





Single Day-Ahead Market Coupling (SDAC) report on the partial decoupling incident of June 25, 2024

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### **Executive Summary**

#### **Summary of the Partial Decoupling Incident**

On June 25, 2024, an incident took place for delivery date June 26, 2024, in the Day Ahead Market Coupling process that led to a partial decoupling of some areas in Europe.

The partial decoupling event was due to a local issue at EPEX SPOT which prevented this NEMO to provide its order books for the CORE area and for the Nordic area before the partial decoupling deadline (13:05), as foreseen by the SDAC market coupling procedures. Due to this event and in line with the Nordic-Baltic regional fallback methodology and procedures, the order book from Nord Pool for the Nordic area was also decoupled, in order to execute a regional coupling for the Nordic and the Baltic countries.

Following the declaration of the partial decoupling and in line with the fallback procedures, shadow auctions were organized by JAO for the following interconnectors and the results were sent to the market participants:

- NO2-NL (Norway 2-Netherlands (NorNed)
- NO2-DE (Norway 2-Germany (NordLink))
- DK1-NL (Denmark 1-Netherlands (COBRA Cable)
- DK1-DE (Denmark 1-Germany)
- DK2-DE (Denmark 2-Germany)

Meanwhile, for the internal CORE region interconnectors, cross-zonal capacities were still implicitly allocated via implicit market coupling between the remaining coupled CORE NEMOs, and capacity was allocated according to Flow Based methodology. Accordingly, the organization of shadow auctions in the internal borders of the CORE Capacity Calculation Region (CCR) was thus not triggered. The SDAC parties in the bidding zones that remained coupled followed the applicable market coupling procedures and the final SDAC results were published at 14:09 Central European Summer Time (CEST).

For the Nordic and Baltic bidding areas, regional fallback coupling auctions were run by EPEX SPOT and Nord Pool, according to the applicable Nordic-Baltic Fallback market coupling procedures, and results were published at 17:40 CEST.

For the EPEX SPOT CORE bidding areas, local fallback auctions were performed by EPEX SPOT according to local fallback procedures and results were published at 15:06 CEST.

#### Lessons Learnt and Recommended Follow-Up Actions

Coupling operational procedures shall be reviewed by NEMOs and TSOs with the aim of improving the communication process during an incident. The aim is to ensure a successful application of the fallback measures in case of future decoupling situations, including a smoother process for running Shadow Auctions for the decoupled interconnectors.

Some regional procedures have already been improved in order to ensure a better communication process for the triggering of Shadow Auctions.

SDAC parties also acknowledge that deeper understanding of the specific decoupling scenarios would help in handling these situations more quickly and therefore it is planned to increase the awareness on these fallback procedures and scenarios.

Regarding the common coupling system and the operational process for performing the partial decoupling, these worked as expected and ensured the coupling of the remaining European market areas and NEMOs within SDAC.





## List of contents

| Executiv  | Executive Summary   |  |  |  |  |  |  |  |
|---|---|--|--|--|--|--|--|--|
| List of a   | bbreviations  | iv   |  |  |  |  |  |  |
| 1   | 1 Introduction  |  |  |  |  |  |  |  |
| 2   | Single Day-Ahead Coupling   |  |  |  |  |  |  |  |
| <b>3</b><br>3.1<br>3.2  | Operational Process and Timings as Described in the Operatio<br>Procedures and Fallback Processes<br>Normal Process and Timings<br>Fallback Process and Timings   |  |  |  |  |  |  |  |
| 3.2.1   | Shadow Auction Process  | 4  |  |  |  |  |  |  |
| 3.2.2   | Local/Regional Fallback Auctions  | 4  |  |  |  |  |  |  |
| <b>4</b><br>4.1<br>4.2<br>4.3<br>4.4<br>4.5<br>4.6                    | Description of the Incident<br>Incident<br>Timeline<br>Communication to the Market<br>Impacted Borders<br>Decoupled Market Local Fallback Auctions<br>Solution for the issue that triggered the chain of events   | <b>5</b><br>5<br>6<br>6<br>7<br>8            |  |  |  |  |  |  |
| <b>5</b><br>5.1<br>5.2<br>5.3<br>5.4<br>5.5<br>5.6                    | Handling of the Incident – Evaluation<br>Detecting of the Issue<br>Communication Between the Market Coupling Coordinator, NEMOs, TSOs and<br>Parties Prior to Declaring a (Partial) Decoupling<br>Incident Committee<br>Shadow Auctions<br>Update of Bids Based on Shadow Auction Results<br>Evaluation and Estimate of Monetary Impact | <b>9</b><br>Third<br>9<br>9<br>9<br>10<br>10 |  |  |  |  |  |  |
| <b>6</b><br>6.1<br>6.2<br>6.3<br>6.4                                  | Lessons Learnt and Recommended Follow-Up Actions<br>Procedures<br>Shadow Auctions and Their Subsequent Update of Bids<br>Impacts on IDAs<br>Closing Remarks   | <b>11</b><br>11<br>11<br>11<br>11            |  |  |  |  |  |  |
| Annex 1: Overview of the results of the shadow auctions per border 12 |   |  |  |  |  |  |  |  |







