



PARTICIPANTS FORUM

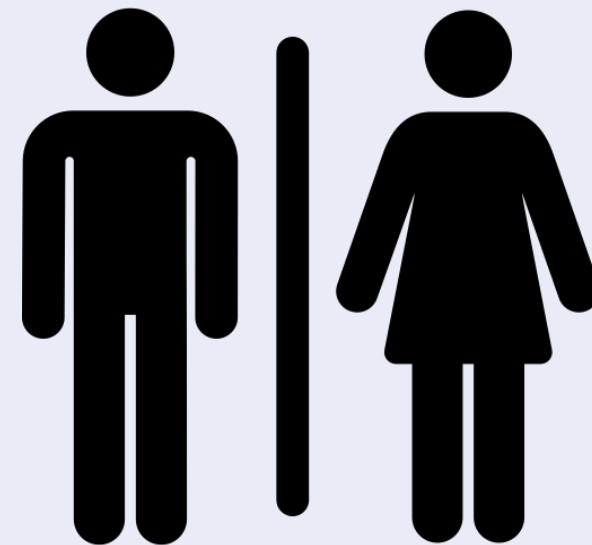
THE CLERMONT HOTEL

BRITNED

18/09/2024

WELCOME

HOUSEKEEPING & FORMAT



_The Clermont
No registration required



PARTICIPANTS FORUM

AGENDA

1

Welcome

2

**Commercial
Update**

3

**Operational
Update**

4

**Empire
Update**

5

**Buy Now
Auctions**

- TEA & COFFEE BREAK -

PARTICIPANTS FORUM

AGENDA

GUEST SPEAKERS

6

Dynamic
Overload

7

Finance
Invoice Changes

8

EDI2XML
Update

9

How has Energy
Policy Changed
since the 2024 UK
General Election?

ENA

10

Impact of EU CBAM -
Challenges and
Uncertainties for TSOs
and Interconnectors

AFRY

- DRINKS & CANAPÉS -

OUR SPEAKERS



GINEKE VAN DIJK
COMMERCIAL DIRECTOR



STEWART WHYTE
OPERATIONS DIRECTOR



NILS TEIPEL
COMMERCIAL OPERATIONS
& PLANNING MANGER



TOM SMITH
HEAD OF FINANCE



KICK VAN HOUTEN
SENIOR COMMERCIAL ANALYST



MICHAEL THORSSON
SENIOR COMMERCIAL ANALYST

GUEST SPEAKERS



DANIEL CLELLAND
COMMUNICATIONS MANAGER



STEPHEN WOODHOUSE
DIRECTOR

TEAM UPDATE

JON COLE – CUSTOMER & MARKETS MANAGER



Joined BritNed in March 2024 managing customer engagement and long-term product auctions. Previously set-up a Market Analysis team to support National Grid's portfolio of interconnectors.

Joined National Grid in 2022 following over 10 years working in UK energy retail (npower and EDF) in various roles including risk, pricing, strategy, finance and policy & regulation.

Born and currently lives in South Wales. Hobbies include entertaining his 18 month-old daughter and the (now) rare game of golf.

An aerial photograph of a power plant facility situated on a grassy bank next to a large body of water. The plant consists of several large, light-colored rectangular buildings and a complex network of metal structures, likely transformers and switchgear. Two prominent, glowing blue lines represent power transmission cables that run from the plant across the water's surface. In the background, a network of similar glowing blue lines connects various points on the land, suggesting a wider power grid. The water is dark blue, and the surrounding land is green with some sandy areas.

**ANY
QUESTIONS?**



COMMERCIAL UPDATE

PARTICIPANTS FORUM

GINEKE VAN DIJK

18/09/2024

BUY NOW AUCTIONS

NEW AUCTION PRODUCT RELEASES

Launched
April 2024

Wednesday - 15:34 CE(S)T

Buy Now Auction Offers

David Bowen BritNed

Timescale: Intraday | Border Direction: NL-GB | Delivery Day: 11/09/2024 | Product type: ID 4 (16:00 - 00:00) | Status: Active

Sort by: Time Left (descending)

MTU CE(S)T	Offered TRs (MW)	Offered TRs (MW)	Offered TRs (MW)	Offered TRs (MW)	Offered TRs (MW)
16:00 - 17:00	0	0	0	0	0
17:00 - 18:00	0	0	0	0	0
18:00 - 19:00	0	0	0	0	0
19:00 - 20:00	0	0	0	0	0
20:00 - 21:00	0	0	0	0	0
21:00 - 22:00	0	0	0	0	0
22:00 - 23:00	0	0	0	0	0
23:00 - 00:00	5	5	5	5	5
	Total TRs: 5 MW Total cost: € 39.75	Total TRs: 5 MW Total cost: € 39.75	Total TRs: 5 MW Total cost: € 39.75	Total TRs: 5 MW Total cost: € 39.75	Total TRs: 5 MW Total cost: € 39.75

Average Clearing Price

€8.20 NL - GB
€2.90 GB - NL

Total 5MW Offers

12,936 NL - GB
9,690 GB - NL

Total Allocated Capacity

2.9GW NL - GB
6.8GW GB - NL

Supported the **Early Return to Service** following the summer outage, with **3.1GW** of capacity sold on Saturday 10 August.



WEEKLY AUCTIONS

NEW AUCTION PRODUCT RELEASES

Launched
May 2024

Average Number of Participants

9

NL - GB

8

GB - NL

Average Clearing Price

€12.90

NL - GB

€4.00

GB - NL

Total Requested Capacity

4.2GW

NL - GB

3.7GW

GB - NL

Total Allocated Capacity

625MW

NL - GB

625MW

GB - NL

11/09/2024 Wednesday - 15:46 CE(S)T

Auction Details

6-12 May Weekly 2024 Auction

Details

- Auction ID: BDL-GB-NL-P-BASE---240506-01
- Type: Long-term multi-day weekly
- From: 06/05/2024
- Allocation MTU: 60 min
- Direction: GB-NL
- To: 12/05/2024

Offered Capacity

Preliminary OC	75 MW
Returns	0 MW
Final OC	75 MW

Key Auction process timings

#	Process step	Date	Time CE(S)T
1.	Preliminary auction specification published	28/04/2024	12:00
2.	Return window closed	29/04/2024	11:55
3.	Final auction specification published	29/04/2024	12:00
4.	Bidding open	30/04/2024	12:00
5.	Bidding closed	01/05/2024	12:00
6.	Provisional results published	01/05/2024	12:02
7.	Final results published	01/05/2024	16:02

POLICY & REGULATION

2024 UPDATES



NIS & INFORMATION SECURITY

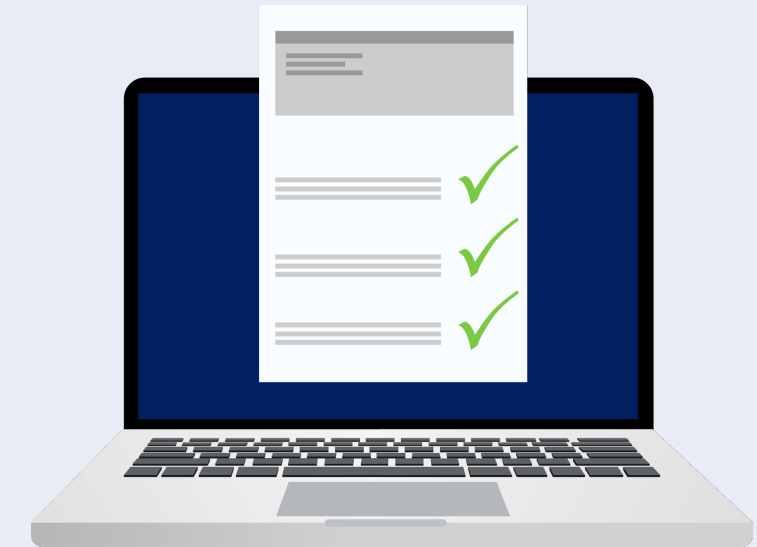
BritNed has passed the NIS inspection in UK.

We are currently working towards more in-depth cyber requirements, which come from NIS in the UK and NCCS and NIS 2 in the Netherlands.



EU CBAM, UK REMA REVIEW, EU BIDDING ZONE REVIEW

BritNed continues to advocate for closer cooperation between the EU and the UK to minimise impacts on cross border trading.



ACCESS RULES UPDATED

Implemented on 16 September 2024
Key Changes:

Day-Ahead Gate Closure
updated to 14:20 CE(S)T
(previously 13:50 CE(S)T)

