for all NEMOs in that bidding zone or can be represented as follows in case different/mixed arrangements are in place:

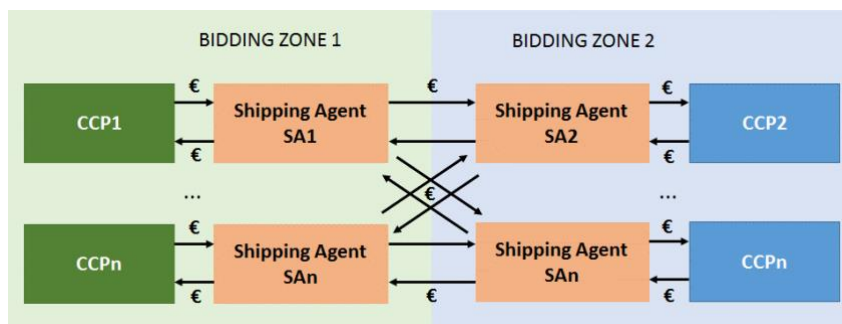


3. B2B/indirect/bidirectional – CCPs located in adjacent bidding zones transfer cross border payments through one or more shipping agents;

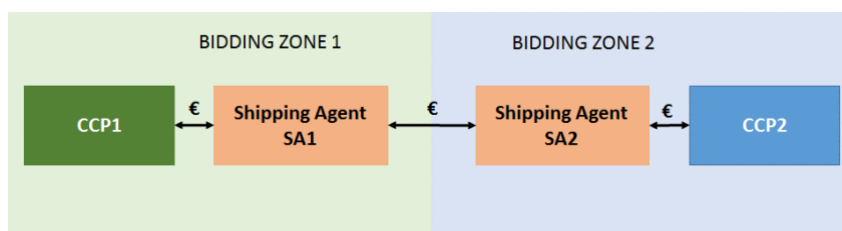


In case more than one NEMO is operating in one or more bidding area(s), the solution can be represented both:

- as above in case the same CCP (CCP2) ensures financial settlement for all NEMOs in the respective bidding zone in their relation with relevant MPs and
- as in the next picture where there are different CCPs for different NEMOs. Each CCP provides financial settlement for relevant MPs.



4. B2B/indirect/unidirectional – CCPs located in adjacent bidding zones transfer cross border payments through one or more shipping agents and it is agreed that particular entity issues invoices for all cross-border energy exchanges whatever the commercial flows direction is.



In case more than one NEMO is operating in one or more bidding area(s), the solution is represented in the same way as above in case CCP is common for all NEMOs in that bidding zone and it is agreed that particular entity issues invoices for cross-border energy exchange whatever the commercial flows direction is (CCP1, CCP2 case) or can be represented accordingly in case different/mixed arrangements are in place:



B2B or bilateral approach from financial shipping perspective involves payment between CCPs or between shipping agents and CCPs for the value of energy being scheduled between two neighbouring scheduling areas. Today there are different solutions adopted on borders included in the project relevant area (MRC, 4M MC). Core parties showed their preference for using the existing solutions, where applicable, unless a proved more cost-efficient solution is identified or multiple NEMOs on one or both sides of the bidding zone/scheduling area border require otherwise.



Annex 5: Congestion Income Collection and Aggregation (CICA) design

Scope

This document solely focuses on the Congestion Income Collection & Aggregation (CICA) post-coupling processes at all Bidding Zone borders relevant for the Core Flow-Based Market Coupling project.

The CICA document provides binding business processes relevant for TSOs and NEMOs as well as the Congestion Income Distribution (CID) entity in line with the deadline set out in Article 68 (8) of CACM (i.e. “no later than two weeks after the date of the settlement”); and the Congestion Income Distribution Methodology set out in Article 73 (3) of the CACM Regulation as approved by ACER on 14 December 2017.

Core TSOs have designated JAO as the CID entity for the Core FB MC (Core SG Decision 2019-010), as set out in Article 5.5.3 and Annex 14 of Core DAOA.

Congestion income can be generated from different capacity allocation timeframes, e.g. forward, day-ahead, intraday, and different capacity allocation mechanisms, i.e. explicit or implicit. For the day-ahead timeframe according to the CACM Regulation (article 68 (7)) Congestion Income will be collected by central counter parties (CCP) or shipping agents (SA). After the collection by the mentioned entities, the Congestion Income is assigned to the TSOs based on the rules described in the Day-Ahead CID Methodology in accordance with Article 73 (3) CACM Regulation (DA CID Methodology).

For the avoidance of doubt this document does not constitute a regional extension or deference of the DA CID Methodology. In case this is needed a separate document shall be prepared and provided to the NRAs for approval (incl. the CID sharing key).