## List of abbreviations

| CACM     | EU Regulation establishing a guideline on capacity allocation and |
|----------|---|
|          | congestion management   |
| CCR      | Capacity Calculation Region                                       |
| CEST     | Central European Summer Time                                      |
| CZC      | Cross Zonal Capacities  |
| EUPHEMIA | EU + Pan-European Hybrid Electricity Market Integration Algorithm |
| GCT      | Gate Closure Time   |
| GPC      | Global Preliminary Confirmation                                   |
| GFC      | Global Final Confirmation   |
| IC       | Incident Committee  |
| IDA      | Intraday Auction  |
| JAO      | Joint Allocation Office   |
| NEMO     | Nominated Electricity Market Operator                             |
| NWE      | North-Western Europe  |
| PCR      | Price Coupling of Regions   |
| PMB      | PCR Matcher Broker  |
| SDAC     | Single Day Ahead Coupling   |
| TSO      | Transmission System Operator                                      |







## **1** Introduction

On June 25<sup>th</sup>, 2024, an incident took place in the Day Ahead Market Coupling process that led to a (partial) decoupling of some areas in Europe.

Since the Go-Live of the North Western Europe (NWE) Market Coupling on February 4<sup>th</sup>, 2014, and after more than 3700 successfully completed market coupling sessions, this is the sixth incident that has led to a partial decoupling.

Although this did not lead to any grid security issues anywhere in Europe, the incident led to a disruption of the European Day-Ahead Market within the Single Day-Ahead Coupling and impacted processes on market parties' and TSOs' side. The common coupling system worked as expected and ensured the coupling of the remaining European market areas within SDAC.

This report is structured as follows. In Chapter 2, the Single Day-Ahead Coupling (SDAC) is described. In Chapter 3, the normal operational process - as covered in the operational procedures - and the fallback measures in place are described together with their timings. In Chapter 4, a description of the incident, including the chronological course of events, and the root cause are presented. In Chapter 5, the actual handling of the incident is evaluated. Finally, in Chapter 6, the lessons learnt and recommendations are presented.







## 2 Single Day-Ahead Coupling

The aim of Single Day-Ahead Coupling is to create a single pan European cross zonal Day-Ahead electricity market. An integrated Day-Ahead market increases 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 and thereby maximising social welfare.

SDAC is an initiative between the Nominated Electricity Market Operators (NEMOs) and Transmission System Operators (TSOs) which – in the framework of CACM (Capacity Allocation and Congestion Management) implementation – enables cross-border trading across Europe via implicit auctions for delivery of power on the following day.

Significant progress has been achieved in the establishment of a pan-European Single Day-Ahead Coupling in recent years, thanks to the early implementation of initiatives and pilot projects. SDAC relies on the Price Coupling of Regions (PCR) solution developed by a group of power exchanges.

See for more information the following websites:

- ENTSO-E: <u>https://www.entsoe.eu/network\_codes/cacm/implementation/sdac/</u>
- NEMO Committee: <u>http://www.nemo-committee.eu/sdac</u>





# **3** Operational Process and Timings as Described in the Operational Procedures and Fallback Processes

To understand the sequence leading to the (partial) decoupling on 25 June 2024, in this chapter the normal process is briefly described, together with the timings. Subsequently, the measures in place to handle a partial decoupling are described as well.

#### 3.1 Normal Process and Timings

In the below figure, the regular operational process is visualized.



To start with, the TSOs provide cross border interconnector capacities to PCR through the NEMO(s), which forward them to the PMB (PCR Matcher Broker), while the Market Participants make bids for buying and selling to the Local Trading System of their respective NEMO(s).

At 12:00, the NEMO order books are closed and - after internal validation – are submitted to the central software PMB, which subsequently starts the calculation with EUPHEMIA. After that, the results are confirmed by the NEMOs and TSOs.

After the global final confirmation of the results, the market coupling results and scheduled exchanges are transferred. Subsequently, the trading confirmations and the notifications of the scheduled exchanges are submitted.

#### 3.2 Fallback Process and Timings

To handle issues in operations, there are backup procedures. These provide workarounds for issues that do not lead to exceeding the critical deadlines for the different steps in the process. When these deadlines are exceeded, there are fallback measures in place.







In the below figure, the timings for the operational process and the deadline for declaring a Partial or a Full Decoupling are shown.

|          | 09:00 | Start of the Market Coupling Session  |
|----------|-------|---|
|          | 09:00 | TSOs start computing and matching the CZC values                                  |
| Dro      | 09:15 | Latest Time start an IC for issues in the Configuration Synchronization step      |
| FIE-     | 09:45 | Deadline to skip the Configuration Synchronization step                           |
| coupling | 10:30 | Target Time for submitting the Network Data in the PMB                            |
|          | 11:00 | Latest time to start an IC for missing Network Data (TSOs can join the call)      |
|          | 11:15 | Risk of Partial Decoupling for one or more interconnectors (at regional level)    |
|          | 11:30 | Deadline to declare the Partial Decoupling for an interconnector (regional level) |
|          | 12:00 | NEMO Order book Gate Closure Time   |
|          | 12:10 | PMB GCT // Reception of all Order Data files in PMBs → Start of Calculation       |
|          | 12:25 | Latest Time to start an IC for Order Data-related reasons                         |
|          | 12:27 | End of Calculation  |
|          | 12:29 | Reception of Results in NEMO Local systems + Start of 12 min Confirmation process |
|          | 12:40 | Deadline to send the message for Risk of Partial Decoupling                       |
|          | 12:41 | Deadline to send the Preliminary Confirmations → Generation of GPC                |
|          | 12:43 | Reception of Preliminary Final Confirmation in local PMBs                         |
|          | 12:45 | Publication of Preliminary Results and sending to the TSOs →                      |
| Coupling |       | Start of 12 min Final Confirmation process  |
|          | 12:57 | Deadline to send the Final Confirmations  |
|          | 12:57 | Reception of all Final Confirmations in the PMB → Generation of GFC               |
|          | 12:57 | Reception of Global Final Confirmation in local PMBs                              |
|          | 12:58 | Publication of Final Results → Start of Notification Process                      |
|          | 13:05 | Deadline to declare Partial Decoupling  |
|          | 13:15 | Latest time to Start an IC and invite TSOs  |
|          | 13:50 | Deadline to send the message for Risk of Full Decoupling                          |
|          | 14:20 | Deadline to declare the SDAC Full Decoupling                                      |