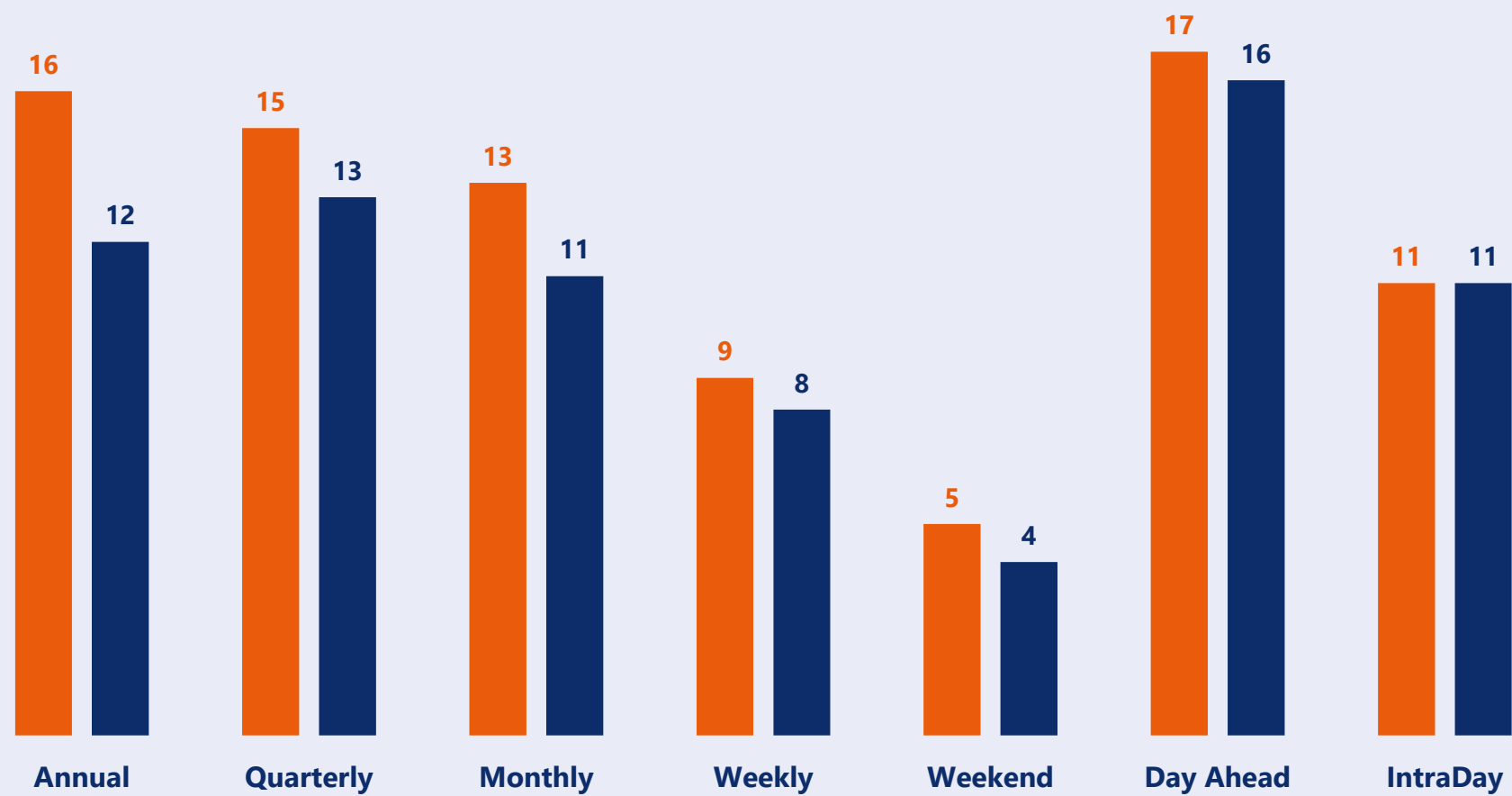
Self-Billed Invoice

AUCTIONS OVERVIEW

AVERAGE PARTICIPATION & CLEARING PRICE

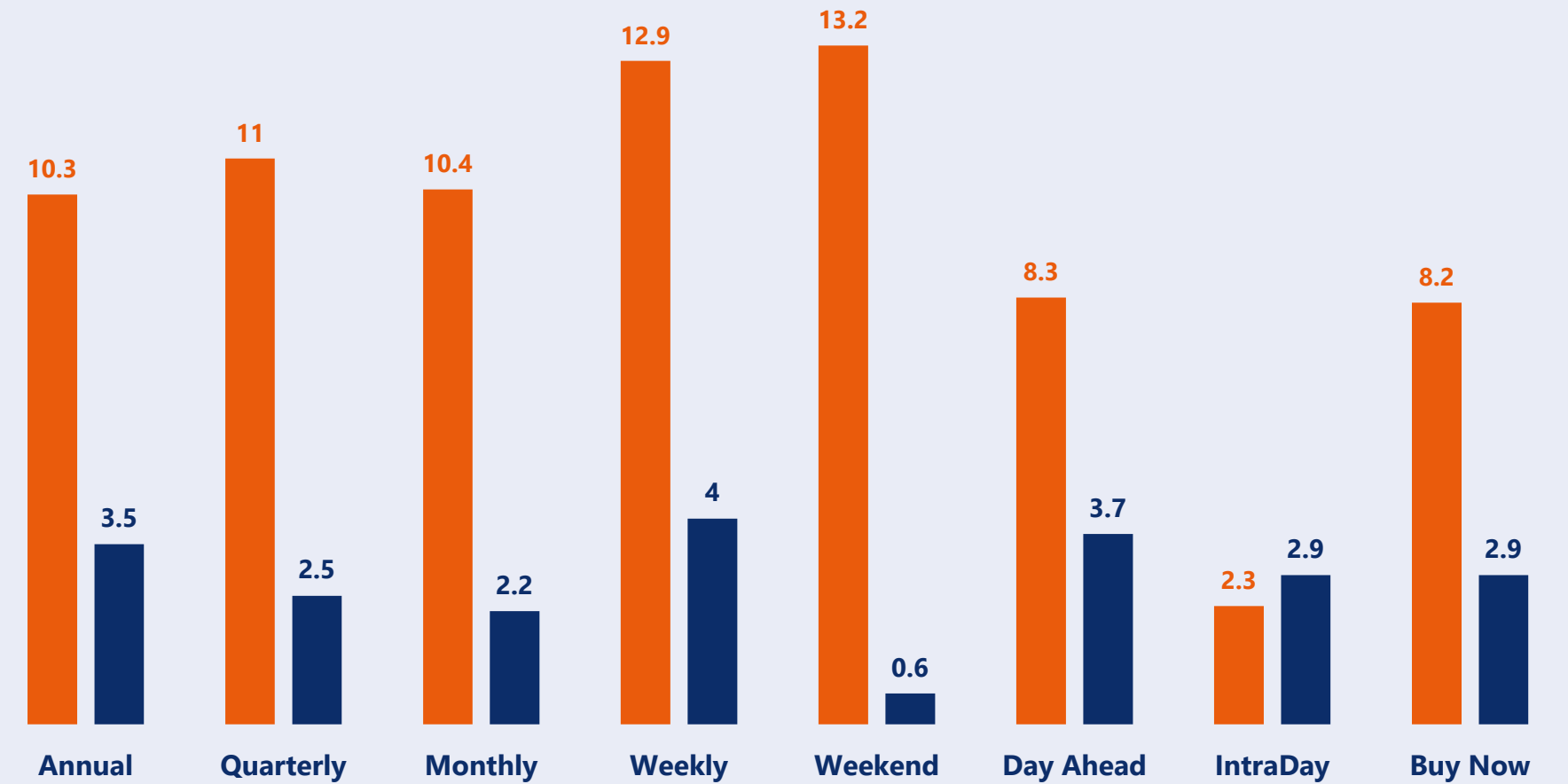
AVERAGE NUMBER OF PARTICIPANTS

■ NLGB ■ GBNL



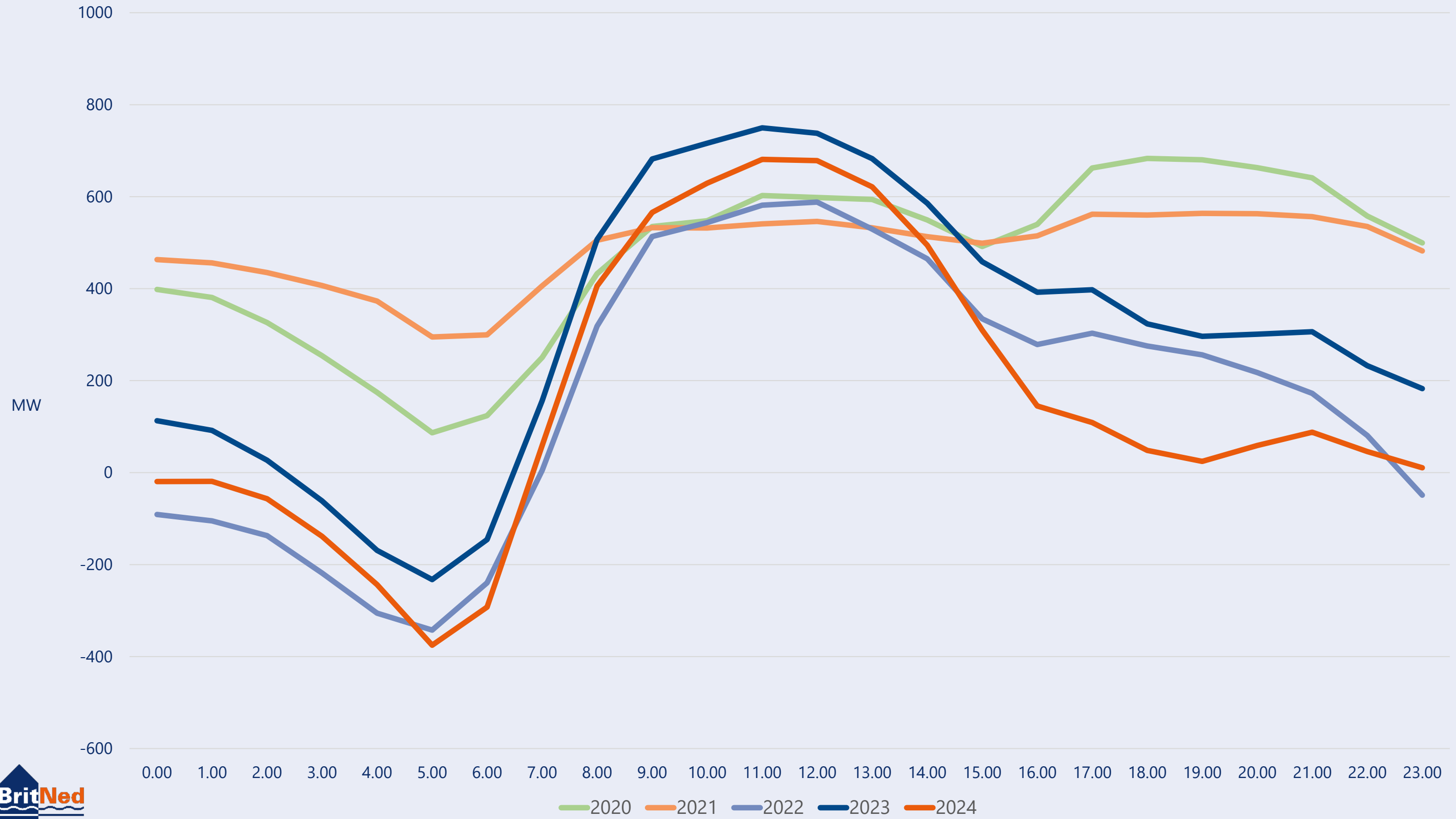
AVERAGE CLEARING PRICE (€)

■ NLGB ■ GBNL



BRITNED FLOWS

AVERAGE DAILY FLOW PROFILES 2020 - 2024



- BritNed has net flowed NL to GB, driven by imports over the daily hours
- This is likely driven by NL solar impact creating a NL price discount to GB
- Flows from GB to NL are predominately to meet the early demand peak in NL



LONG-TERM AUCTIONS

PROVISIONAL CALENDAR





OPERATIONAL UPDATE

PARTICIPANTS FORUM

STEWART WHYTE

18/09/2024

AGENDA

OPERATIONAL UPDATE

1

**Asset
Overview**

2

**Current Asset
Performance**

3

**Asset Management
Maturity Initiative**

4

**6-Week
Outage**

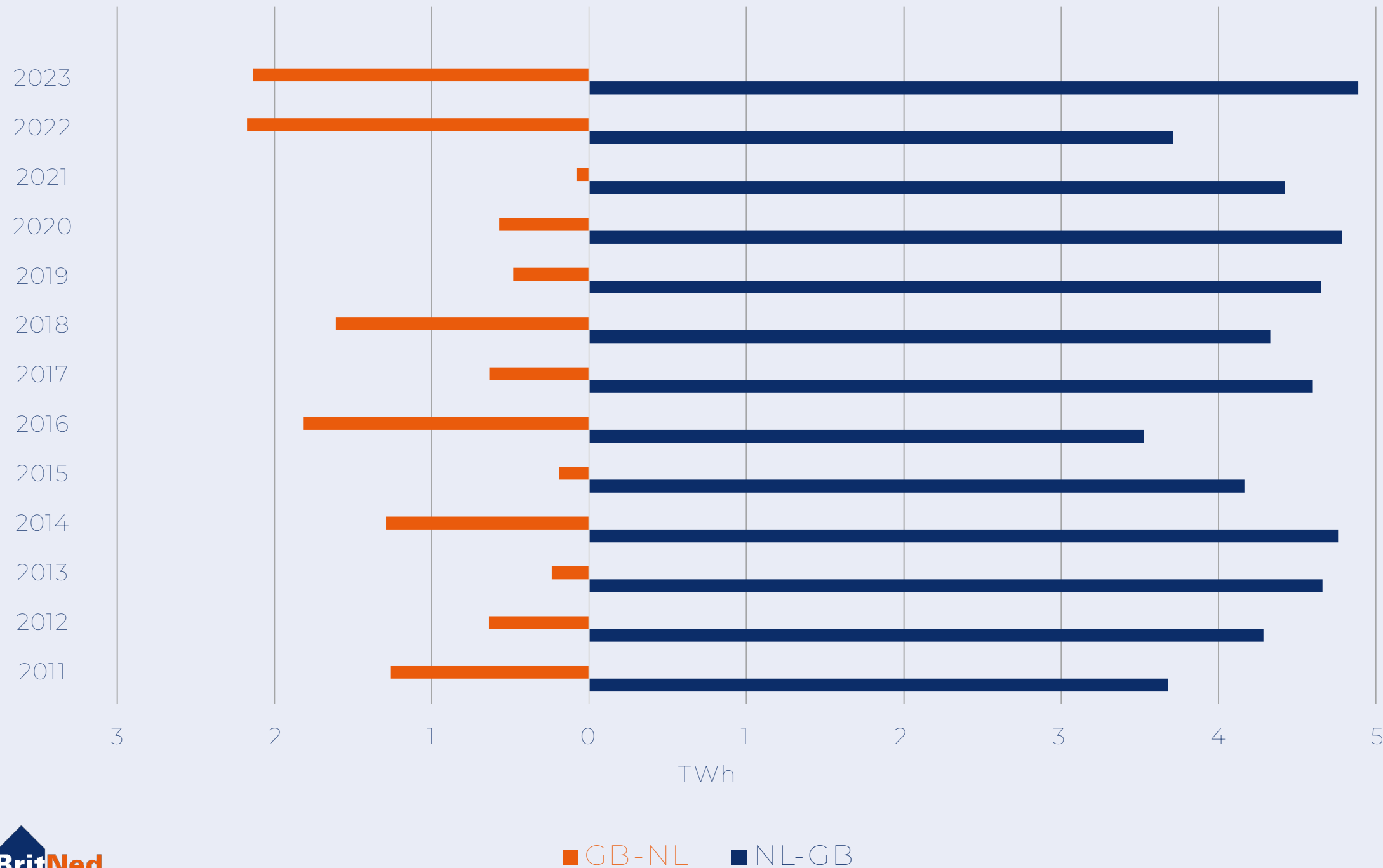
5

**Future Plans &
Investments**

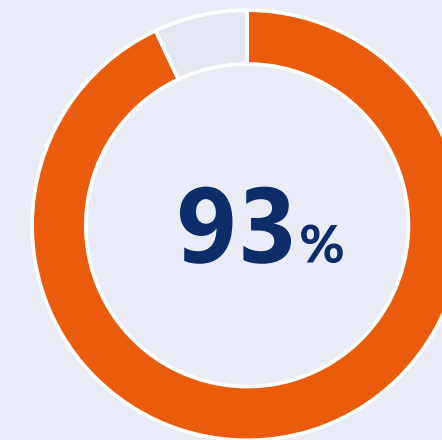
KEY FIGURES

AN OVERVIEW OF BRITNED'S ASSETS

INSTRUCTED FLOW OVERVIEW



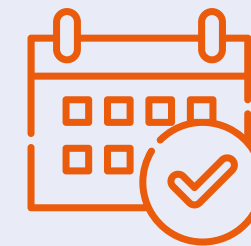
OPERATIONAL PERFORMANCE



Average annual availability 2011 - 2023

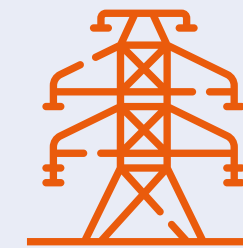


Annual availability in 2023



13 YEARS

Operational since 1 April 2011



72 TWh

Power exchanged 2011 - 2023

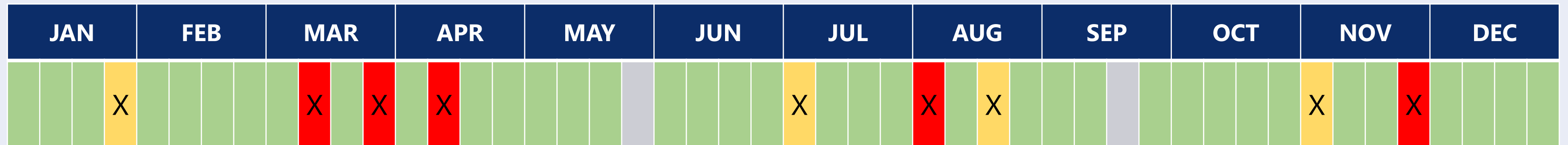


1.4M

Homes powered annually

HISTORICAL PERFORMANCE

2023 AVAILABILITY & RELIABILITY



Dynamic Overload Unavailable

2023 TARGET	AVAILABILITY w/o Dynamic Overload	AVAILABILITY with Dynamic Overload	RELIABILITY (Unplanned/forced planned outages)
97.5%	96.81%	98.76%	9

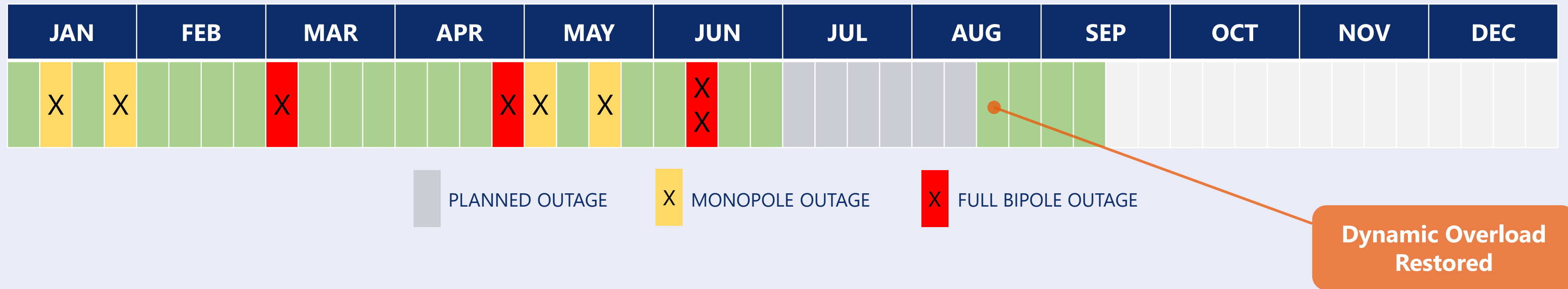
BENCHMARKING

Based on CIGRE comparisons, excluding cable failures, our performance is **“in the pack”**



CURRENT PERFORMANCE

2024 AVAILABILITY & RELIABILITY



2024 TARGET	AVAILABILITY w/o Dynamic Overload	AVAILABILITY with Dynamic Overload	RELIABILITY (Unplanned/forced planned outages)
95%	81.81%	82.60%	8