Definitions

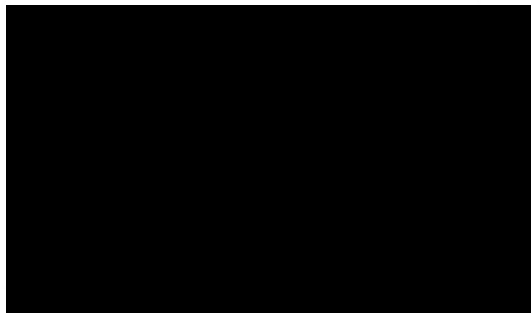
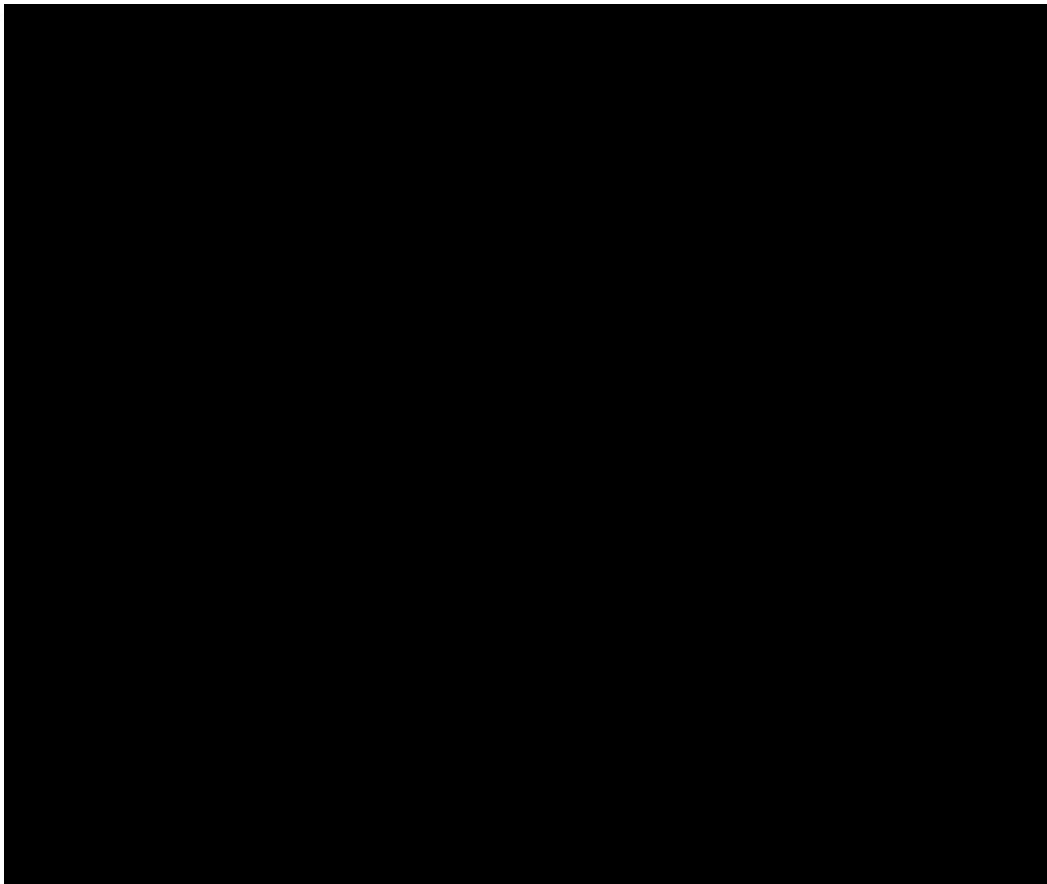
No.	Term	Definition	Reference
1	Congestion Income	Revenues received as a result of capacity allocation	CACM Art.2 (16)
2	Congestion Income Distributor	The entity chosen to distribute among TSOs, based on agreed sharing keys, the revenue received as a result of capacity allocation. Core TSOs decided to strive for JAO as CID entity for the Core FB MC (Core TSOs’ SG decision 2019-010).	CACM Art. 73
3	Central Counter Party	The entity or entities with the task of entering into contracts with market participants, by novation of the contracts resulting from the matching process, and of organizing the transfer of net positions resulting from capacity allocation with other central counter parties or shipping agents	CACM Art. 2 point 42

4	Scheduled Exchange Calculator	The entity or entities with the task of calculating scheduled exchanges	CACM Art. 2 point 33
5	Scheduled Exchange	An electricity transfer scheduled between geographic areas, for each market time unit and for a given direction.	CACM Art. 2 point 32
6	Shipping Agent	The entity or entities with the task of transferring net positions between different central counter parties.	CACM Art. 2 point 43
7	Commercial Flow	<p>“Commercial Flow” means the flow over a Bidding Zone border resulting from Single Day-Ahead Coupling or Single Intraday Coupling for CCRs applying the FB Approach it means:</p> <p>a) either the additional aggregated flow (AAF) between two adjacent Bidding Zones where the AAF means the flow between two Bidding Zones and is calculated based on the FB parameters and the results of the Capacity Allocation within respective day-ahead or intraday market timeframe; or</p> <p>b) a calculated value per Bidding Zone border where the sum of these values per Bidding Zone are equal to the respective net position of the same Bidding Zone to the extent this net position is a result of the Capacity Allocation based on the FB Approach;</p>	CID Methodology Article 2/2. b.

Congestion Income Collection and Allocation (CICA) processes

In principle the post coupling CICA process consists of following tasks:

- 1) CI Calculation → 2) CI Collection → 3) CI Transferring → 4) CI Verification → 5) CI Distribution



In order to perform Congestion Income collection and allocation, some steps should be performed:

- EUPHEMIA algorithm provides MC results according to CACM Regulation Art. 39(2).
- Schedule Exchange Calculator (SEC) provides Scheduled Exchanges (SEs) per bidding zone borders (BZBs) and per NEMO-Hubs/CCPs in case of multiple-NEMO situation.
- **CI Calculation task:** the step when the amount of money representing the revenue received as a result of capacity allocation is calculated based on market coupling results. CCPs/SAs establish payments obligations and receiving rights using SEs and clearing prices (CPs).



- **CI Collection task:** the step when the amount of money as a result of capacity allocation based on market coupling results is collected. Adjustment payments are performed between CCPs/SAs so CCPs/SAs remain with amount representing CI to be finally shared among TSOs.
- **CI Transferring task:** CCPs/SAs transfer collected CI amounts to CID entity.
- **CI Verification task:** CID entity performs calculation and verification of payments as total CI as well as per bidding zone border.
- **CI Distribution task:** CID entity performs calculation of payments due to each TSO based on CID Methodology and sharing keys agreed at CCR level. CID performs due payments to TSOs within deadline provided in Art. 73 (3) CACM Regulation.

CI Calculation

ACER Decision No 07/2017 of 14 December 2017 on the Congestion Income Distribution Methodology.

According to the CACM Regulation the Congestion Income (CI) means the revenues received as a result of capacity allocation that shall reflect market congestion and shall amount to the difference between the corresponding day-ahead clearing prices of the relevant bidding zones.

Congestion income represents that part of the total amount of money that is collected as a result of capacity allocation related to the day-ahead market based on MC results.

Congestion income, paid for the scarce capacity when different prices are obtained for different bidding zones, will be collected by entities/entity that perform(s) financial shipping (i.e. XB clearing and settlement), respectively by the CCP (Central Counter Parties) or SA (Shipping Agent that act as a counter party between different CCPs for the exchange of energy, where the parties concerned concluded a specific agreement to that effect).

The information about the amount of CI to be collected is not explicitly part of MC results according to Art. 39(2) CACM Regulation. The CI is to be calculated based on the MC results, respectively based on the net positions, where relevant Scheduled Exchanges, and CP (Clearing Price) over all bidding zones.