#### 3.2.1 Shadow Auction Process

When an order book is missing and a partial decoupling is declared, or when a full decoupling is declared, shadow auctions are the most common fallback measures in place to handle the fact that the capacity of the interconnectors cannot be allocated in the normal Market Coupling process. Market participants have then the possibility to place default bids and provide (updates of) bids through dedicated platforms (e.g., JAO's website) to obtain capacity until 12:55 (in case of partial decoupling). The results of this auction are published as soon as possible after the partial decoupling has been declared (normally between 13:05 and 13:10) and represents the allocated capacity. Once this phase is completed, the market participants can adjust their power bids in the different markets, normally between 13:10 and 13:25, taking in consideration the results of the shadow auctions.

Participants can nominate the capacity allocated through shadow auctions. These nominations done towards TSOs are then matched among the TSOs border by border.

#### 3.2.2 Local/Regional Fallback Auctions

When a NEMO is decoupled from the SDAC process and in line with local and/or regional Market Rules, as well as applicable regulatory framework, the NEMO(s) in the decoupled bidding zone(s) shall then perform a local decoupled fallback auction that enables trading within the individual zone(s) managed by the decoupled NEMO(s). Market Participants can also take in consideration the results of the shadow auctions on the borders affected by the decoupling. This process is done separately from the SDAC process where the remaining parties complete the SDAC process.

When a full decoupling is declared, all NEMOs run the local/regional decoupling fallback auctions.

For the Nordic-Baltic region, the fallback consists in a regional coupling among the Nordic-Baltic NEMOs.





## 4 Description of the Incident

The chain of events can be divided into two parts: one concerning the decoupling incident and the subsequent processes on SDAC level (covered in Chapters 4.1 until 4.4), the other concerning the local auctions (covered in Chapter 4.5). Finally, in Chapter 4.6, the solution for the issue that triggered the chain of events is presented.

#### 4.1 Incident

On Tuesday, June 25th, 2024, EPEX SPOT experienced a technical issue with its trading system, which prevented it to provide its order books data to the SDAC systems on time for the SDAC processes.

At 10:08, a technical issue on the EPEX SPOT auction trading system (ETS) occurred following the deployment of a feature upgrade, affecting ETS availability. As a result, ETS was no longer accessible to EPEX SPOT customers. The problematic feature upgrade was then deactivated in order to prevent further ETS server unavailability.

Later, a connectivity issue affecting market participants' access to the trading system was detected. Despite efforts of solving the issue in real time, the trading system still suffered from low responsiveness, preventing the effective connection to ETS by market participants.

At 13:05, time had run out for EPEX SPOT to participate with its orderbooks in the SDAC. As per procedures, EPEX SPOT was partially decoupled from SDAC.

#### 4.2 Timeline

In the below overview the timeline is shown.

| Time  | Event  |
|-------|--|
| 11:30 | EPEX contacted OMIE, as Coordinator, due to issues in collecting orders from their Market Participants.  |
| 11:45 | OMIE, as Coordinator, triggered an Incident Committee (IC) due to issues at EPEX in collecting orders in its local trading system. NEMOs decided to apply the procedure of postponing the closure of order books later than the usual closing time (12.00). Consequently, all NEMOs were allowed to close the order book in their Local Trading System at 12.20.                         |
| 12:20 | At the new order book gate closure time, EPEX confirmed that the issue was not solved.   |
| 12:40 | Message Risk of Partial Decoupling (ExC_03a) was sent out for the following<br>Virtual Brokers:<br>• EPEX – CORE<br>• EPEX – Nordic<br>• EMCO – NordPool   |
| 13:05 | <ul> <li>Partial decoupling was declared and message (ExC_04a) was sent for the decoupling of the following Virtual Brokers: <ul> <li>EPEX – Core</li> <li>EPEX – Nordic</li> <li>EMCO – NordPool</li> </ul> </li> <li>Partial decoupling procedure was thereafter followed. The order book reopening time (for the remaining coupled areas) was decided to be 13:10 – 13:25.</li> </ul> |
| 13:10 | Reopening of the order books was done and the procedure of partial decoupling of the Virtual Brokers mentioned above was executed.   |
| 13:16 | JAO received complete information about which Shadow Auctions should be run.   |
| 13:22 | <ul> <li>Shadow auctions for the following interconnectors were run by JAO:</li> <li>NO2-NL (Norway 2-Netherlands (NorNed))</li> <li>NO2-DE (Norway 2-Germany (NordLink))</li> </ul>   |