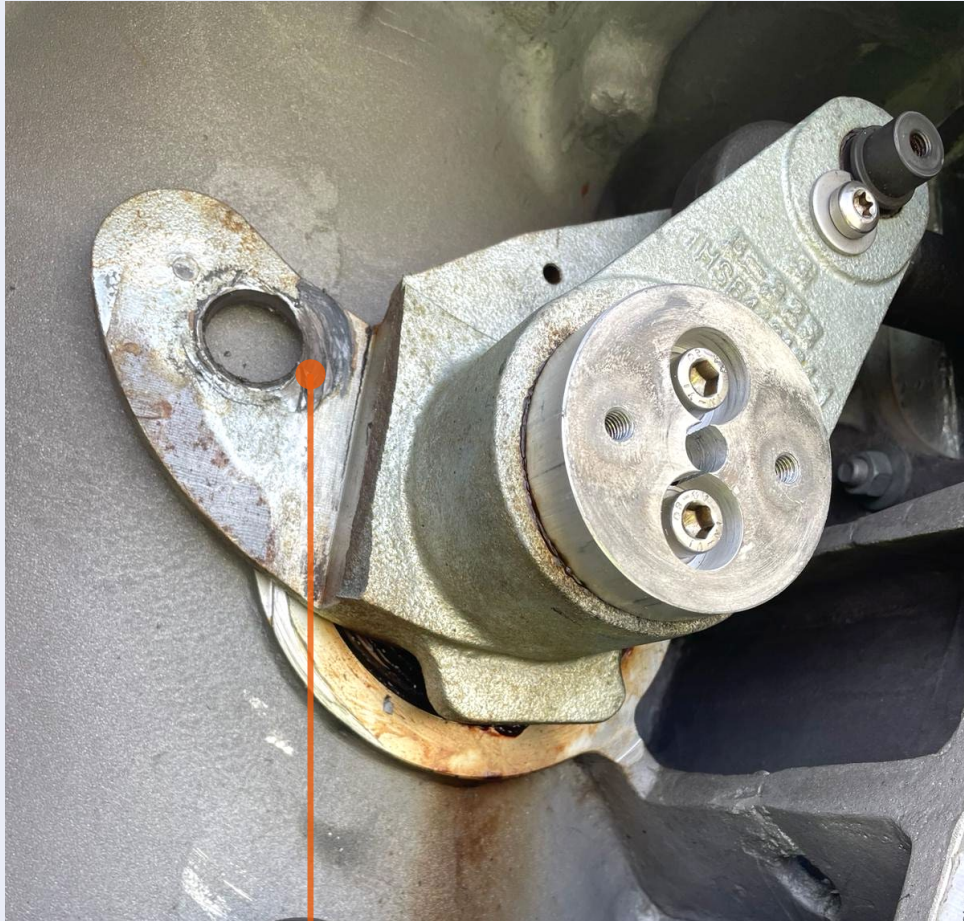
BENCHMARKING

Based on CIGRE comparisons, excluding cable failures, our performance is **"in the pack"**



ASSET PERFORMANCE

2024 OUTAGES CAUSED BY ASSET



Mechanical failure of circuit breaker



Perished O-ring for valve cooling



To secure shaft



ASSET MANAGEMENT MATURITY INITIATIVE

TACKLE EMERGING CHALLENGES TO MAINTAIN OPERATIONAL EXCELLENCE

TECHNOLOGY & SYSTEMS

System Strategy

Complete the detailed design of control system

Review the remaining Asset Management Systems

Complete a review of new Condition Monitoring equipment

ASSETS

Complete IES project

Complete Critical Asset Strategies

New Asset Health and Maintenance review approach

Build a 5-year asset plan

Undertake AM maturity and gap assessment

SAFETY

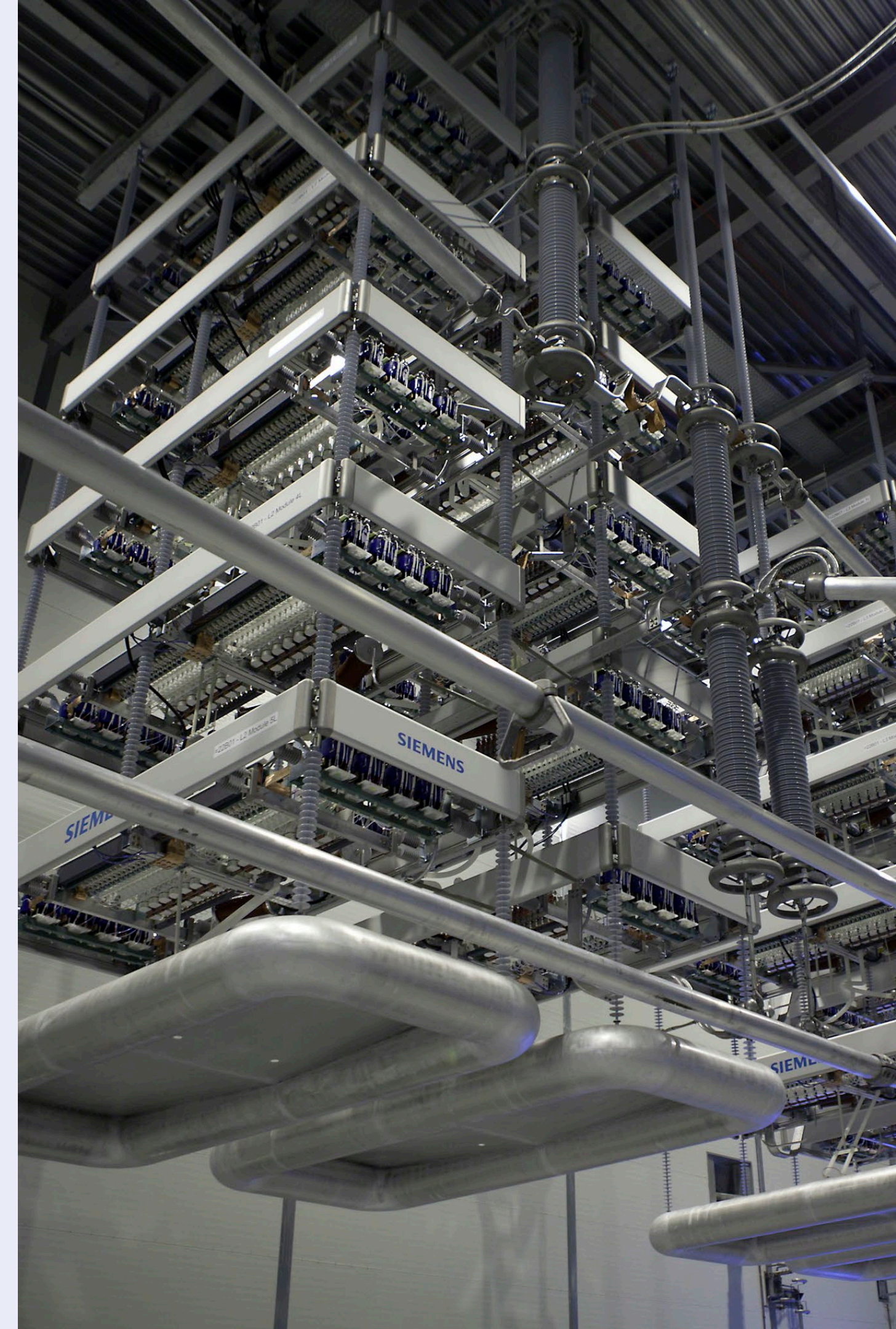
Complete re-authorisation activities and update safety rules

Complete the Safety Management System

Undertake a review of behavioural safety

We will complete our asset management improvement initiative in-line with our vision to:

Deliver 'World Class' performance for our customers and stakeholders, whilst enabling the opportunities of the 'Energy Transition'.



THE SUMMER OUTAGE

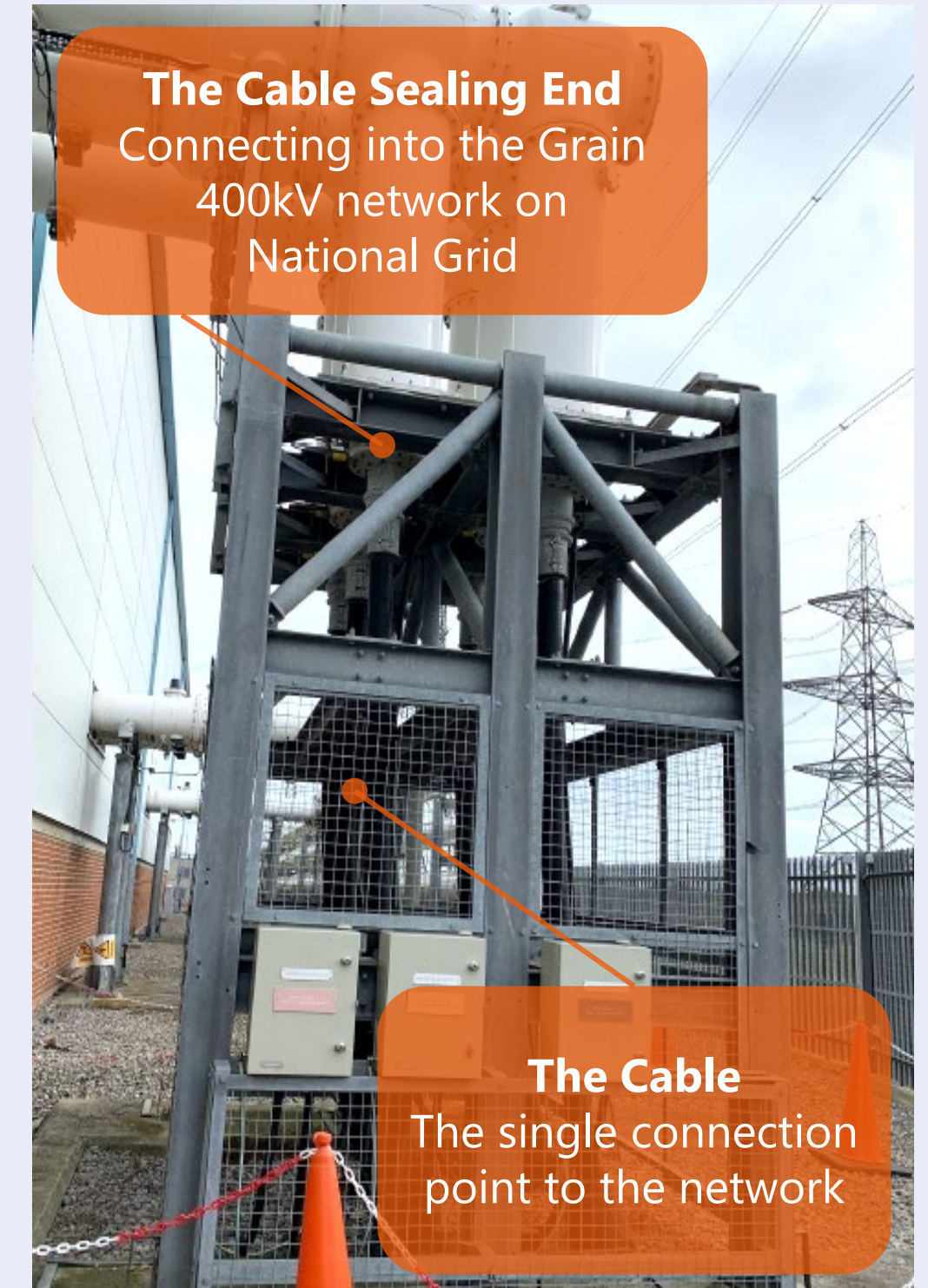
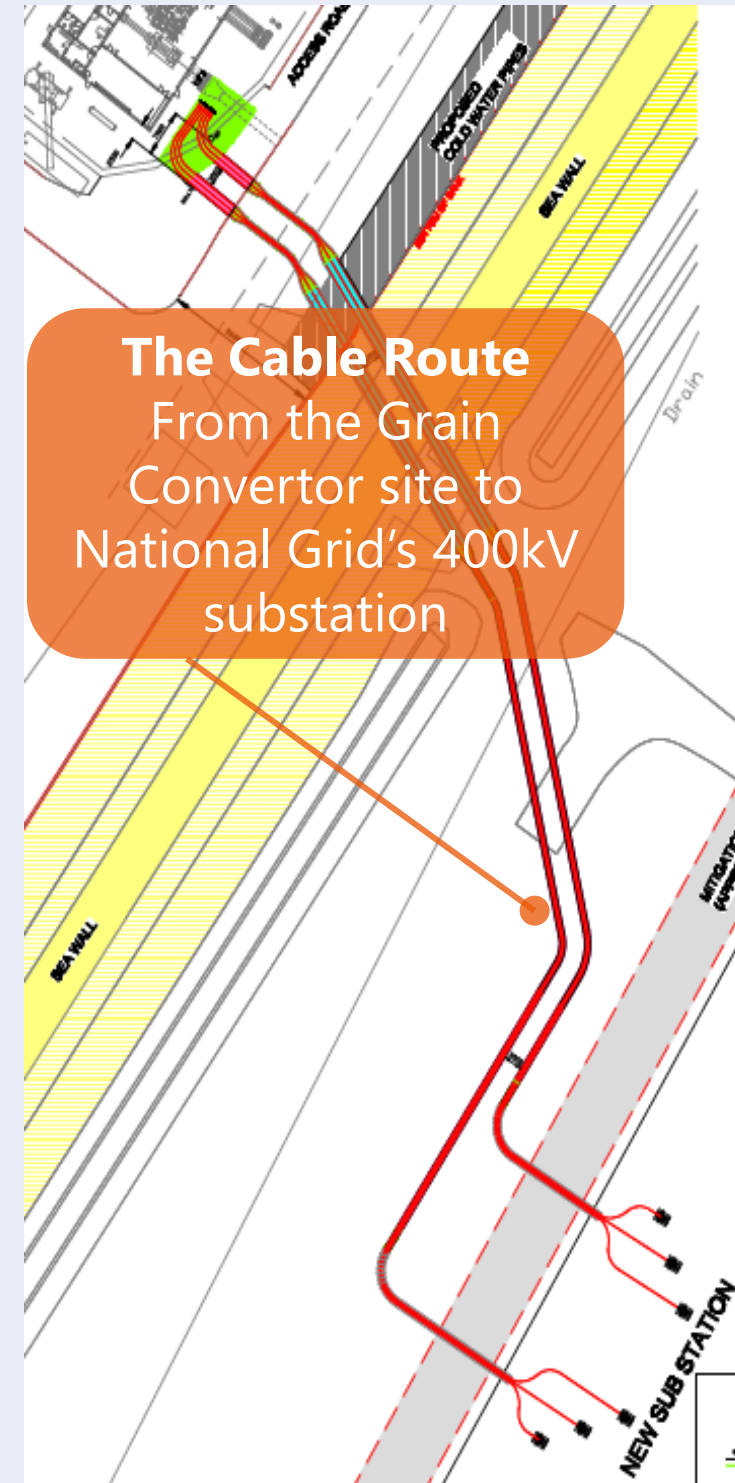
700 MAINTENANCE TASKS & SPECIALIST PROJECTS

OUTAGE OVERVIEW

- Planned in collaboration with the commercial team to identify the best time for the market.
- Replacing the Pressure Ring on the Cable Sealing End at Grain was the highest priority. It is the only connection to the main National Grid network. Degradation had been observed during routine asset maintenance.
- Had the Cable Sealing End failed, BritNed could have been forced into a longer unplanned outage.

OUTAGE COMPLETION

- The outage also enabled further asset management work to be completed on the Transformers and Circuit Breakers, in addition to the regular 700 maintenance tasks.
- The summer outage was completed ahead of schedule on 10 August at 4pm CE(S)T - 1 day and 7 hours early.