The overall congestion income of the particular Capacity Calculation Region (CCR) can be calculated by the following formula:





Congestion Income is shared amongst TSOs based on the Core TSOs methodology for congestion income distribution and LTTR remuneration, taking into account all TSOs' methodologies according to Art. 73 (3) CACM Regulation, Art. 57(1) and 61 FCA Regulation.

CI Collection

CI shall be collected by CCP/SA and shall be transferred to JAO.

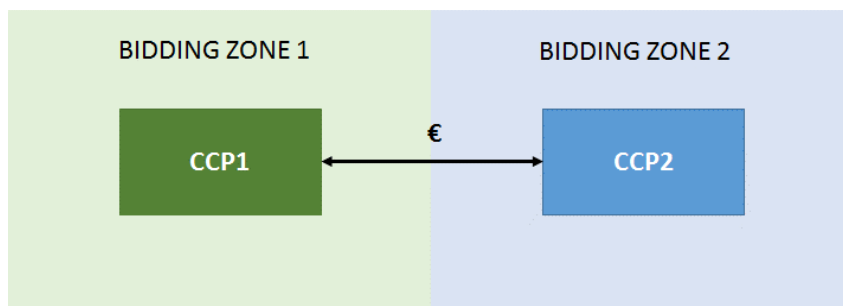
In principle the collecting CCP/SA ensures the following activities in relation to financial shipping:

- performs cross-border clearing and settlement between CCPs in the relevant adjacent bidding zones based on the Schedules Exchanges (provided by the Schedule Exchange Calculator based on the MC results);
- Transfers the surplus of money (if any) from buying and selling energy according to Scheduled Exchanges of the respective local CCPs to CID entity within two weeks from the date of settlement.⁶

In case of **bilateral financial shipping** (using the existing solutions unless a proved more efficient cost solution is identified) CI shall be collected by different CCP/SA (see Physical and Financial Shipping document/part).

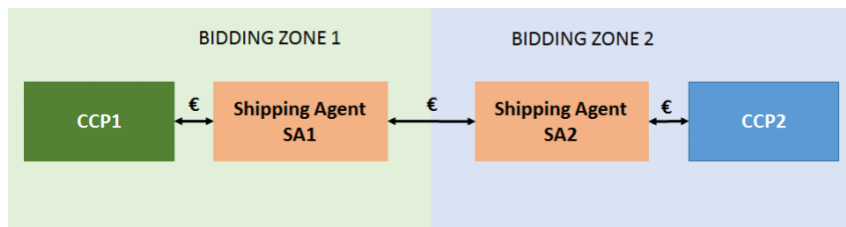
At local level each CCP performs clearing and settlement in relevant BZs towards own market participants. As general rule for cross-border shipping, CI collection in case of bilateral financial shipping is performed based on cross-border exchange between adjacent bidding zones and CCPs in each of the adjacent bidding zones. Regarding cross-border clearing and settlement between CCPs (direct financial shipping) or between CCPs and SA (indirect financial shipping) there could be different cases as follows:

- In case of direct financial shipping, there is direct relationship between CCPs acting on each side of the bidding zone border. CCP in exporting BZ receives payment from CCP in importing BZ. The relevant shipping CCP will collect CI, being the difference between payment received from the importing CCP (or market parties in importing BZ) and the payments made to exporting CCP (or market parties in exporting BZ).



⁶ In case Core TSOs should decide to introduce non-intuitive flows under Flow-Based Market Coupling and selling/buying energy on the respective local CCPs according to Scheduled Exchanges should result in net payments from the collecting CCP/SA to the respective local CCPs, the CID entity should timely reimburse the collection CCP/SA for such payments.

- In case of indirect financial shipping, SA (being a member on relevant CCPs) collects the money from CCP in the importing area and pays to the CCP (or dedicated SA) in the exporting area. Relevant SA will remain with the money surplus representing the CI.



Transferring of CI towards JAO

CCPs or SAs which carry out collection of CI on respective border shall transfer collected CI to JAO without undue delay, i.e. latest two weeks after the date of settlement (cf. Art. 68(8) CACM Regulation).

The transfer of CI may be performed to the JAO in the following setups:

- CCPs directly transferring CI to JAO (establishment of direct formal relationship between CCP and JAO necessary).
- TSOs directly in roles of SAs (in case SA performs financial shipping and collects CI for respective border; establishment of direct formal relationship between TSO in its role as SA and each involved CCP necessary).

Verification of CI collected by JAO

Total amount of CI collected from all relevant local entities shall be verified against calculated CI by JAO before CI distribution calculation is performed.

The verification process shall consist of the following calculations:

- (i) Summing up the cross-border Scheduled Exchanges multiplied by the market price spreads between Core bidding zones and compare them against the total congestion income calculated based on the formula presented above for the Core CCR
Expected result: compare values are equal
- (ii) Compare the cross-border Scheduled Exchanges per NEMO-Hub multiplied by the market price spreads between Core bidding zones with the congestion income received by CCPs/SAs
Expected result: compare values are equal for each single CCP/SA.

Abovementioned calculations shall be performed on daily basis for each hour separately.

In case all expected results of verification process are met, collected CI shall be distributed to TSOs.



CID performed by JAO

CID entity is operating a CRDS (Congestion Rent Distribution System), which is sharing the total collected Congestion Income according to the CID Methodology and on the basis of agreed Distribution Key to the TSOs. CID entity will carry out distribution of CI to TSOs without undue delay, no later than three weeks after date of settlement in accordance with Article 68(8) and Article 73(3) of CACM Regulation.

As this document describes only joint TSO and NEMO CI relevant processes no TSO-only or NEMO-only processes are detailed.



Annex 6: Fallback solution

Note: Annex 6 provides a high level description of the Fallback solution. A more detailed description, including information flows and involved systems is available in Annex 9 – Fallback HLA.

Introduction

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[For information purposes only: According to Article 44 of CACM GL each TSO, in coordination with all the other TSOs in the capacity calculation region, shall develop a proposal for robust and timely fallback procedures to ensure efficient, transparent and non-discriminatory capacity allocation in the event that the single day-ahead coupling process is unable to produce results. The proposal for the establishment of fallback procedures shall be subject to consultation in accordance with Article 12 of CACM. This methodology was developed by Core TSOs and afterwards established by decision of ACER on 27/09/2018.]