|       | <ul> <li>DK1-NL (Denmark 1-Netherlands (COBRA Cable))</li> </ul>  |
|-------|---|
|       | <ul> <li>DK1-DE (Denmark 1-Germany)</li> </ul>  |
|       | <ul> <li>DK2-DE (Denmark 2-Germany)</li> </ul>  |
| 13:29 | Publishing of the shadow auction results.   |
| 13:30 | Shadow auction results received by the relevant TSOs.   |
| 13:25 | Closure of order books and all NEMOs uploaded the new version of their order books to PMB.                                |
| 13:30 | Calculation started.  |
| 13:49 | Calculation finished.   |
| 13:50 | Message Further Delay of the Market Coupling (ExC_03b) was sent out by OMIE as PCR Coordinator (risk of full decoupling). |
| 14:01 | Global preliminary confirmation was distributed, and results were preliminarily confirmed and published.                  |
| 14:09 | Global final confirmation was distributed, and results were confirmed.  |

#### 4.3 Communication to the Market

As part of the SDAC process, the following joint communication towards the market was made:

| Time  | Event  |
|-------|--|
| 12:40 | Risk of partial decoupling (ExC_03a).                                      |
| 12:43 | Shadow auction gate closure time at 12:50.                                 |
| 13:05 | Partial Decoupling - Reopening of the order books 13:10 – 13:25 (ExC_04a). |
| 13:50 | Further delay in market coupling results publication (ExC_03b).            |

Please note that these are the timings from the procedures. Depending on the recipient, this might have varied by a few minutes.

#### 4.4 Impacted Borders

The impacted borders concern the borders related to Denmark, Estonia, Finland, Latvia, Lithuania, Norway, Sweden.

List of impacted borders and fallback rules:

| Decoupled interconnectors  | Fallback solution               |
|--|---------------------------------|
| Nordic Internal Borders (NO-SE, NO-DK, NO-NO, NO-FI, DK-SE, DK-DK, SE-FI, SE-SE) | Nordic-Baltic regional coupling |
| Baltic Internal Borders (EE-LV, LV-LT)   | Nordic-Baltic regional coupling |
| NO2-NL (Norway 2-Netherlands (NorNed)  | Shadow Auction                  |
| NO2-DE (Norway 2-Germany (NordLink))   | Shadow Auction                  |
| DK1-NL (Denmark 1-Netherlands (COBRA Cable)                                      | Shadow Auction                  |
| DK1-DE (Denmark 1-Germany)   | Shadow Auction                  |
| DK2-DE (Denmark 2-Germany)   | Shadow Auction                  |
| SE4-DE (Baltic Cable)  | Back to owner                   |
| PL-SE4   | Intraday                        |
| SE4-LT   | Nordic-Baltic regional coupling |
| PL-LT  | Back to owner                   |
| EE-FI  | Nordic-Baltic regional coupling |





In the below figure a visualization of the impacted borders is given. The capacities for CORE internal borders were allocated among the remaining NEMOs.



#### 4.5 Decoupled Market Local Fallback Auctions

The fallback rules for allocation are different among the various SDAC regions.

#### Fallback allocation in the decoupled areas of the CORE region

In the CORE region, the decoupled NEMO(s) perform local auction(s) for the decoupled NEMO hubs. In this case, cross-border capacities in the CORE region can still be allocated via implicit allocation in the SDAC auction.

On 25 June 2024, once the Partial Decoupling was declared, EPEX SPOT ran local fallback auctions in the CORE region. This was done in line with the Market Coupling Operational Procedures set forth in the NEMOs' and TSOs' contracts, governed by the applicable regulatory frameworks, and in accordance with EPEX SPOT's Market Rules, in the following bidding zones: The Netherlands, Belgium, France, Germany-Luxemburg, Austria and Poland.

EPEX SPOT was able to solve the issue on time to run local fallback auctions and to publish the associated market results at 15:06 - with nominations and payments completed and settled correctly - in line with the nomination deadline applicable in the CORE region (15:30).

#### Fallback allocation in the Nordic-Baltic region





In the Nordic-Baltic region, there are no shadow auctions performed because a decoupling inside the Nordic-Baltic region is not foreseen by the regional fallback methodology. The Nordic-Baltic region has to remain coupled at all times. Hence, if any Nordic NEMO is decoupled from SDAC, all Nordic-Baltic NEMOs are decoupled and they need to run together a Nordic-Baltic regional coupling (this means sharing liquidity of the Nordic markets and publishing one single price for each Nordic bidding zone).

Settlement deadlines in the Nordic-Baltic region foresee a postponement of the coupled auctions until 20:00. Hence, NEMOs have time to solve their technical issues and ensure a successful regional coupling by 20:00. The Nordic-Baltic countries have to remain coupled as a region and cross-border capacities are allocated via regional market coupling.

In line with the above, on 25 June 2024, the entire Nordic-Baltic region was decoupled from the CORE areas and from the other SDAC areas, as per market coupling procedures. Both operational NEMOs in the Nordic-Baltic region - EPEX SPOT and Nord Pool - remained coupled and published single prices for the Nordic-Baltic bidding zones.

The Nordic-Baltic order books were opened from 16:20 to 16:40 simultaneously by both operational NEMOs. The Nordic-Baltic market coupling results were published by each NEMO at 17:40.

For the interconnectors that link the Nordic-Baltic and CORE regions Shadow Auctions were performed as noted in Chapter 4.4.