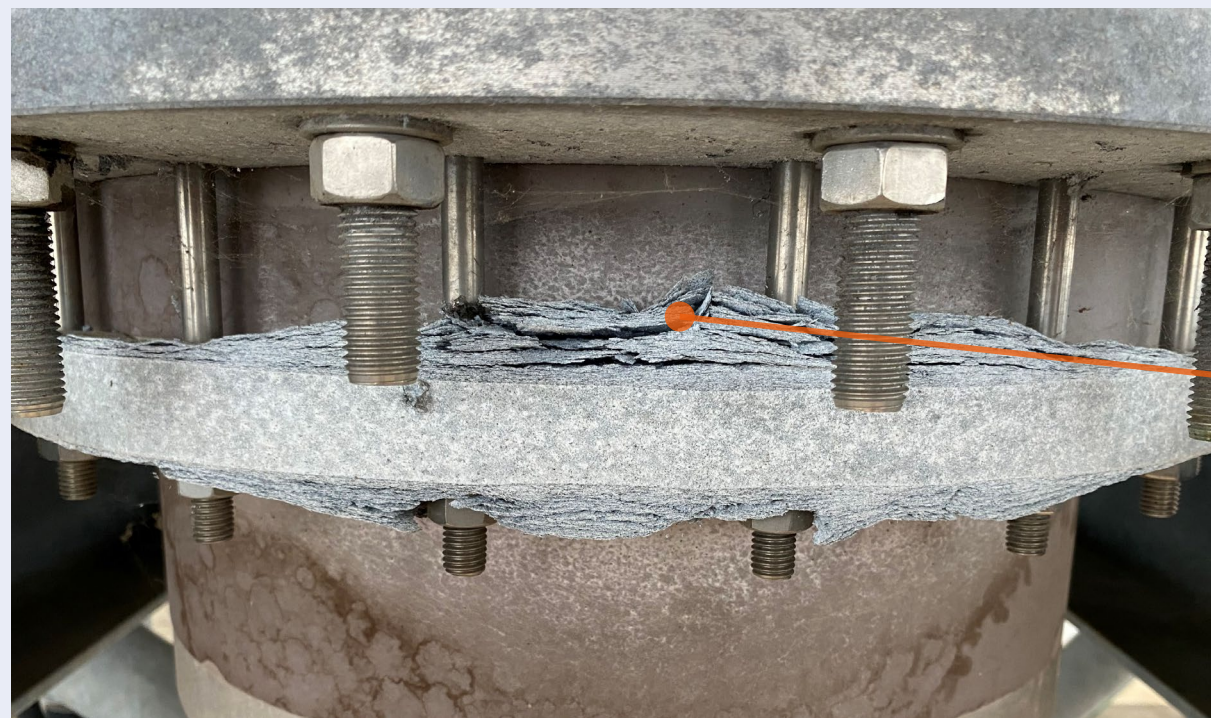


THE SUMMMER OUTAGE

THE CABLE SEALING END PROJECT

Asset Investigation

Pressure ring on the cable sealing end showing degradation



Asset Investigation

Pressure ring is 'flaking off' with a loss in some parts of >50%

REPLACING THE PRESSURE RING

- Further inspection of the Pressure Ring showed it has severely deteriorated and in NKT's expert opinion, was close to failure.
- Observations identified some areas had experienced a loss of >50% depth.
- All parts were immediately ordered and a replacement plan was actioned.
- The asset was regularly monitored ahead of the outage.
- Post-outage, a further investigation will be completed to establish a root cause of the deterioration.

FUTURE ASSET PLANS & INVESTMENT

PROJECTS TO FURTHER INCREASE OUR AVAILABILITY & RELIABILITY



TELECOMMUNICATIONS SYSTEMS



SPARE PARTS BUILDING



CONTROL SYSTEM



CABLE MONITORING



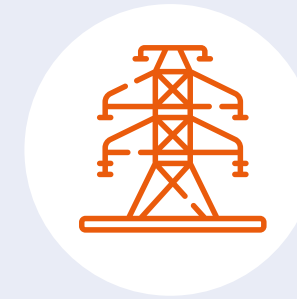
CIRCUIT BREAKERS



PROTECTION SYSTEM



CYBER SECURITY



ASSET MANAGEMENT SYSTEMS



EMPIRE & COMMERCIAL OPERATIONS UPDATE

PARTICIPANTS FORUM

NILS TEIPEL

18/09/2024

AGENDA

EMPIRE & COMMERCIAL OPERATIONS UPDATE

1

**Looking Back –
The First Year
of Empire**

2

**Looking Forward –
2024 & 2025
Empire Roadmap**

3

**Connect –
A New Data
Service**

4

**Intraday Auction
Reworks**

5

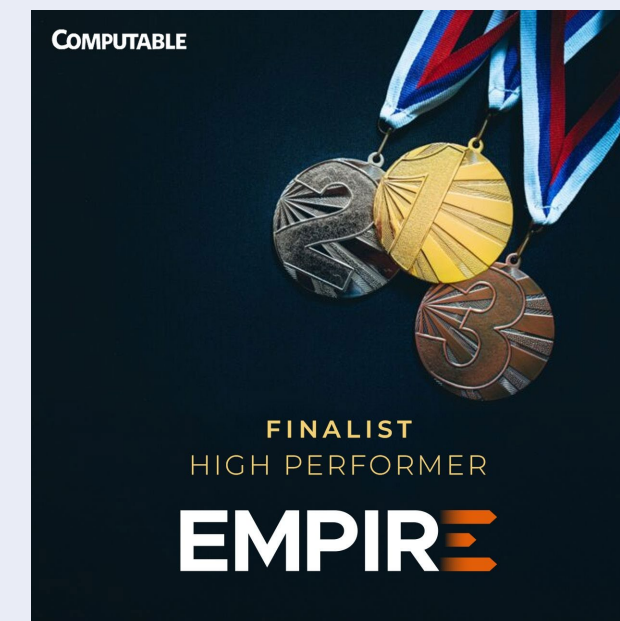
**GOPACS
Update**

FIRST YEAR OF EMPIRE

LOOKING BACK

A BUSY FIRST YEAR

- Tomorrow is Empire's first birthday! 😊
- The Helpdesk has created **4,784 tickets** and took **1,122 calls** to support you
- We upgraded Empire from v1.0 to v4.0
 - Implementing **39 releases** with **128 new features** and **338 subtasks**
 - Improving performance and launching new products
 - Enhancing usability
- Followed-up on your requests from the last Participants Forum and meetings



FIRST YEAR OF EMPIRE

LOOKING BACK

CHANGES REQUESTED	STATUS
Make it possible to filter auctions you bid in	✓
Auction details to auto refresh when on the screen	✓
Include a "delete all bids" button	✓
Possibility to tag a personal bid ID to a bid	✓
Improve the copy paste function on nominations and bid screens	✓
Show a subtotal below the nomination screens for internal validation	✓
Make the auction calendar a subscribe URL	✓
An indicator for delivery days which pre-nominations have been submitted	✓
Receive an in-system and API message when bids / nominations are sent	✓
Possibility to download LT auction results in XML	✓
Align nomination via XML with RNP	✓
Be able to download DA/ID results via XML	✓
UloSI report in hourly resolution	✓
<i>...and more</i>	✓

EMPIRE ROADMAP

LOOKING FORWARD

Projects / BritNed Empire Produ... / BEPD-619

4.0.0 release candidates

Attach Add a child issue Add design Add Tempo to plan and track time Link goals Zeplin for Jira

Description
Add a description...

Child issues Order by ... + 3% Done

- BEPD-186 Inconsistent field hint text: "set" WAITING FOR CLIENT
- BEPD-211 Default nomination front-end has field-local validation, for overlap, in the design. Only backend in system though. WAITING FOR CLIENT
- BEPD-183 Reset Filter on Auction Schedule WAITING FOR CLIENT
- BEPD-318 No feedback on failed Dataflow submission WAITING FOR QA
- BEPD-215 No message when Planned Outage is updated WAITING FOR CLIENT
- BEPD-322 Inconsistency with the return deadline for LT and access rules WAITING FOR CLIENT
- BEPD-253 Reports - Participant Report - Organisation User - PART_ADMIN - Filter USER ROLE selection WAITING FOR CLIENT
- BEPD-321 Invoices becoming overdue on Business day when it should be next business day WAITING FOR QA
- BEPD-190 Compensation UloSI missed revenue cancelled auctions WAITING FOR QA

Details

Assignee Kinga Bocskay Assign to me

Reporter Nikolett Szabó

Labels None

Priority Medium

Epic Name 4.0.0 release candidates

More fields Story Points, Original estimate, Time tracking, Components

Automation Rule executions

Invision for Jira Open Invision for Jira

Zendesk Support Linked Tickets

Project overview Link to share status and updates

Created February 6, 2024 at 5:52 PM
Updated September 3, 2024 at 9:15 AM

Release 4.0.0

Projects / BritNed Empire Produ... / BEPD-641

5.0.0 release

Attach Add a child issue Add design Add Tempo to plan and track time Link goals Zeplin for Jira

Description
Add a description...

Child issues Order by ... + 0% Done

- BEPD-206 Creating Open Auction Intraday error message improvement WAITING FOR MR
- BEPD-194 finance overview - incorrect use leap year WAITING FOR MR
- BEPD-324 Secondary Market - Action DA Transfer Message 5 mins before closing IN PROGRESS
- BEPD-328 New report- Add BPP Period report to Empire BLOCKED
- BEPD-330 Add UloSI information to Secured Revenue Report WAITING FOR MR
- BEPD-196 Changes on the Finance Overview and Org overview screens - add information WAITING FOR MR
- BEPD-204 New Report - List all bids for a participant for a given timeframe WAITING FOR MR
- BEPD-192 Implement filter logic for settlement screen WAITING FOR MR
- BEPD-205 Send notice in case of negative credit limit WAITING FOR MR

Details

Assignee Unassigned Assign to me

Reporter Nikolett Szabó

Labels None

Priority Medium

Epic Name 5.0.0 release

More fields Story Points, Original estimate, Time tracking, Components

Automation Rule executions

Invision for Jira Open Invision for Jira

Zendesk Support Linked Tickets

Project overview Link to share status and updates

Created February 14, 2024 at 3:18 PM
Updated August 1, 2024 at 12:06 PM

Release 5.0.0

EMPIRE ROADMAP

LOOKING FORWARD





CONNECT

DIRECTLY INTO BRITNED'S DATA WAREHOUSE

LAUNCHING SOON

CONNECT

DIRECTLY INTO BRITNED'S DATA WAREHOUSE



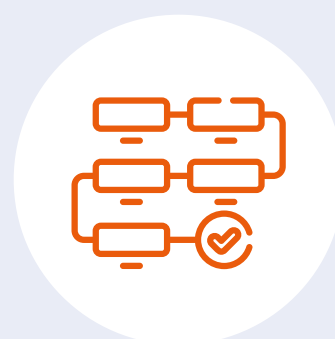
SIMPLIFIED DATA ACCESS

Easier and faster access to historic trading data from BritNed's data warehouse



INTEGRATE SYSTEMS

Connect your Cloud systems directly with BritNed's data warehouse



OPTIMISE PROCESSES

Streamline data analysis processes and avoid manual data copying / report downloading

WHAT DATA IS AVAILABLE?

- ✓ Anonymised auction clearing prices
- ✓ Anonymised auction clearing volumes
- ✓ Anonymised bid curves
- ✓ Aggregated nominations

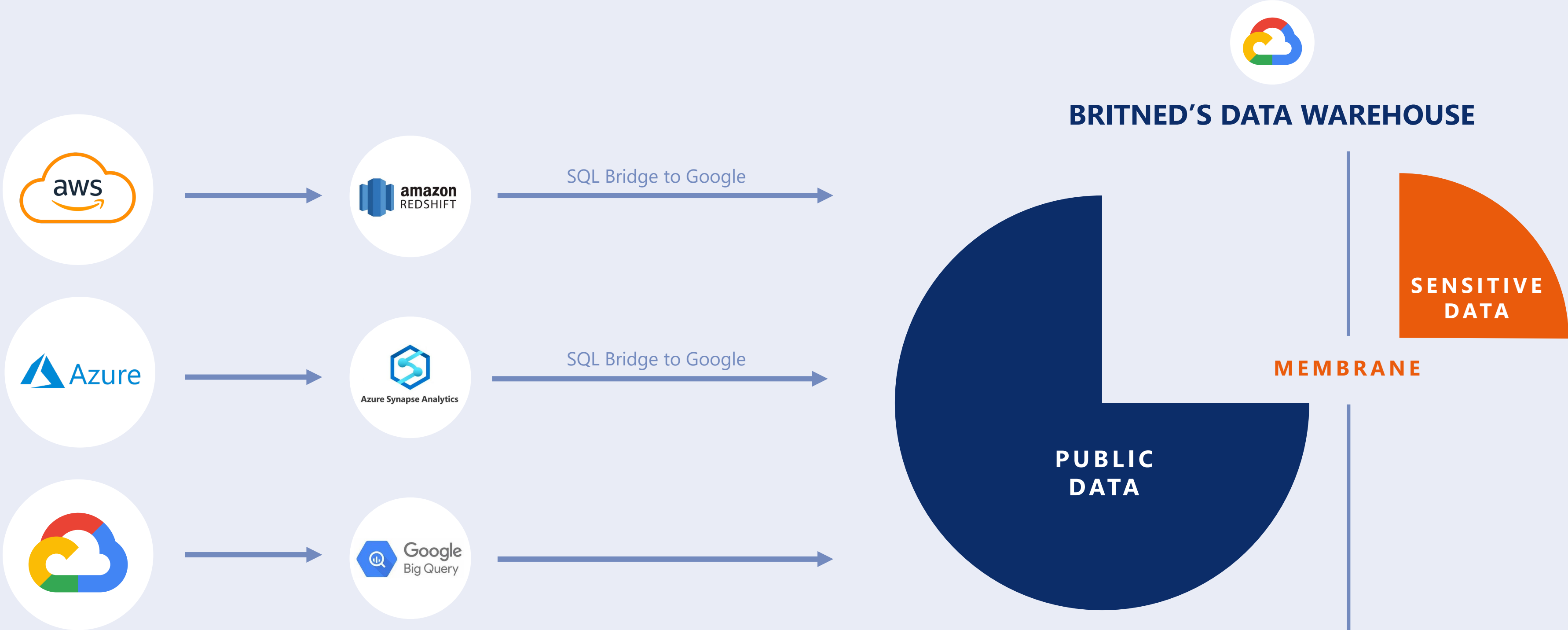
KEY BENEFITS

- ✓ Save time with simplified access to historic BritNed data*
- ✓ Maintain internal data pipelines and view the data within your systems, including PowerBI, Google, AWS, Azure and various AI tools
- ✓ The service will be available free of charge

*we reserve the right to disconnect you if you cease to trade on BritNed

CONNECT

DIRECTLY INTO BRITNED'S DATA WAREHOUSE



WHAT'S NEEDED?

CONNECT



A technical Cloud contact
(if you're not using Google Cloud)



A Google Cloud account
(as BritNed uses Google)



A little patience
(this is a new & experimental service)



Internal IT support

WHAT'S NOT INCLUDED?