General principles for fallback solutions

[Redacted text]

[For information purposes only: According to a CACM GL NEMOs and TSOs shall establish back-up procedures for national or regional market operation in accordance with Article 36(3) if no results are available from the MCO functions in accordance with Article 39(2), taking account of fallback procedures provided for in Article 44]

Fallback in case the day-ahead market coupling cannot be run with the backup processes

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⁷ According to ACER decision 10/2018 on the Core TSOs' Fallback Procedures.

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[For information purposes only: According to Article 50 of CACM GL initiation of fallback procedures is applied in the event that all NEMOs performing MCO functions are unable to deliver part or all of the results of the price coupling algorithm by the time specified in Article 37(1)(a), the fallback procedures established in accordance with Article 44 shall apply. In cases where there is a risk that all NEMOs performing MCO functions are unable to deliver part or all of the results within the deadline, all NEMOs shall notify all TSOs as soon as the risk is identified. All NEMOs performing MCO functions shall immediately publish a notice to market participants that fallback procedures may be applied.]

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Shadow Auctions

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Annex 7: Rollback solution

Introduction

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Description of the rollback solution

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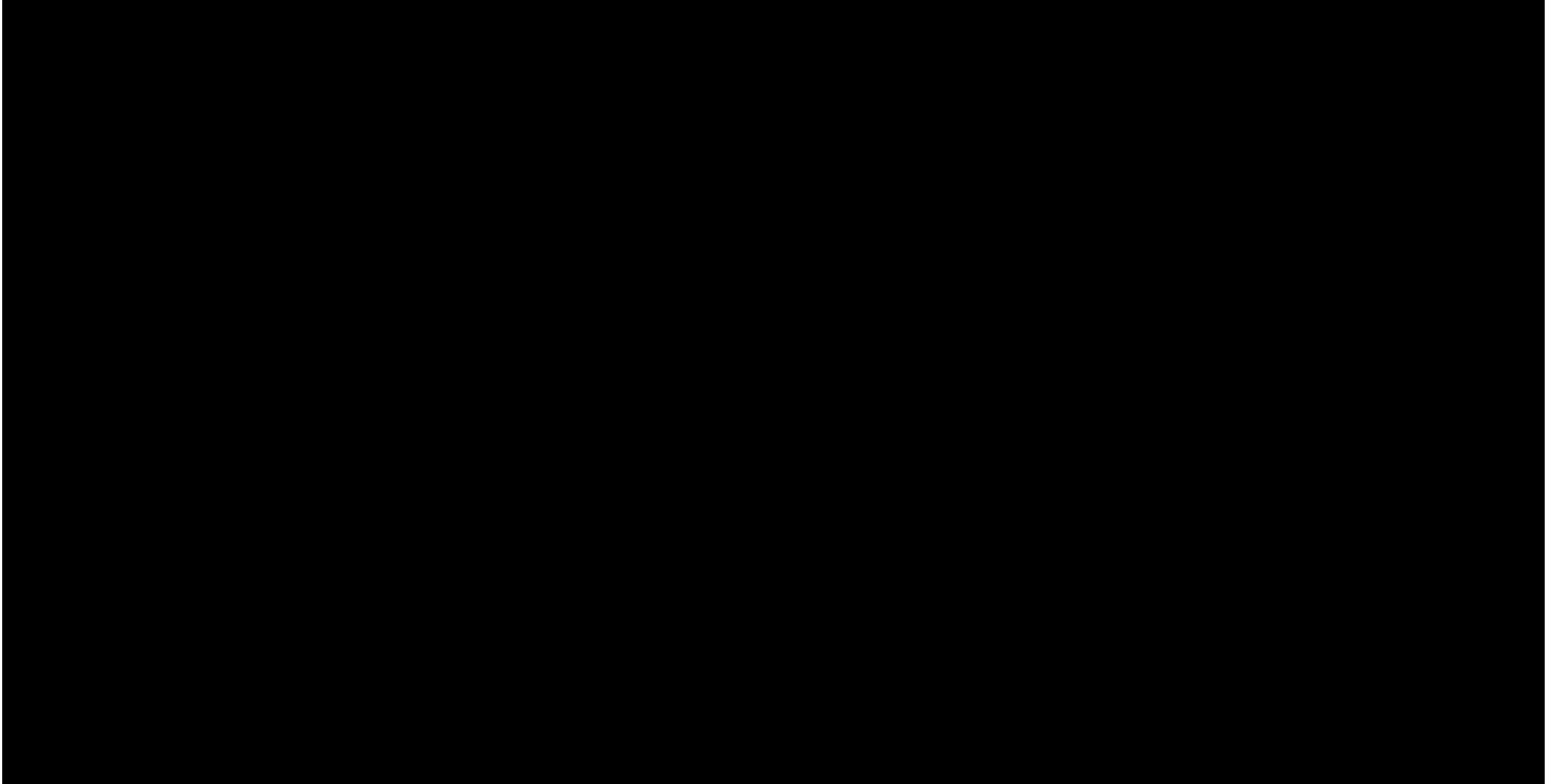
Activation of the rollback procedures