#### 4.6 Solution for the issue that triggered the chain of events

The initial technical issue at EPEX SPOT described in Chapter 4.1 was fixed, local auctions were ran by EPEX SPOT for the Core areas and the results were published at 15:06, in due time before the local nomination deadlines. Afterwards, measures were taken to improve the connectivity performance of EPEX SPOT trading system towards market participants.





## MCSC

## 5 Handling of the Incident – Evaluation

In this chapter the way in which the incident was handled is evaluated.

#### 5.1 Detecting of the Issue

The issue was detected on EPEX SPOT side at 10:08. EPEX contacted OMIE as coordinator to notify to issues in collecting orders from their market participants at 11:30, in line with Market Coupling procedure and timings.

## 5.2 Communication Between the Market Coupling Coordinator, NEMOs, TSOs and Third Parties Prior to Declaring a (Partial) Decoupling

Messages to market participants were sent in line with the procedures. This has been facilitated by the experiences and lessons learnt from the last decoupling incidents as well as the decoupling training sessions performed within SDAC (some of which were also joined by market participants).

The following communication issues were noted:

- In the initial risk of partial decoupling message from the coordinator (sent at 12:40), the following impacted NEMO bidding hubs were missing : the Nordic bidding hubs of Nord Pool. Another corrected message was sent out around 10 minutes later.
- Confusion in the messages received by JAO for triggering the shadow auctions. The initial risk of decoupling message received by JAO did not contain all impacted bidding zones and interconnectors.
- The message declaring decoupling received by JAO referred to wrong interconnectors.

The latter two issues described above caused confusion on what shadow auctions to be triggered, which created a delay in the process. Eventually, JAO received the correct information at 13:16 to trigger the shadow auctions.

#### 5.3 Incident Committee

In the SDAC Incident Committee there were discussions between NEMOs and TSOs about the applicable shadow auctions. In this process, NEMOs and TSOs had to identify together which borders were either:

- Subject to Nordic-Baltic regional implicit mechanism or
- Still part of the SDAC implicit process or
- Subject to explicit auctions organized by JAO

This clarity was necessary in order to send the correct messages to market participants.

#### 5.4 Shadow Auctions

Shadow auctions on the involved borders were run by JAO. General information and outcome are included in *Annex 1: Overview of the results of the shadow auctions per border*.

|                            | Sh                                  | adow auction proc    | ess                                 |
|----------------------------|-------------------------------------|----------------------|-------------------------------------|
| Border /<br>Interconnector | Bid submission closed (auction ran) | Auction results sent | Results published<br>on JAO website |
| NO2-NL (NorNed)            | 13:24                               | 13:24                | 13:27                               |
| NO2-DE (NordLink)          | 13:26                               | 13:29                | 13:29                               |
| DK1-NL (COBRA Cable)       | 13:22                               | 13:26                | 13:27                               |





| DK1-DE | 13:22 | 13:27 | 13:27 |
|--------|-------|-------|-------|
| DK2-DE | 13:57 | 13:59 | 13:59 |

The above timings are delayed compared to the usual process of partial decoupling as per the reasons explained in the Chapter 5.2.

#### 5.5 Update of Bids Based on Shadow Auction Results

After declaration of the (partial) decoupling in the Incident Committee, there are 5 minutes for informing the market participants, 15 minutes for keeping the markets reopened, and 10 minutes for the preparation and sending of new files.

Few minutes after the reopening of the markets at 13:13, the shadow auction results were available.

The order books for the areas that remained coupled reopened between 13:10 and 13:25.

See the table in Annex 1 for an overview of the results of the shadow auctions per border and what was finally allocated.

The shadow auction process and the subsequent update of the bids were executed in line with the procedures, but with delayed timings due to the reasons explained in the Chapter 5.2.

#### 5.6 Evaluation and Estimate of Monetary Impact

While in the Nordic-Baltic region the regional market coupling generated a single price for each bidding area, for the CORE areas, 2 prices were generated: one for the NEMOs that remained coupled in the SDAC process (Nord Pool and EXAA) and one for the decoupled NEMO (EPEX SPOT).

For the TSO part, the monetary impact for the affected TSOs consists of, on the one hand, the compensation that TSOs provide towards the affected market participants. While on the other hand, congestion income is turned over for both the Long-Term Transmission Rights, as well as for the Shadow Auctions for that day.

|                            | Congestion income and compensation to the Market<br>Participants in EUR |                           |   |  |  |  |  |
|----------------------------|---|---------------------------|---|--|--|--|--|
| Border /<br>Interconnector | Long-Term Auction<br>Revenue<br>for 26/06/2024                          | Shadow Auction<br>Revenue | Long-Term<br>Transmission Rights<br>Compensation to MPs |  |  |  |  |
| NO2-NL (NorNed)            | 0   | 4,498.20                  | 0   |  |  |  |  |
| NL-NO2 (NorNed)            | 0   | 0                         | 0   |  |  |  |  |
| DE-NO2 (NordLink)          | 0   | 0                         | 0   |  |  |  |  |
| NO2-DE (NordLink)          | 0   | 78,150.00                 | 0   |  |  |  |  |
| DK1-NL (COBRA Cable)       | 48,600.00   | 0                         | 322,314.00  |  |  |  |  |
| NL-DK1 (COBRA Cable)       | 32,354.16   | 0                         | 0   |  |  |  |  |
| DK1-DE                     | 79,440.00   | 0                         | 524,670.00  |  |  |  |  |
| DE-DK1                     | 33,110.40   | 0                         | 0   |  |  |  |  |
| DK2-DE                     | 42,758.40   | 0                         | 142,842.16  |  |  |  |  |
| DE-DK2                     | 4,164.00  | 0                         | 0   |  |  |  |  |
| Sum                        | 24,0426.96  | 82,648.20                 | 989,826.16  |  |  |  |  |

An overview per border/interconnector and per direction is shown in the table below.