CONNECT



Training on SQL, Google Cloud or your internal Cloud system



The SQL bridge from Google Cloud to your Cloud system



SLA or Support, but we will provide a Best Effort Service



The Empire Helpdesk is not supporting this service

CONNECT ROADMAP

TIMELINE ESTIMATION



INTRADAY AUCTION REWORKS

30 MIN ALLOCATION / NOMINATION UPDATE



30 MINS

PROJECT OVERVIEW:

- BritNed is investigating launching a new Intraday auction schedule
- Allocation and nomination are foreseen to happen in 30 minutes resolution
- The setup foresees two additional Intraday auctions
- Leadtime for nominations however will remain 65-70 minutes due to SO requirements

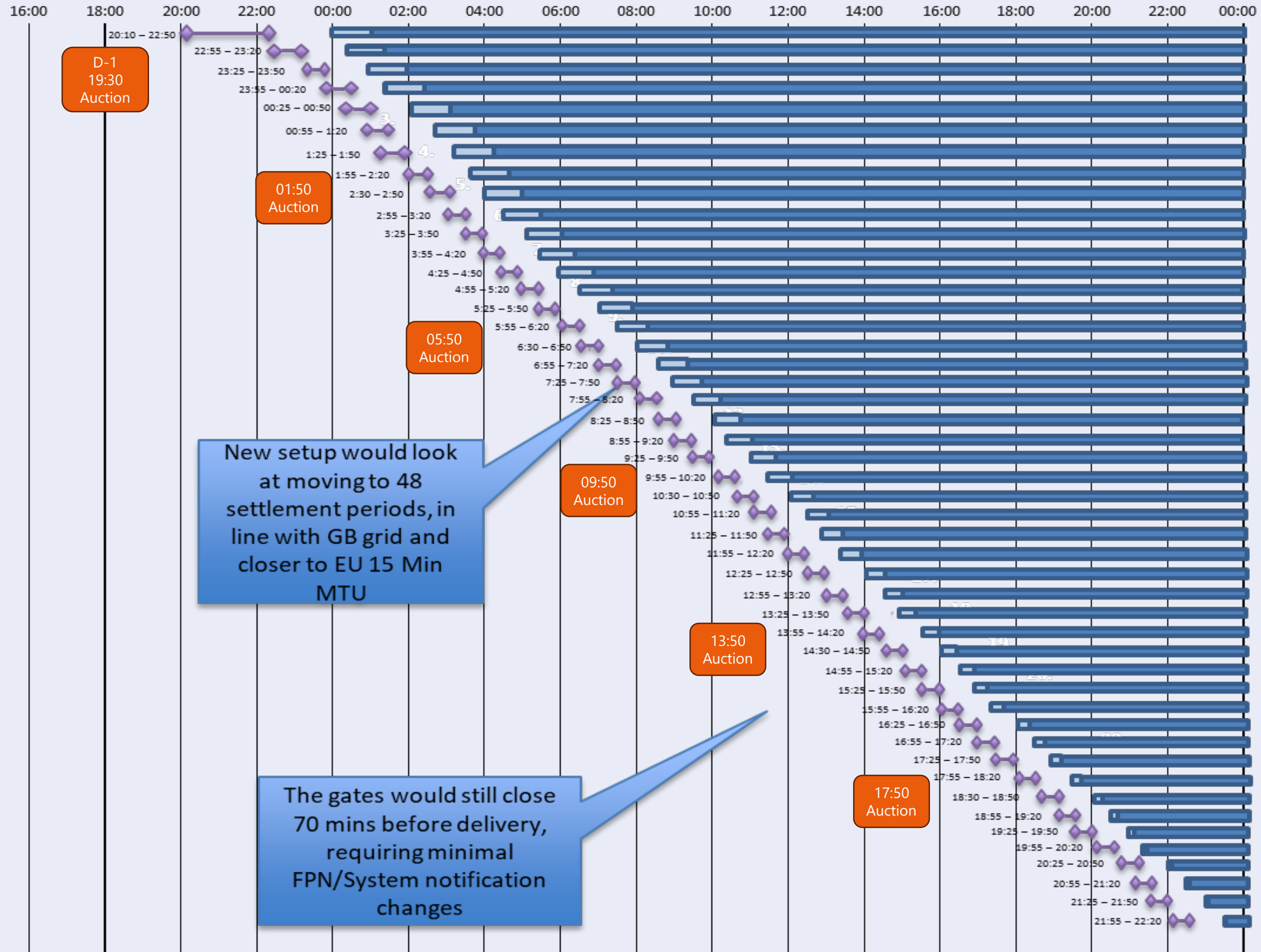
ANTICIPATED BENEFITS:

- ✓ More accurate allocation and nomination possibilities to better serve market needs
- ✓ Better alignment to European markets (15min MTU)
- ✓ Additional trading possibilities for improved balancing and market opportunity utilisation

PROJECT STATUS:

- ✓ Market consultation performed
- ✓ Empire system is ready
- ✓ Change requested from ESO and in discussion now

NEW INTRADAY SETUP



Legend

- Intraday Nomination Gate
- Intraday Nomination Interval
- Intraday Nomination Interval Nominations entered will be hold firm -> no re-nomination²

New setup would look at moving to 48 settlement periods, in line with GB grid and closer to EU 15 Min MTU

The gates would still close 70 mins before delivery, requiring minimal FPN/System notification changes

INTRADAY AUCTION REWORKS

INDICATIVE TIMELINE



GOPACS

UPDATE

BritNed is back on the GOPACS platform

BritNed is working with GOPACS to provide nomination data for GOPACS parties

- This allows GOPACS to validate order

NOTE: Any GOPACS queries to go through GOPACS



**BUY NOW
2.0**

PARTICIPANTS FORUM

KICK VAN HOUTEN

18/09/2024

FEEDBACK

WHAT YOU TOLD US ABOUT BUY NOW 1.0

“ ”

The GUI is unclear.

“ ”

The API is slow.

“ ”

It's hard to find offers.

“ ”

The filters are not optimised.

“ ”

How much capacity is offered?

“ ”

It's hard to calculate time to price.

BUY NOW 2.0

WHAT HAVE WE DONE?



API

Optimised API leading to significant performance improvement



FILTERS

'Smart' default filters to swiftly view active offers for next hours



2.0

Development of Buy Now 2.0 has started

BUY NOW 2.0

THE VISION

27/05/2022 Friday - 06:23 CE(S)T

Buy Now Auction Offers

Direction **GB NL** NL GB Delivery Day 27/11/2022 Timescale **Intraday**

Next Price change: 8 seconds

MTU CE(S)T	Direction	Current Price (€)	Next Price (€)	OC	Request field (MW)
00:00 - 01:00 GB closed	GB-NL	0.52	0.48	500	0
01:00 - 02:00 GB closed	GB-NL	0.52	0.48	500	0
02:00 - 03:30 GB closing in 1h 12m	GB-NL	0.52	0.48	500	0
03:00 - 04:00	GB-NL	0.52	0.48	500	0
04:00 - 05:00	GB-NL	0.52	0.48	500	0
05:00 - 06:00	GB-NL	0.52	0.48	450	50
06:00 - 07:00	GB-NL	0	0	0	0
07:00 - 08:00	GB-NL	0.52	0.48	500	0
08:00 - 09:00	GB-NL	0.52	0.48	500	0
09:00 - 10:00	GB-NL	0.52	0.48	500	0
10:00 - 11:00	GB-NL	0.52	0.48	500	0
11:00 - 12:00	GB-NL	0.52	0.48	500	0
12:00 - 13:00	GB-NL	0.52	0.48	500	0
13:00 - 14:00	GB-NL	0.52	0.48	500	0



CUPCAKES, TEA & COFFEE

LET'S CELEBRATE

EMPIRE

YEAR 1

BACK AT
15:00





DYNAMIC OVERLOAD

PARTICIPANTS FORUM

MICHAEL THORSSON

18/09/2024

WHAT DO YOU NEED?

MORE CAPACITY

WHEN DO YOU NEED IT?

DURING HIGH DEMAND HOURS

WHAT IS DYNAMIC OVERLOAD?

- Dynamic overload is the process of overloading the cable, allowing us to temporarily increase the capacity of the cable beyond our rated 1016MW capacity
- Ground and surface temperatures determine the conditions of the overload
- We factor these measurements into our model to calculate:
 - when we can overload
 - the scope of the increase
 - the duration of the overload



THE DEVELOPMENT PROCESS

DYNAMIC OVERLOAD

PHASE 1: EXPERIMENTATION

2019-2020

PHASE 2: TRIAL PERIOD

2021-2023

PHASE 3: REFINEMENT

2024-

THE PROCESS OVERVIEW

CALCULATING DYNAMIC OVERLOAD



THE RATING TRIAL

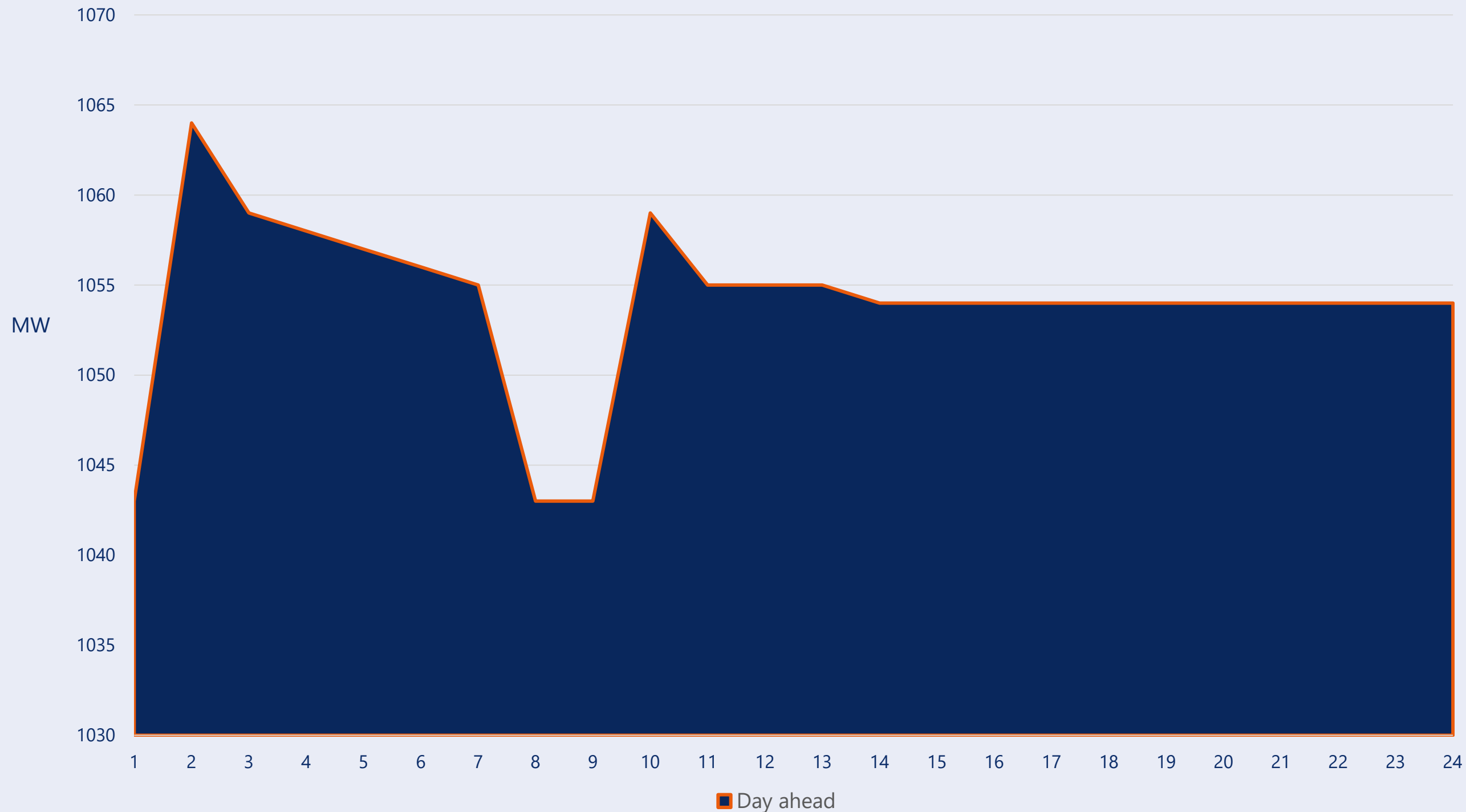
DYNAMIC OVERLOAD

- We started experimenting with dynamic overload in 2019
- After the success of the last few years with Day Ahead, our aim was to expand into Intraday
- We had to rework the overload profiles which previously would have been either:
 - a stable constant overload
 - a fixed peak overload
- In the past, our approach would have been either:
 - a linear overload of one value
 - a spike overload of 1076MW for a few hours

MTU CE(S)T	Net Transfer Capacity (MNS) ⁱ	
	GB-NL (MW)	NL-GB (MW)
00:00 - 01:00	1076	1076
01:00 - 02:00	1076	1076
02:00 - 03:00	1016	1016
03:00 - 04:00	1016	1016
04:00 - 05:00	1016	1016
05:00 - 06:00	1016	1016
06:00 - 07:00	1076	1076
07:00 - 08:00	1076	1076
08:00 - 09:00	1016	1016
09:00 - 10:00	1016	1016
10:00 - 11:00	1016	1016
11:00 - 12:00	1016	1016
12:00 - 13:00	1076	1076
13:00 - 14:00	1076	1076
14:00 - 15:00	1016	1016
15:00 - 16:00	1016	1016

UPDATED OVERLOAD PROFILES

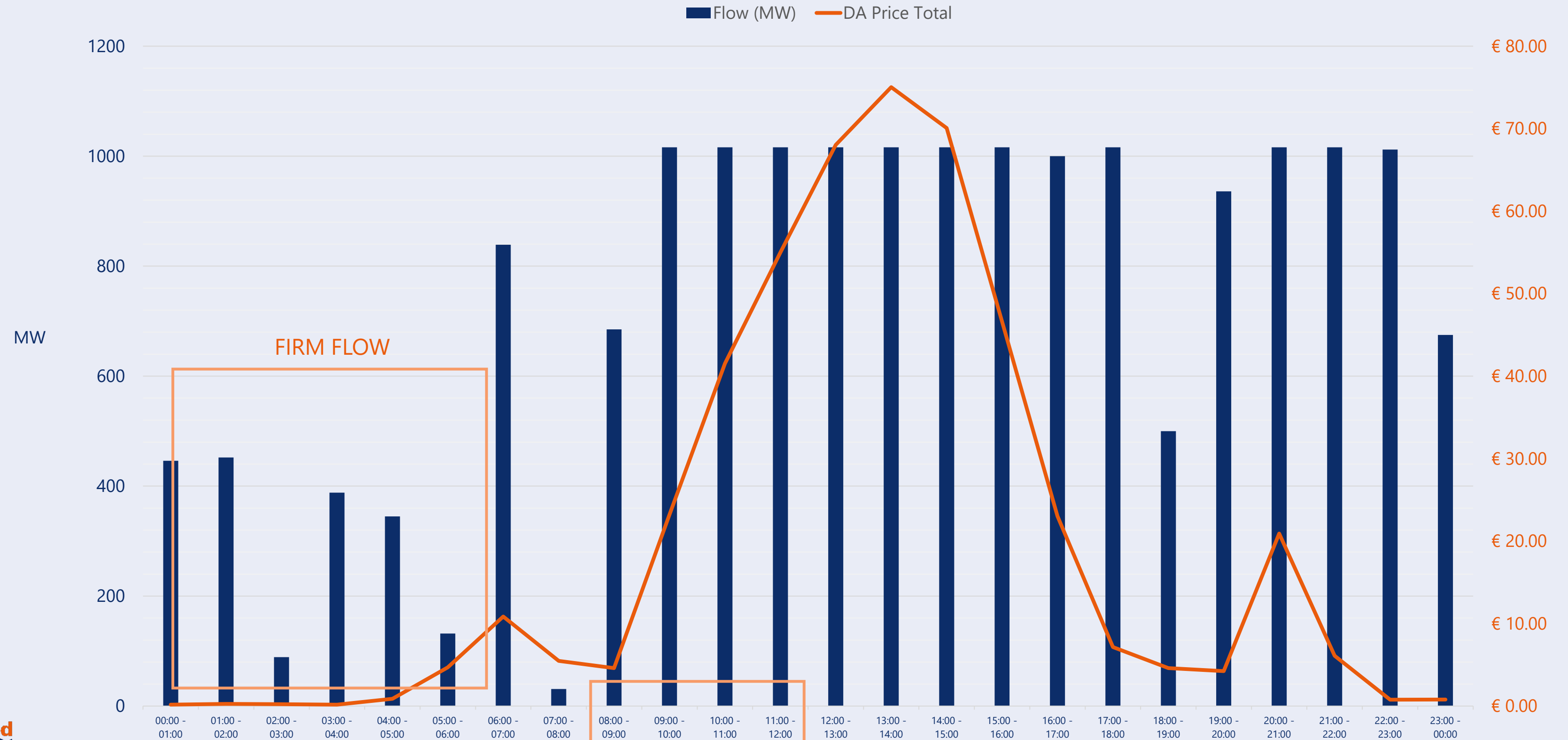
DYNAMIC OVERLOAD



- We redesigned how we allocate our overload to offer as much as we can in the peak price hours
- At the same time, we wanted to maximise the amount of capacity being offered in the auctions
- The new Day Ahead profiles have both peaks and valleys, targeting the peak hours
- While still offering enough capacity to hedge for the other remaining hours in the day