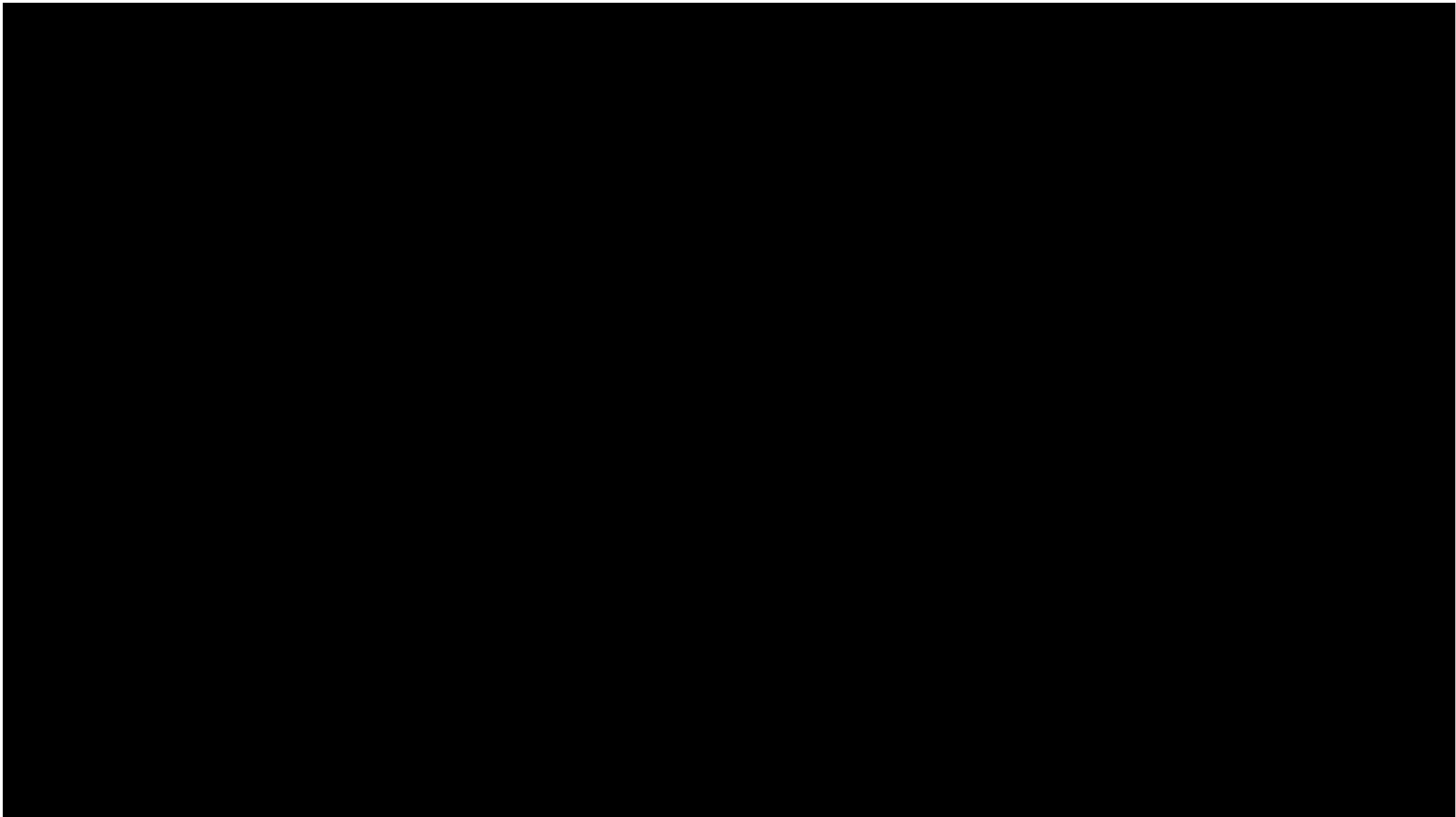
[Redacted text]