Note: The above data depicts the amount per each TSO per border direction. The data is based on CRDS (Congestion Revenue Distribution System), Shadow Auction Allocated Quantities, and Shadow Auction prices provided by JAO.

#### 6 Lessons Learnt and Recommended Follow-Up Actions

SDAC parties regret that this incident occurred, and lessons learnt have been identified below.

#### 6.1 **Procedures**

Coupling operational procedures shall be reviewed by NEMOs and TSOs with the aim of improving the communication process during an incident. The aim is to ensure a successful application of the fallback measures in case of future decoupling situations, including a smoother process for running Shadow Auctions for the decoupled interconnectors.

Some regional procedures have already been improved in order to ensure a better communication process for the triggering of the Shadow Auctions.

Regarding the common coupling system and the operational process for performing the partial decoupling, these worked as expected and ensured the coupling of the remaining European market areas and NEMOs within SDAC.

#### 6.2 Shadow Auctions and Their Subsequent Update of Bids

JAO acknowledges that clear and concise information about interconnectors to run shadow auctions in internal incident management is crucial for being able to run shadow auctions precisely and timely, the lack of which caused delay in this incident. Next to this, JAO also acknowledges that deeper understanding of the specific decoupling scenarios would help in handling these situations more quickly and therefore it is planned to increase the awareness on these fallback procedures and scenarios.

#### 6.3 Impacts on IDAs

In the context of the local technical issues experienced that day, IDA3 on June 25 at 10:00 CEST was cancelled for all participating NEMOs, as per SIDC IDAs decoupling procedures.

Instead, the subsequent IDA - IDA1 on June 25 at 15:00 CEST - was performed. However, as per the agreed SIDC IDA market coupling procedures, EPEX SPOT and Nord Pool – as Nordic NEMOs – were partially decoupled in advance from IDA1. This decoupling was due to the fallback rules in the Nordic-Baltic region, where the Day-Ahead price publication has to be ensured by the Nordic-Baltic parties by performing a regional coupling. Therefore, in IDA1, EPEX SPOT (CORE and Nordic areas) and Nord Pool (Nordic areas) were decoupled in advance at 14:30 whereas all the other NEMOs in the SIDC IDA1 auction remained coupled.

The subsequent SIDC IDA auctions were performed without any issue by the SIDC IDA market coupling parties.

#### 6.4 Closing Remarks

The SDAC parties conduct rigorous tests prior to particular dates (like when shifts from CET to CEST and vice versa take place) or when introducing changes in operations.

NEMOs and TSOs - in any case and independently from this event - always work on trying to improve the robustness of the process and procedures to reduce the risk of such kind of incidents.





## Annex 1: Overview of the results of the shadow auctions per border

Table: Overview of the shadow auctions, per border.