OVERLOAD RECALCULATION

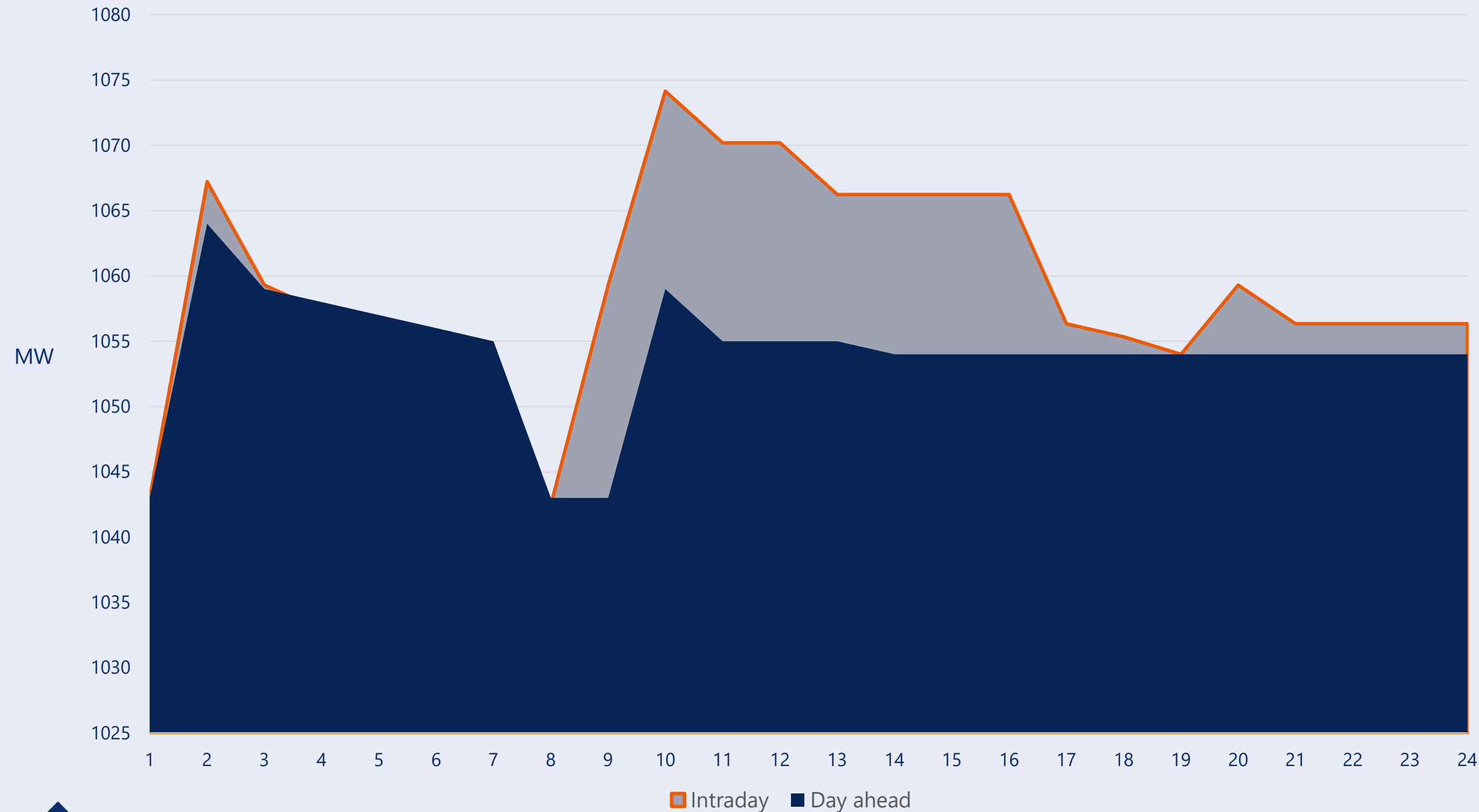
INTRADAY DYNAMIC OVERLOAD



ID 2

INTERPLAY OF INTRADAY & DAY AHEAD

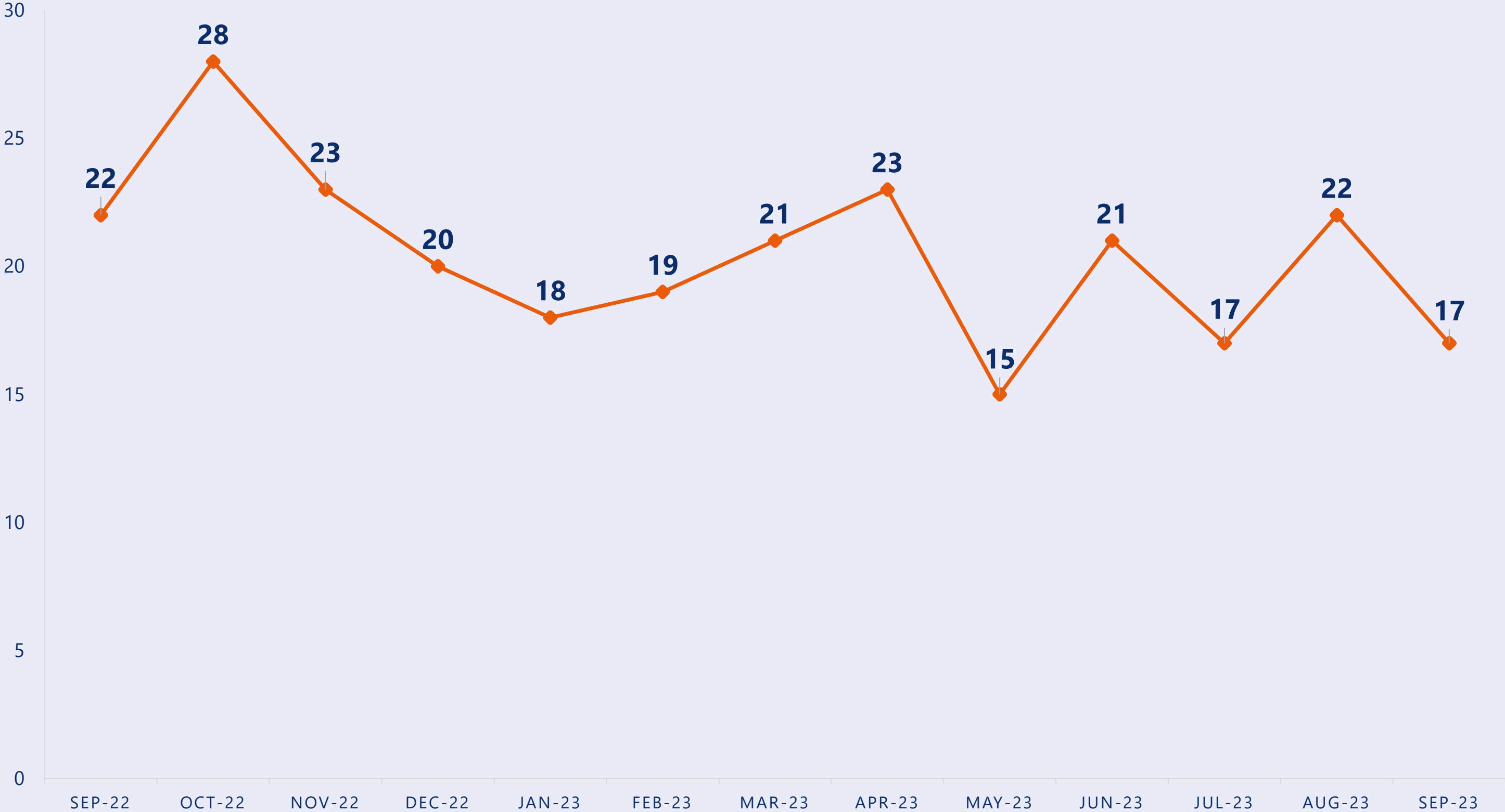
DYNAMIC OVERLOAD



- Intraday overload will run just before the start of the Intraday auctions
- We can offer more in the Intraday based on nominations in the Day Ahead market and in the past Intraday gates
- As in the previous example, we can offer more capacity in the ID2 auction due to lower than expected temperatures on the cable
- There are other limitations such as ITLs and RMPs from NGENSO and TenneT that limit what we can offer in the Intraday auctions

INTRADAY TRANSFER LIMITS

SEPTEMBER 2022 – SEPTEMBER 2023



SAFEGUARDS

DYNAMIC OVERLOAD

- Our aim with the introduction of the new overload is to provide **increased capacity** on the interconnector
- While maintaining **high asset availability**
- We therefore run our simulations making sure we are **within safe limits** and build our profiles from there
- There is still the possibility going forward that the overload will be disabled on the interconnector for repairs and maintenance





INVOICE CHANGES

PARTICIPANTS FORUM

TOM SMITH

18/09/2024

INVOICING CHANGES

CHANGING HOW WE INVOICE CUSTOMERS SINCE THE TRANSITION TO EMPIRE



- To ensure we are compliant with VAT legislation in both the UK & the Netherlands, we need to change the construct of our monthly invoices
- The changes will ensure that we do not 'net off' customer credit on the same standard invoice
- Changes will take effect from the invoices that are sent to customers in December
- To facilitate the changes, we will require all customers to agree to self-billing arrangements
- A Netting Statement will be provided that summarises the net position of all three documents and clarifies whether the customer owes BritNed or BritNed owes the Customer

INVOICING CHANGES

FRAMEWORK

CURRENT FRAMEWORK

One Standard Monthly Invoice

Includes balance of all;

- Capacity Auctions
- Credit for Curtailment
- Credit for any Returns or UIOSI

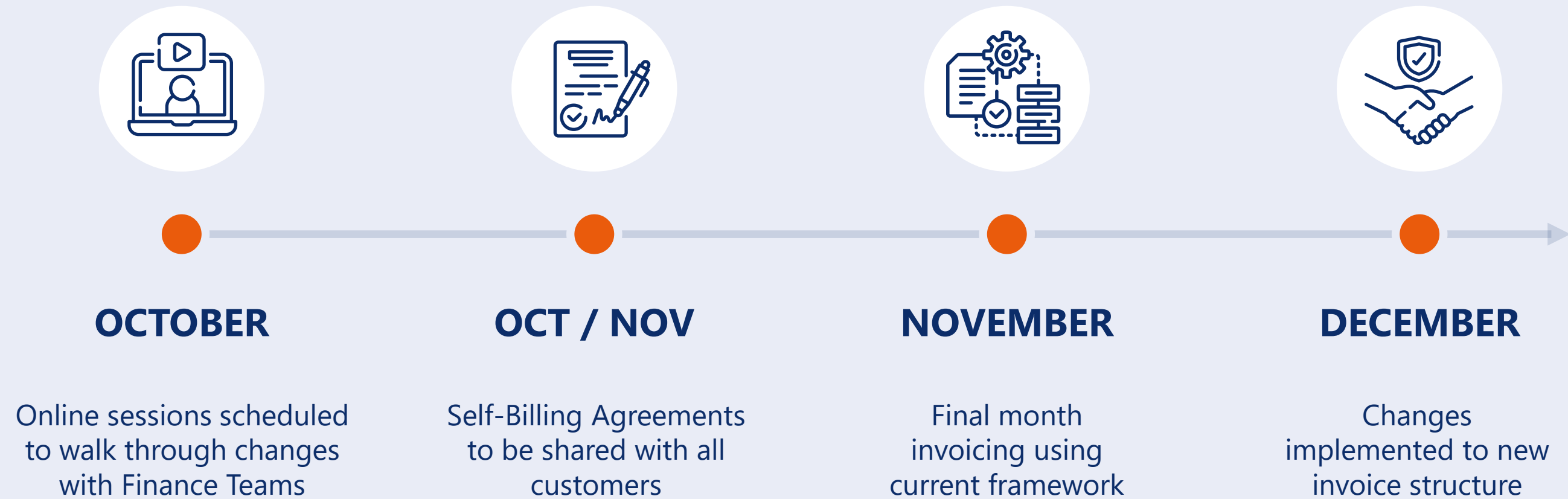


'TO BE' FRAMEWORK

NETTING STATEMENT	Standard Invoice	To include billing for all Capacity Auctions settlements for the billing period.
	Self-Billed Invoice	A Self-Billed invoice is one where the customer (in this case BritNed) prepares the invoice for the supplier (in this case the customer). The Self-Billed Invoice will be created for all customers where Returns or UIOSI have been transacted in the invoice period.
	Credit Invoice	To include any credit due to customers as a result of curtailment.