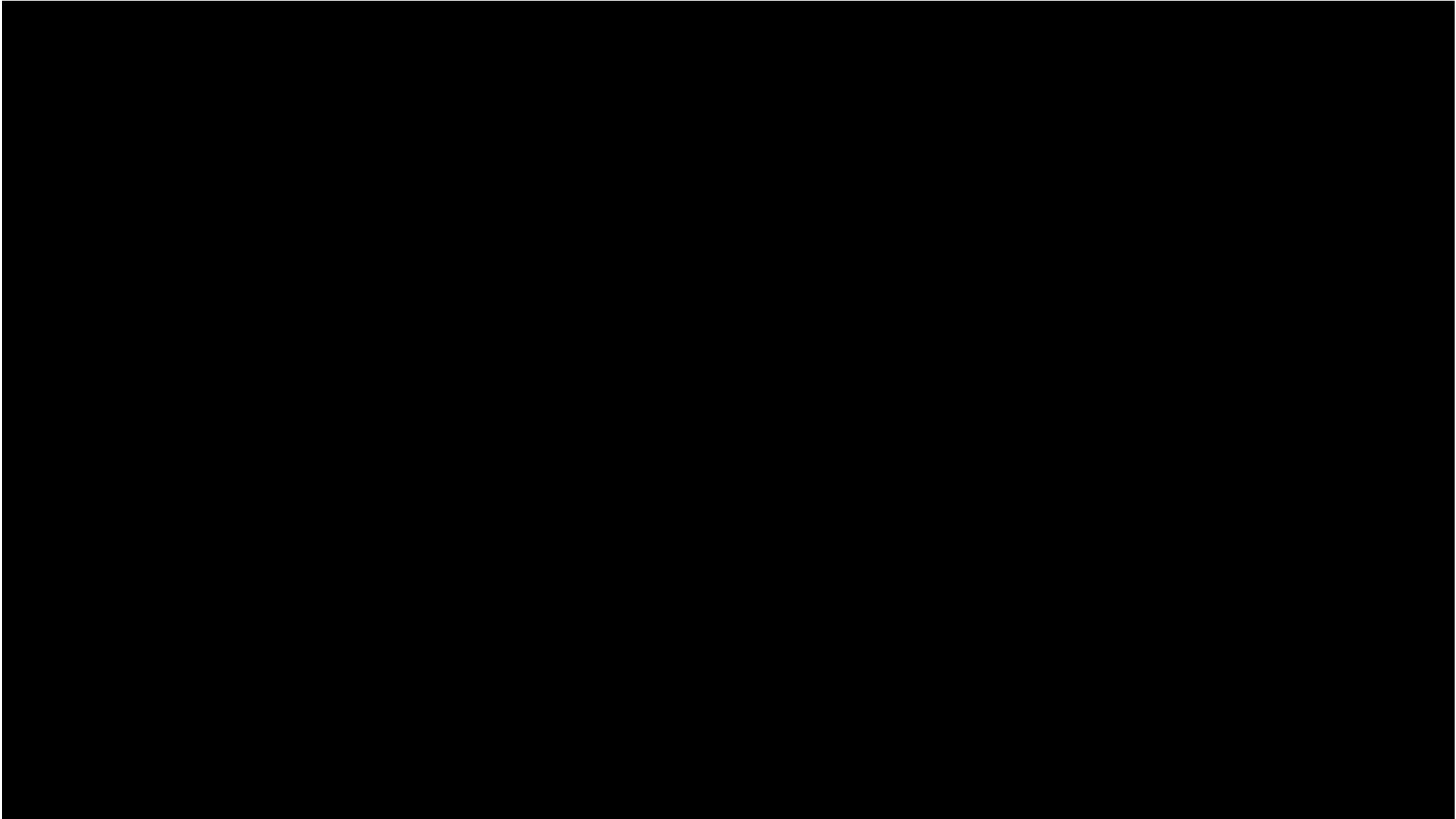


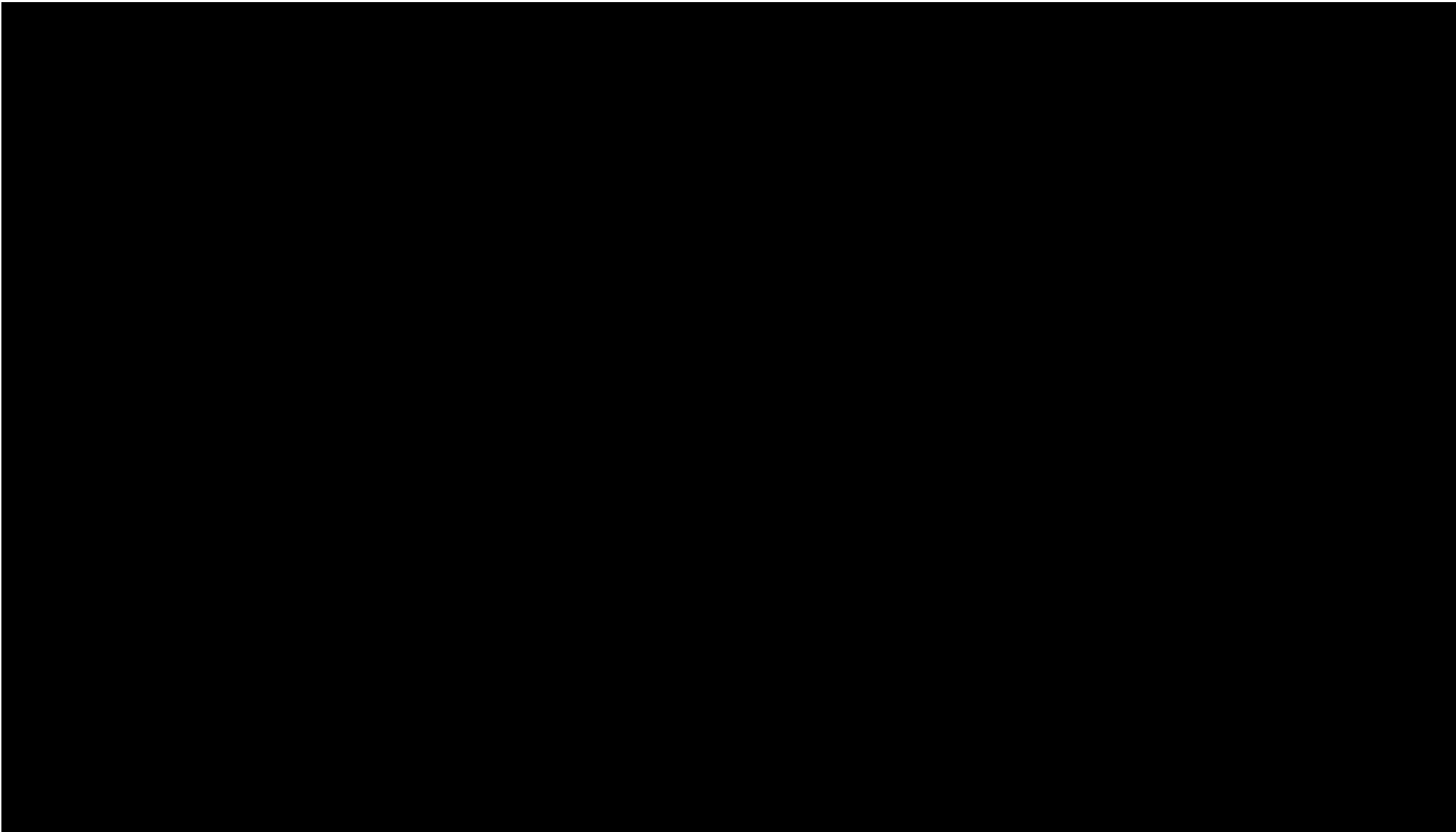
Annex 8 – Naming convention table

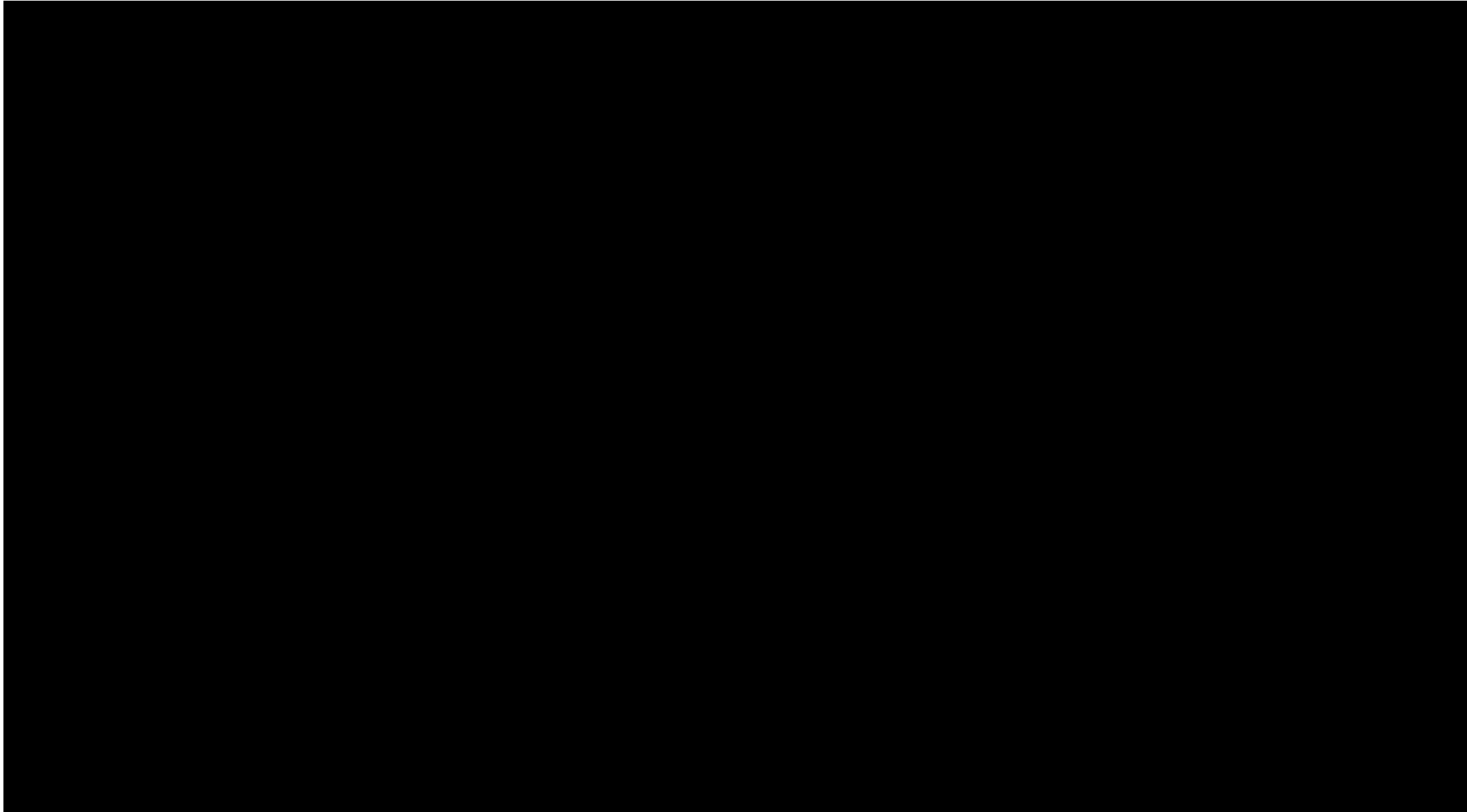
File name convention for file sent by NEMOs to CCcT (TSO system): <Sender V code>_<Receiver V code>_F<Flow num>_<Border/Region>-<File class>_<YYYYMMDD>-<version>.xml