|      |                          | Borders    |        |          |        |                    |                    |                            |                            |                    |                    |
|------|--------------------------|------------|--------|----------|--------|--------------------|--------------------|----------------------------|----------------------------|--------------------|--------------------|
| Hour | Allocated /<br>Nominated | DK2-DE     | DE-DK2 | DK1-DE   | DE-DK1 | DE-NO2<br>(NorNed) | NO2-DE<br>(NorNed) | DK1-NL<br>(COBRA<br>Cable) | NL-DK1<br>(COBRA<br>Cable) | NL-NO2<br>(NorNed) | NO2-NL<br>(NorNed) |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 725                | 250                        | 675                        | 0                  | 575                |
|      | Offered                  | 585        | 600    | 2500     | 2500   | 0                  | 300                | 490                        | 700                        | 0                  | 490                |
| 1    | Allocated                | 160        | 000    | 525      | 425    | 0                  | 300                | 250                        | 0                          | 0                  | 490                |
|      | Nominated                | 0          | 0      | 0        | 425    | 0                  | 75                 | 230                        | 0                          | 0                  | 430                |
|      | Requested                | 160        | 250    | 525      | 425    | 0                  | 73                 | 250                        | 675                        | 0                  | 575                |
|      | Offerred                 | 100<br>E0E | 350    | 020      | 425    | 0                  | 723                | 250                        | 700                        | 0                  | 373                |
| 2    | Ollered                  | 260        | 0      | 2000     | 2500   | 0                  | 600                | 490                        | /00                        | 0                  | 490                |
|      | Allocated                | 160        | 0      | 525      | 425    | 0                  | 600                | 250                        | 0                          | 0                  | 490                |
|      | Nominated                | 0          | 0      | 0        | 0      | 0                  | 100                | 0                          | 0                          | 0                  | 0                  |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 575                | 250                        | 550                        | 0                  | 575                |
| 3    | Offered                  | 585        | 600    | 2500     | 2500   | 0                  | 600                | 490                        | 700                        | 0                  | 490                |
|      | Allocated                | 160        | 0      | 525      | 425    | 0                  | 5/5                | 250                        | 0                          | 0                  | 490                |
|      | Nominated                | 0          | 0      | 0        | 0      | 0                  | 0                  | 0                          | 0                          | 0                  | 0                  |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 725                | 250                        | 675                        | 0                  | 575                |
| 4    | Offered                  | 585        | 600    | 525      | 2500   | 0                  | 600                | 490                        | 700                        | 0                  | 490                |
|      | Allocated                | 160        | 0      | 525      | 425    | 0                  | 600                | 250                        | 0                          | 0                  | 490                |
|      | Nominated                | 0          | 0      | 0        | 0      | 0                  | 100                | 0                          | 0                          | 0                  | 0                  |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 725                | 250                        | 675                        | 0                  | 575                |
| 5    | Offered                  | 585        | 600    | 525      | 2500   | 0                  | 600                | 490                        | 700                        | 0                  | 490                |
| U U  | Allocated                | 160        | 0      | 525      | 425    | 0                  | 600                | 250                        | 0                          | 0                  | 490                |
|      | Nominated                | 0          | 0      | 0        | 0      | 0                  | 100                | 0                          | 0                          | 0                  | 0                  |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 725                | 250                        | 675                        | 0                  | 575                |
| 6    | Offered                  | 585        | 600    | 2500     | 2500   | 0                  | 600                | 490                        | 700                        | 0                  | 490                |
| 0    | Allocated                | 160        | 0      | 525      | 425    | 0                  | 600                | 250                        | 0                          | 0                  | 490                |
|      | Nominated                | 14,5       | 0      | 150      | 0      | 0                  | 125                | 0                          | 0                          | 0                  | 0                  |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 725                | 250                        | 675                        | 0                  | 575                |
| -    | Offered                  | 160        | 600    | 2500     | 2500   | 0                  | 600                | 490                        | 700                        | 0                  | 490                |
| 1    | Allocated                | 585        | 0      | 525      | 425    | 0                  | 600                | 250                        | 0                          | 0                  | 490                |
|      | Nominated                | 150        | 0      | 150      | 0      | 0                  | 100                | 0                          | 0                          | 0                  | 0                  |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 725                | 250                        | 675                        | 0                  | 575                |
|      | Offered                  | 585        | 600    | 2000     | 2160   | 0                  | 600                | 490                        | 700                        | 0                  | 490                |
| 8    | Allocated                | 160        | 0      | 525      | 425    | 0                  | 600                | 250                        | 0                          | 0                  | 490                |
|      | Nominated                | 0          | 0      | 0        | 0      | 0                  | 100                | 0                          | 0                          | 0                  | 0                  |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 725                | 250                        | 675                        | 0                  | 575                |
|      | Offered                  | 585        | 600    | 1684     | 2500   | 0                  | 600                | 490                        | 700                        | 0                  | 490                |
| 9    | Allocated                | 160        | 600    | 525      | 425    | 0                  | 600                | 250                        | 0                          | 0                  | 490                |
|      | Nominated                | 0          | 0      | 0        | 0      | 0                  | 100                | 0                          | 0                          | 0                  | 0                  |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 725                | 250                        | 675                        | 0                  | 575                |
|      | Offered                  | 585        | 600    | 1690     | 2500   | 0                  | 600                | 490                        | 700                        | 0                  | 100                |
| 10   | Allocated                | 160        | 000    | F25      | 425    | 0                  | 600                | 450                        | 700                        | 0                  | 490                |
|      | Allocated                | 160        | 0      | 025      | 425    | 0                  | 100                | 250                        | 0                          | 0                  | 490                |
|      | Nominated<br>Deguested   | 160        | 250    | <u> </u> | 405    | 0                  | 600                | 0                          | 675                        | 0                  | 425                |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 600                | 250                        | 700                        | 0                  | 425                |
| 11   | Ollered                  | 202        | 600    | 1004     | 2500   | 0                  | 223                | 490                        | 700                        | 0                  | 490                |
|      | Allocated                | 160        | 0      | 525      | 425    | 0                  | 225                | 250                        | 0                          | 0                  | 425                |
|      | Requested                | 160        | 250    | 50F      | 405    | 0                  | 0                  | 250                        | 675                        | 0                  | 425                |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 600                | 250                        | 700                        | 0                  | 425                |
| 12   | Ollered                  | 262        | 600    | 525      | 2500   | 0                  | 220                | 490                        | /00                        | 0                  | 490                |
|      | Allocated                | 160        | 0      | 525      | 425    | 0                  | 225                | 250                        | 0                          | 0                  | 425                |
|      | Nominated                | 0          | 0      | 0        | 105    | 0                  | 0                  | 0                          | 0                          | 0                  | 0                  |
|      | Offered                  | 100        | 350    | 525      | 420    | 0                  | 000                | 250                        | 620<br>700                 | 0                  | 425                |
| 13   | Ollered                  | 202        | 600    | 525      | 2500   | 0                  | 223                | 490                        | 700                        | 0                  | 490                |
|      | Allocated                | 160        | 0      | 525      | 425    | 0                  | 225                | 250                        | 0                          | 0                  | 425                |
|      | Nominated                | 0          | 0      | 0        | 0      | 0                  | 0                  | 0                          | 0                          | 0                  | 0                  |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 600                | 250                        | 825                        | 0                  | 425                |
| 14   | Ottered                  | 585        | 600    | 525      | 2500   | 0                  | 225                | 490                        | 700                        | 0                  | 490                |
|      | Allocated                | 160        | 0      | 525      | 425    | 0                  | 225                | 250                        | 0                          | 0                  | 425                |
|      | Nominated                | 0          | 0      | 0        | 0      | 0                  | 0                  | 0                          | 0                          | 0                  | 0                  |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 600                | 250                        | 675                        | 0                  | 425                |
| 15   | Offered                  | 585        | 600    | 1684     | 2500   | 0                  | 225                | 490                        | 700                        | 0                  | 490                |
|      | Allocated                | 160        | 0      | 525      | 425    | 0                  | 225                | 250                        | 0                          | 0                  | 425                |
|      | Nominated                | 0          | 0      | 0        | 0      | 0                  | 0                  | 0                          | 0                          | 0                  | 0                  |
|      | Requested                | 160        | 350    | 525      | 425    | 0                  | 600                | 250                        | 675                        | 0                  | 425                |
| 16   | Offered                  | 585        | 600    | 1684     | 2500   | 0                  | 225                | 490                        | 700                        | 0                  | 490                |
|      | Allocated                | 160        | 0      | 525      | 425    | 0                  | 225                | 250                        | 0                          | 0                  | 425                |