INVOICING CHANGES

2024 TIMELINE





EDI2XML UPDATE

PARTICIPANTS FORUM

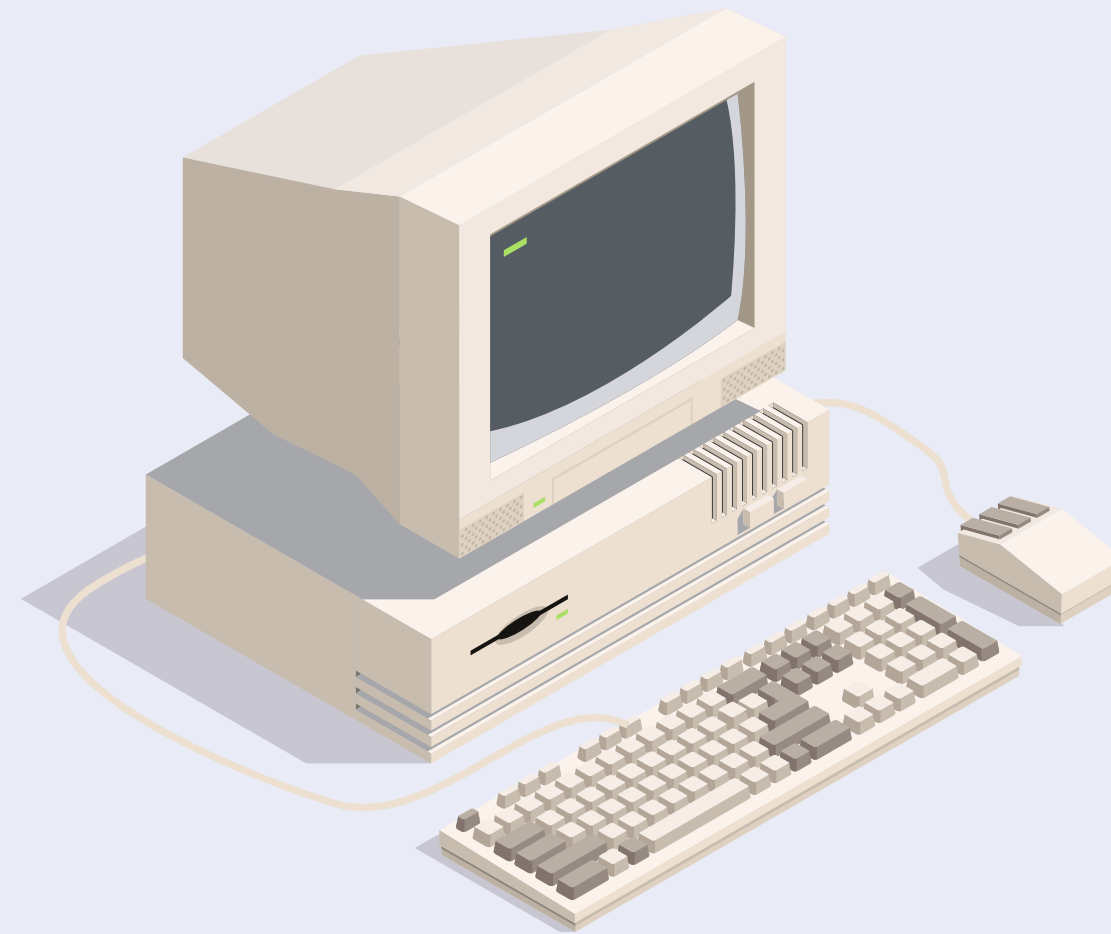
KICK VAN HOUTEN

18/09/2024

WHAT IS IT?

EDINE

Electronic Data Interchange Nederlandse Energiemarkt



Hard to understand

No or very limited
automation options

Very outdated

EDINE TO XML

NOMINATIONS - WHAT'S CHANGING?

EDINE
E-Program APERAK 27/29 APERAK 45 - Status of E-Program matching V-Program, SST confirmation - Settlement Program
Status only through response file (APERAK)
Interface with Central Post box System (CPS)



XML
E-Program Domestic / Foreign Acknowledgement / Rejection Anomaly report – Status of E-program matching Confirmation report – Settlement Program
Status through response file Status available on MMC Hub
Interface with Market Market Communication Hub

PROCESS IMPACT

EDI2XML



BritNed submits E-program Foreign and Domestic after Day Ahead and each Intraday Nomination gate closure

Participants are expected to send only E-program Domestic



SST authorisations are replaced by Priority Nomination agreements

All participants must authorise BritNed as Priority Nominator



In case of mismatched E-Programs at D+1 10:00 – PN values are considered final

(i.e. no more mismatching)



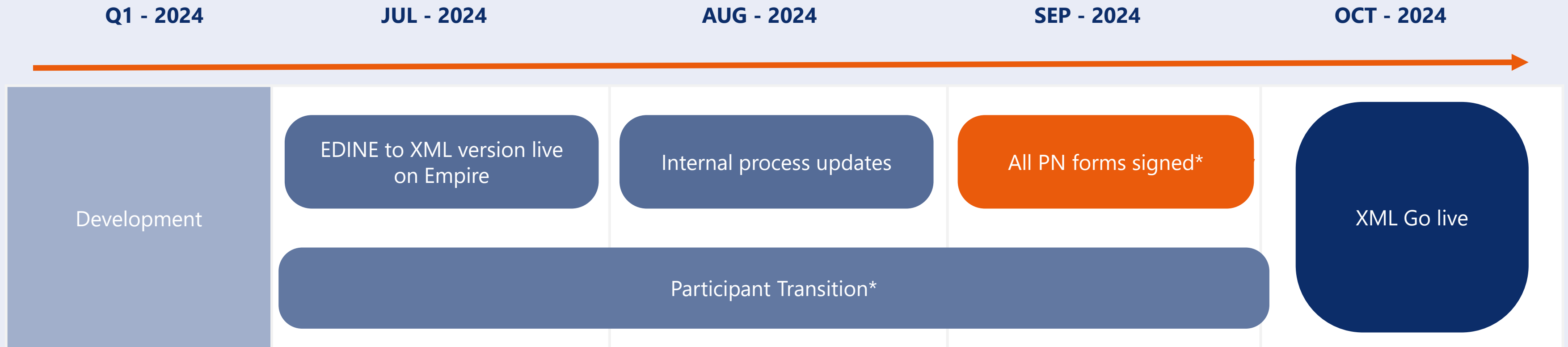
No more e-mails and calls from the Helpdesk to change E-programs



No more imbalance charges

TIMELINE

EDI2XML



*BritNed can't transition to XML if any participant is still on EDINE or has not authorised BritNed as Priority Nominator

An aerial photograph of a power plant facility situated on a grassy bank next to a large body of dark blue water. The plant consists of several large, light-colored rectangular buildings and a complex network of metal structures, likely transformers and switchgear. Two prominent, glowing blue lines represent power transmission cables that run from the plant across the water's surface. In the background, a network of similar glowing blue lines connects various points on the land, suggesting a wider power grid. The overall scene is illuminated with a soft, golden light, possibly from a low sun, creating a serene yet industrial atmosphere.

**ANY
QUESTIONS?**

How has energy policy changed since the 2024 UK General Election?

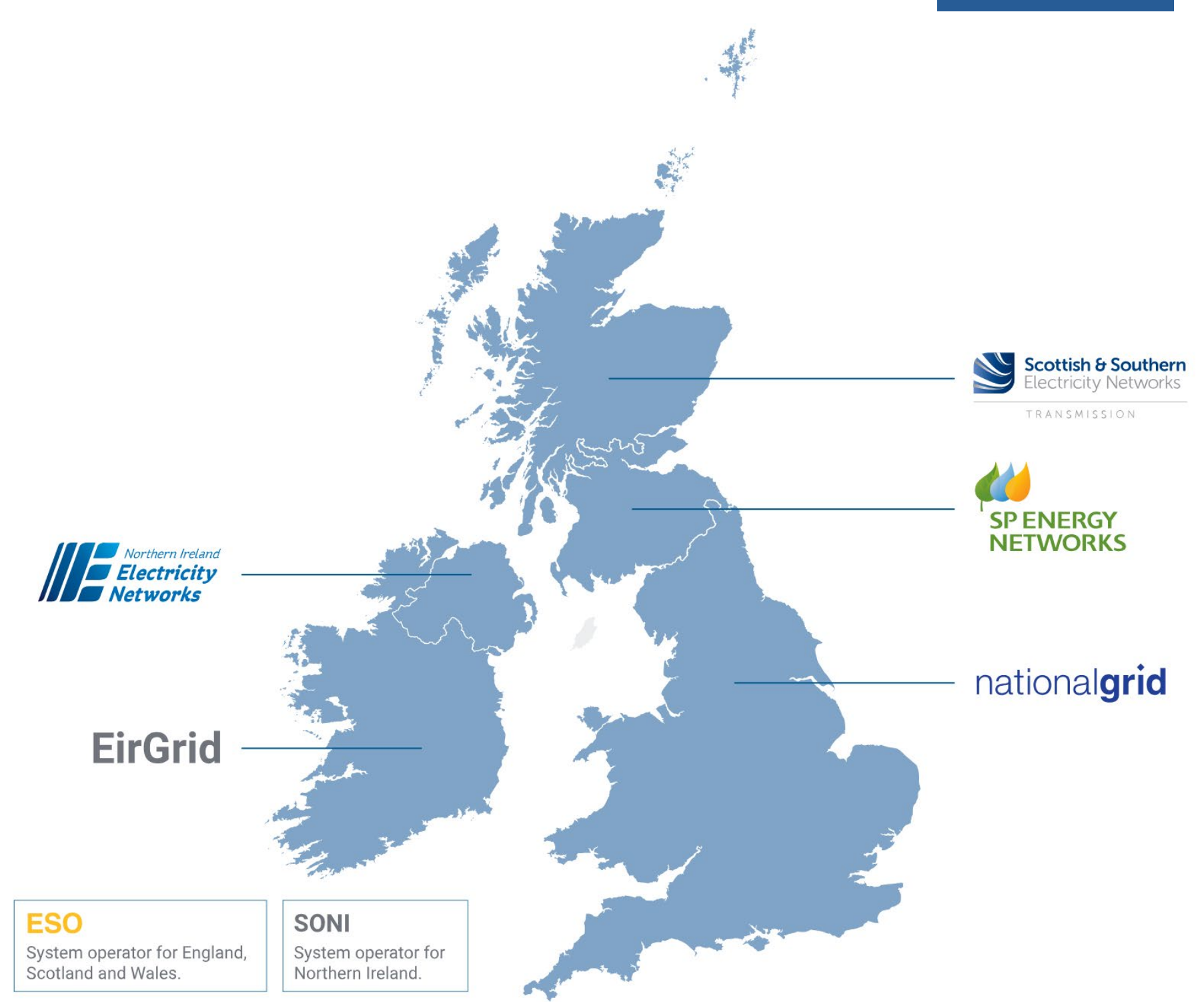
Daniel Clelland

About Energy Networks Association

We represent the major electricity network operators in Great Britain which between them:

- Are **spending and investing £33 million** in our energy infrastructure
- Employ **26,000 people**, including around 1,500 apprentices
- Operate one of the **most reliable energy networks in the world**
- Are **helping to enable net zero** for communities and businesses across Great Britain

Overview of UK electricity networks



Challenges for the networks

- Efficient **grid connections** to deliver the technologies we need
- **Planning, consents & wayleaves reform** to address infrastructure roadblocks
- **Strategic investment** to build future energy network capacity
- Remain competitive on the **international investment market**
- Ensuring policy provides **direction to Ofgem** to modernise regulation

The UK's new political landscape

- **New government with a landslide majority**
- **Energy is at the front and centre of plans for economic growth**
- **New ideas and high ambitions**
 - New target: Decarbonised power system by 2030
- **Looking to move fast and make tough choices**
- **They've only been in office for three months**

Specific legislation & policy

GB Energy Bill

- Local power plan
- Legislation is currently going through Parliament
- Details are uncertain at the moment

Planning and Infrastructure Bill

- Industry needs a bold offer to speed up infrastructure projects
- Issues that are being considered are around community benefit, access, planning, consents

Plans and policies from the Energy Department

- SSEP and CSNP with RESP

Wider legislation

There's a whole suite of legislation announced that is going to cover the whole supply chain:

- The Crown Estate Bill
- Cyber Security and Resilience Bill
- Skills England Bill
- Employment Rights Bill
- English Devolution Bill
- Digital Information and Smart Data Bill

Networks need four things

- 1. Government action to speed up grid connections**
- 2. Reform to the planning and consenting process to speed up infrastructure build**
- 3. Align plans and regulations for long term decision making**
- 4. Allow the evolution of energy regulation**

Find out more: ena.energy/manifesto

What does this mean?

- **Step change in the level of ambition from the new administration**
- **Currently a great opportunity to engage with government**
- **Investment is key to delivery**
- **Problems in the UK are being felt across Europe and the rest of the world**
- **Still a lot of detail missing in key areas**

Closer ties with Europe?

- **Keir Starmer made comments on a closer energy relationship with Olaf Scholz in August**
- **The Starmer government is incredibly pragmatic and looking for solutions that can be achieved within the next two years**
- **Europe is incredibly aligned on net zero and climate policy**
- **The UK and EU are already linked physically through cables and wires**
- **Still in very early stages of respective governments in the EU and UK**

Five areas for focus

- 1. Interconnectors:** Strengthening and expanding electricity interconnectors between the UK and EU can help balance supply and demand, improve energy security, and integrate more renewable energy sources.
- 2. Joint research and development:** Collaborating on research and development projects, particularly in renewable energy technologies and energy storage solutions, can drive innovation and efficiency.
- 3. Policy and regulatory alignment:** Aligning energy policies and regulations can facilitate smoother cross-border energy trade and investment.
- 4. Shared climate goals:** Both the UK and EU have committed to achieving net-zero emissions by 2050.
- 5. Market integration:** Ensuring that energy markets remain integrated post-Brexit is crucial.