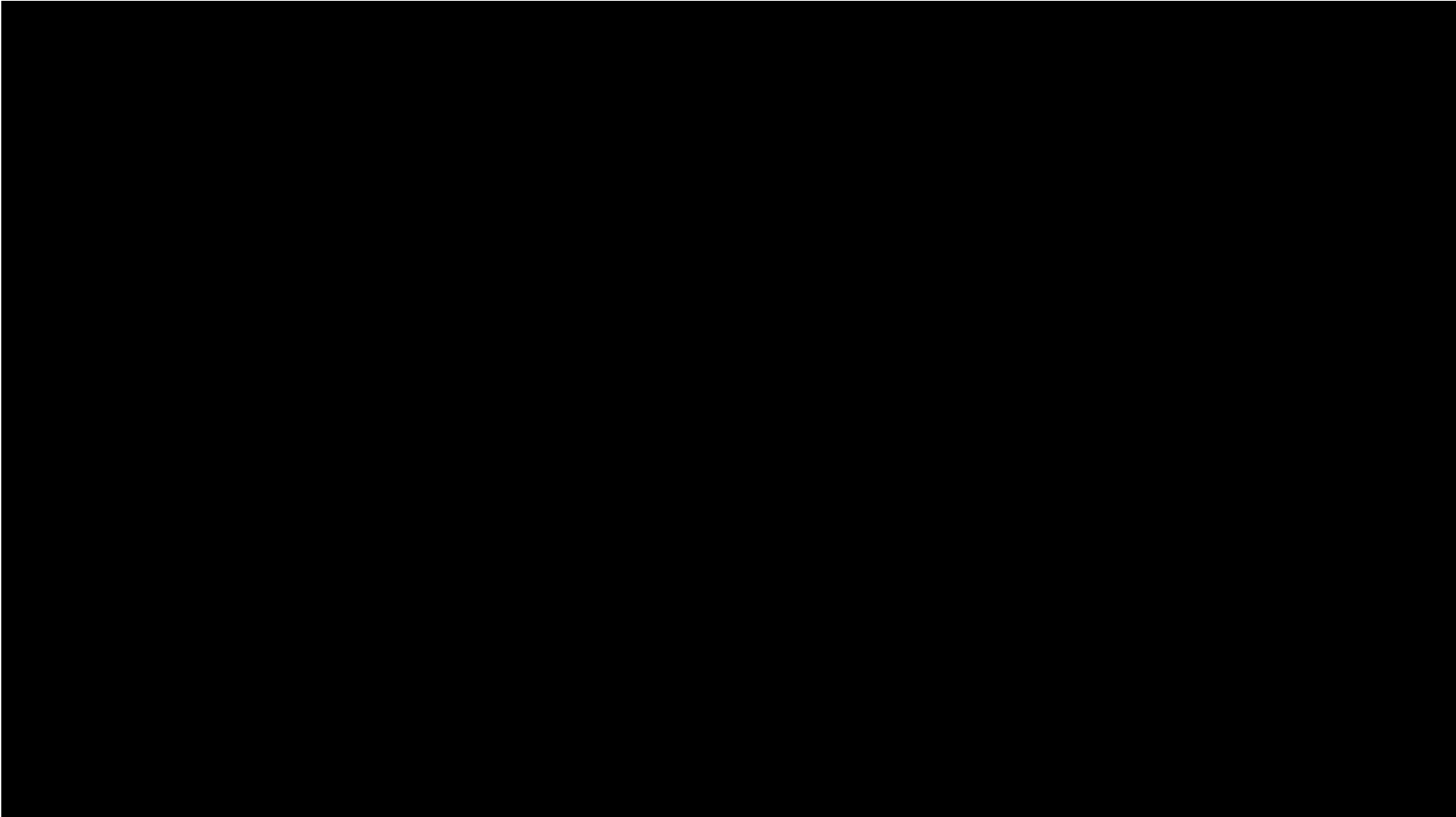


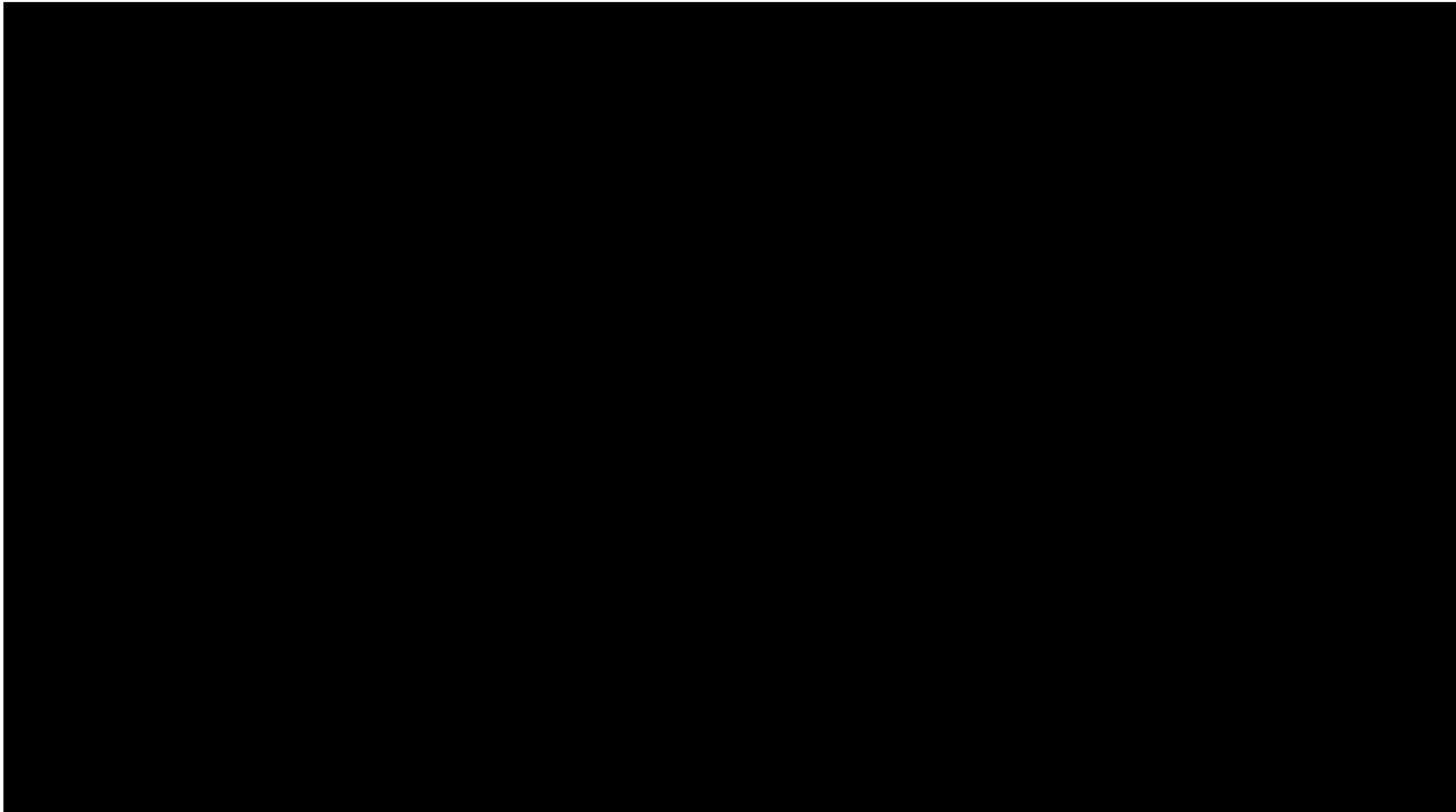


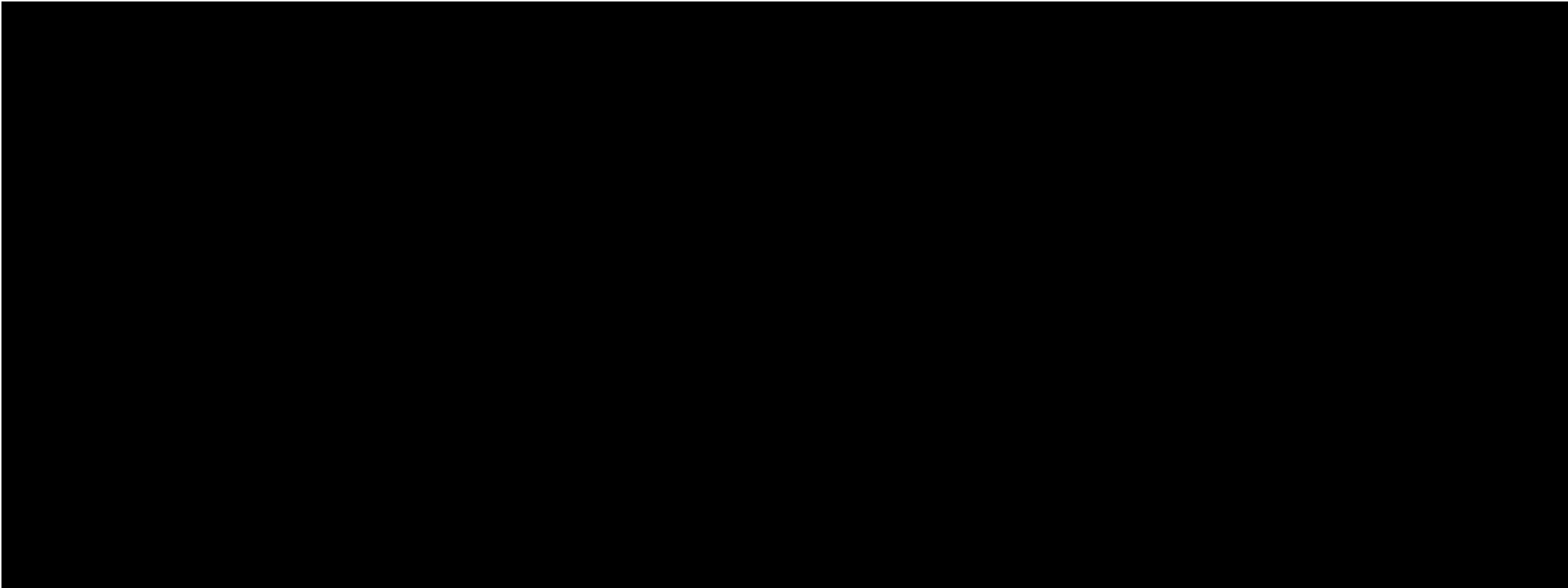














Annex 9: Fallback HLA

Annex 9 contains the Core Fallback HLA. The Fallback HLA describes all required system interfaces with the involved systems and all information flows into and out of the involved systems are identified for the Fallback situations.

Annex 9 - Fallback HLA is attached to the MDfI as a separate document.