|    | Nominated | 0   | 0   | 0    | 0    | 0 | 0   | 0   | 0   | 0 | 0   |
|----|-----------|-----|-----|------|------|---|-----|-----|-----|---|-----|
|    | Requested | 160 | 350 | 525  | 425  | 0 | 725 | 250 | 675 | 0 | 425 |
| 47 | Offered   | 585 | 600 | 1684 | 2500 | 0 | 600 | 490 | 700 | 0 | 490 |
| 17 | Allocated | 160 | 0   | 525  | 425  | 0 | 600 | 250 | 0   | 0 | 425 |
|    | Nominated | 0   | 0   | 0    | 0    | 0 | 125 | 0   | 0   | 0 | 0   |
|    | Requested | 160 | 350 | 525  | 425  | 0 | 725 | 250 | 675 | 0 | 575 |
| 10 | Offered   | 585 | 600 | 2180 | 2500 | 0 | 600 | 490 | 700 | 0 | 490 |
| 10 | Allocated | 160 | 0   | 525  | 425  | 0 | 600 | 250 | 0   | 0 | 425 |
|    | Nominated | 0   | 0   | 0    | 0    | 0 | 125 | 0   | 0   | 0 | 0   |
|    | Requested | 160 | 350 | 525  | 425  | 0 | 725 | 250 | 675 | 0 | 575 |
| 10 | Offered   | 585 | 600 | 2250 | 2500 | 0 | 600 | 490 | 700 | 0 | 490 |
| 19 | Allocated | 160 | 0   | 525  | 425  | 0 | 600 | 250 | 0   | 0 | 425 |
|    | Nominated | 0   | 0   | 0    | 0    | 0 | 125 | 0   | 0   | 0 | 0   |
|    | Requested | 160 | 350 | 525  | 425  | 0 | 725 | 250 | 675 | 0 | 575 |
| 20 | Offered   | 585 | 600 | 2260 | 2500 | 0 | 600 | 490 | 700 | 0 | 490 |
| 20 | Allocated | 160 | 0   | 525  | 425  | 0 | 600 | 250 | 0   | 0 | 425 |
|    | Nominated | 0   | 0   | 0    | 0    | 0 | 125 | 0   | 0   | 0 | 0   |
|    | Requested | 160 | 350 | 525  | 425  | 0 | 725 | 250 | 675 | 0 | 575 |
| 21 | Offered   | 585 | 600 | 2250 | 2500 | 0 | 600 | 490 | 700 | 0 | 490 |
| 21 | Allocated | 160 | 0   | 525  | 425  | 0 | 600 | 250 | 0   | 0 | 425 |
|    | Nominated | 150 | 0   | 150  | 0    | 0 | 100 | 0   | 0   | 0 | 0   |
|    | Requested | 160 | 350 | 525  | 425  | 0 | 725 | 250 | 675 | 0 | 575 |
| 22 | Offered   | 585 | 600 | 2250 | 2500 | 0 | 600 | 490 | 700 | 0 | 490 |
| 22 | Allocated | 160 | 0   | 525  | 425  | 0 | 600 | 250 | 0   | 0 | 425 |
|    | Nominated | 0   | 0   | 27,9 | 0    | 0 | 100 | 0   | 0   | 0 | 0   |
|    | Requested | 160 | 350 | 525  | 425  | 0 | 725 | 250 | 675 | 0 | 575 |
| 22 | Offered   | 585 | 600 | 2240 | 2500 | 0 | 600 | 490 | 700 | 0 | 490 |
| 23 | Allocated | 160 | 0   | 525  | 425  | 0 | 600 | 250 | 0   | 0 | 425 |
|    | Nominated | 0   | 0   | 0    | 0    | 0 | 100 | 0   | 0   | 0 | 0   |
|    | Requested | 160 | 350 | 525  | 425  | 0 | 725 | 250 | 675 | 0 | 575 |
| 24 | Offered   | 585 | 600 | 2190 | 2500 | 0 | 600 | 490 | 700 | 0 | 490 |
| 24 | Allocated | 160 | 0   | 525  | 425  | 0 | 600 | 250 | 0   | 0 | 425 |
|    | Nominated | 0   | 0   | 0    | 0    | 0 | 100 | 0   | 0   | 0 | 0   |