The need for closer policy alignment

1. Market integration

- Carbon Border Adjustment Mechanism
- Two sets of regulations trying to do the same thing
- Create a more robust carbon market

2. Investor confidence is crucial to wider objectives on climate

- Global investors have options, it's a competitive environment
 - US inflation reduction act

3. Economic benefits

- Reduce regulatory burdens for businesses
- Align research and development in innovation projects



Impact of EU CBAM

Challenges and uncertainties for TSOs and interconnectors

AFRY EU CBAM study summary and developments

SEPTEMBER 2024

INTRODUCTION

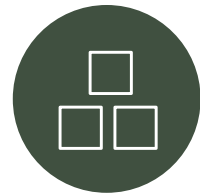
Challenges and uncertainties for TSOs and interconnectors



EU CBAM implementation

Goals for building out offshore grid infrastructure in the North Sea are being put at risk, with negative implications for EU and GB energy policy delivery

Today's focus



GB REMA & zonal pricing

Zonal pricing is intended to improve the dispatch of interconnectors with respect to transmission constraints; however, its impact on interconnectors' commercial case has not been fully analysed



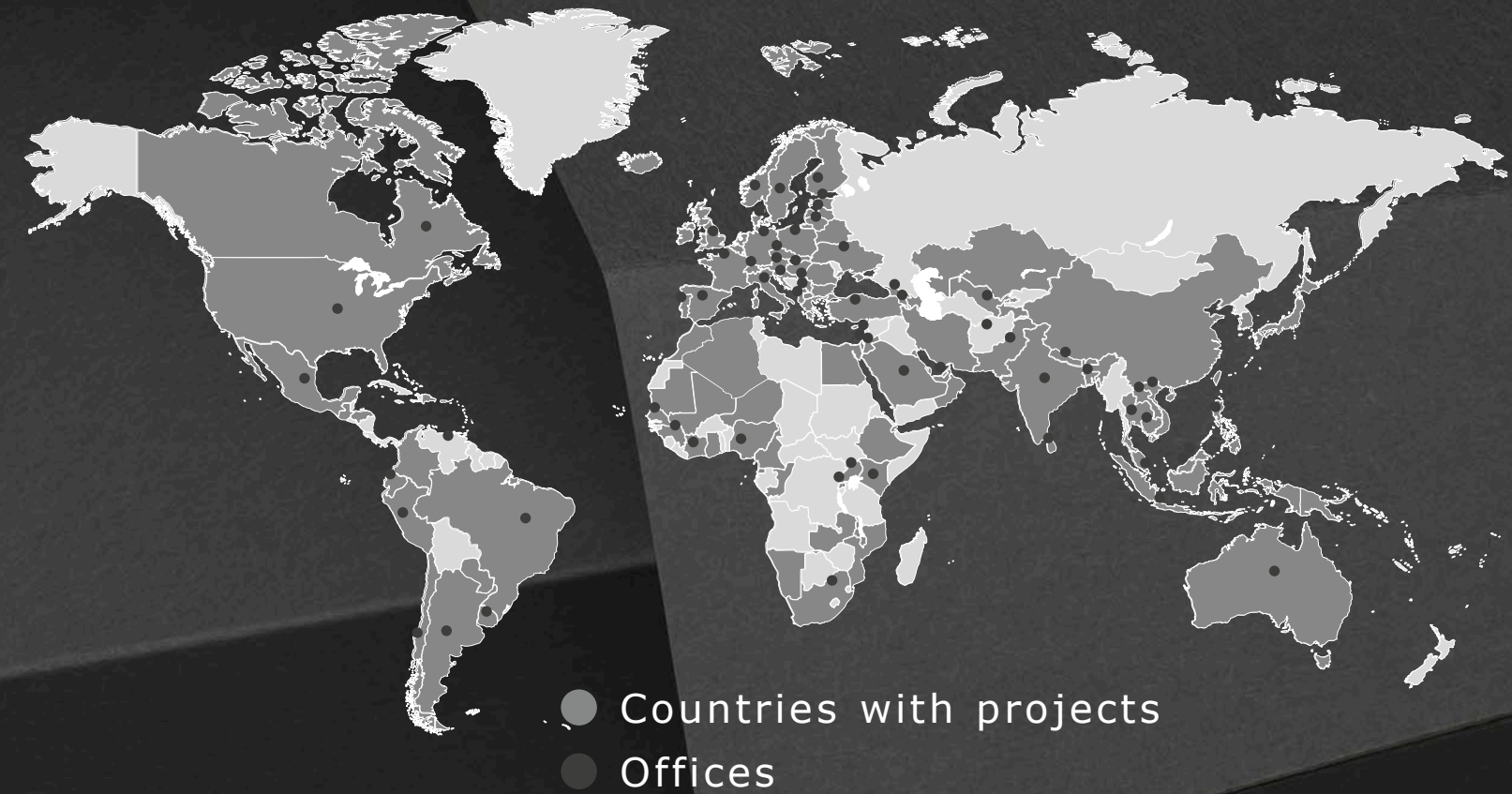
EU's Bidding Zone Review

Additional uncertainty driven by the ongoing Bidding Zone Review

AFRY IN BRIEF

About us

AFRY provides engineering, design, digital and advisory services to accelerate the transition towards a sustainable society.



We are

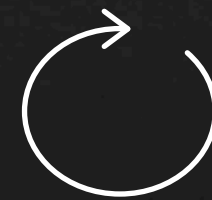
19,000

devoted employees creating impact for generations to come.

AFRY's business drivers



Decarbonisation



Circularity



Electrification



Digitalisation

Agenda

- | | |
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| 2. In the news | 14 |
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INTRODUCTION

Study group members



AFRY CONTACT DETAILS:

Stephen Woodhouse | stephen.woodhouse@afry.com

Asimina Karakyriakou | asimina.karakyriakou@afry.com

AFRY study shows application of EU CBAM to electricity imports into the EU from GB could jeopardise North Sea offshore grid infrastructure

Issue identified #1

Risk of significant over-statement of emissions factor assumed to apply to electricity imports from GB, as values are linked to historic fossil fuel generation.

Issue identified #2

Practical obstacles to demonstration of a carbon price having been paid in GB lead to excessive carbon pricing exposure for all electricity imports from GB.

Frustrating efficient and effective market operation by unduly blocking flows that would otherwise be economic and increasing administrative burden.

Key implication #1

Adverse effects on business models for EU-GB interconnectors, putting goals for building out of offshore grid infrastructure in the North Sea at risk.

Key implication #2

Harming decarbonisation policies by frustrating GB RES integration, presenting barriers to low carbon projects and increasing EU and EU & GB net carbon emissions.

Key implication #3

IMPLICATIONS

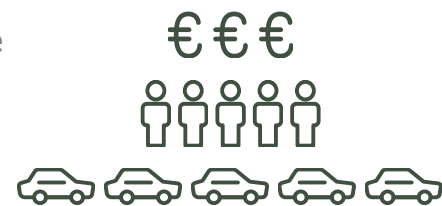
Impacts are significant at Member State level

EU: Congestion rent: **€1.1bn** reduction | CO₂ emissions: up to **4.4Mt** increase **2.9** million cars

GB: Congestion rent: **€0.8bn** reduction | CO₂ emissions: up to **2.9Mt** reduction

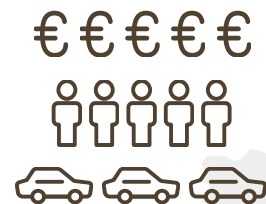
I-SEM

IC utilisation: **28%** down from 58% in Reference
 Congestion rent: **€57m per GW** 62% reduction
 Consumer costs: **€159m** increase
 CO₂ emissions: **1.5Mt** increase **1.0** million cars



BELGIUM

IC utilisation: **31%** down from 79% in Reference
 Congestion rent: **€138m per GW** 83% reduction
 Consumer costs: **€287m** increase
 CO₂ emissions: **0.4Mt** increase **0.3** million cars



FRANCE

IC utilisation: **37%** down from 76% in Reference
 Congestion rent: **€99m per GW** 66% reduction
 Consumer costs: **€1,132m** increase
 CO₂ emissions: **0.2Mt** increase **0.1** million cars



NORWAY

IC utilisation: **47%** down from 83% in Reference
 Congestion rent: **€109m per GW** 52% reduction
 Consumer costs: **€457m** increase
 CO₂ emissions: limited impact



DENMARK

IC utilisation: **34%** down from 72% in Reference
 Congestion rent: **€85m per GW** 70% reduction
 Consumer costs: **€150m** increase
 CO₂ emissions: limited impact



GERMANY

IC utilisation: **31%** down from 77% in Reference
 Congestion rent: **€169m per GW** 83% reduction
 Consumer costs: **€943m** increase
 CO₂ emissions: **1.0Mt** increase **0.6** million cars



THE NETHERLANDS

IC utilisation: **30%** down from 74% in Reference
 Congestion rent: **€134m per GW** 83% reduction
 Consumer costs: **€423m** increase
 CO₂ emissions: **0.6Mt** increase **0.4** million cars



IC utilisation & Congestion rent: Annual utilisation and impact on annual revenues per GW for all GB-EU (&NO) ICs per border, average across the timeframe. Figures exclude MPIs. For the EU and GB, congestion rent includes the total revenue impact. | Consumer costs: Average annual increase in wholesale electricity costs. | CO₂ emissions: maximum annual impact on emissions expressed as number of cars.

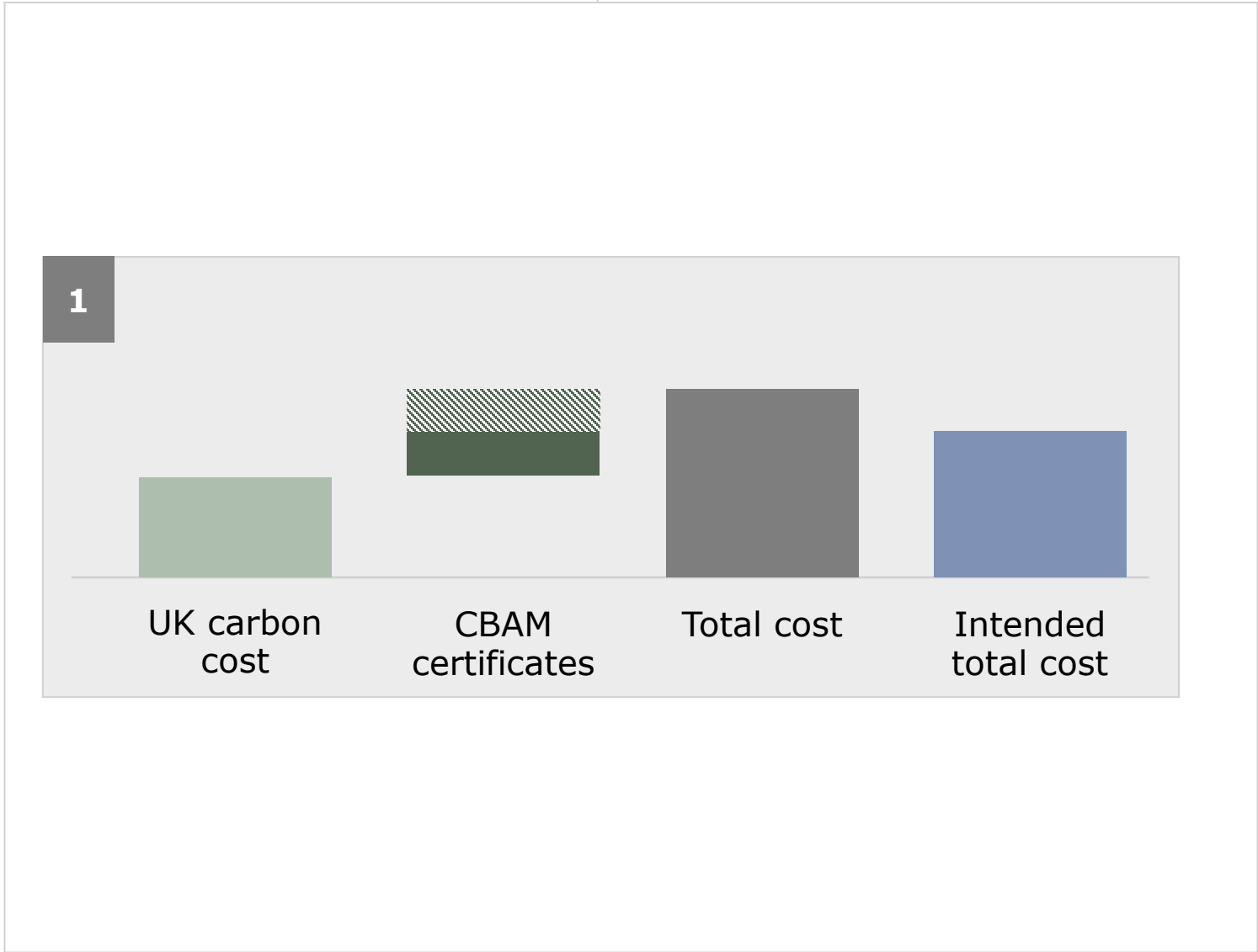
ISSUE 1: CO₂ EMISSION FACTOR

Risk of significant over-statement of embedded emissions applied to imports of electricity from GB if based on historic fossil fuel generation intensity

ISSUE 1: CO₂ EMISSION FACTOR

Issue 1

- Use of fossil fuel-based CO₂ emission factor **overstates carbon intensity**. This **unduly increases carbon price exposure for electricity exports from GB**.
- GB already has a **lower carbon intensity¹** than many EU Member States, has net zero commitments and ambitions similar to the EU, and is actively pursuing stated decarbonisation goals.



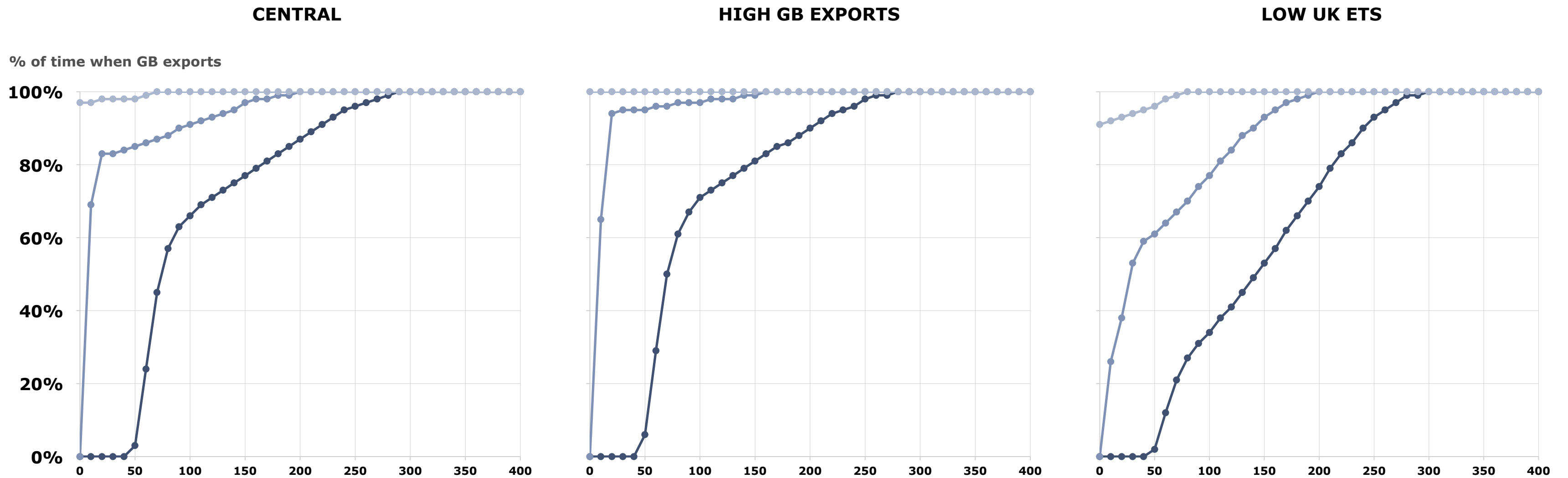
- Carbon cost paid via 3rd country carbon pricing
- CBAM cost paid to cover shortfall in 3rd country relative to EU ETS carbon pricing
- Overall carbon cost actually faced
- Intended overall carbon cost exposure based on EU ETS
- CBAM cost inflator linked to overstated carbon intensity

Note: Schematic is indicative for problem statement illustration. | 1. In 2023, more than 50% of electricity generation was from zero carbon sources, 32% from gas and 1% from coal. <https://www.nationalgrideso.com/news/britains-electricity-explained-2023-review>.

ISSUE 1: CO₂ EMISSION FACTOR

Carbon content of GB flows into the EU remains significantly lower than the estimated CO₂ emission factor used to set default values

GB ELECTRICITY EMISSIONS INTENSITY DURING EXPORT FLOWS TO BELGIUM¹



Notes: 1) reports of a CO₂ emission factor of **488gCO₂/kWh** being quoted on registry
 2) our modelling applies a CO₂ emission factor of **463gCO₂/kWh** in 2026

gCO₂/kWh
 ● 2026 ● 2030 ● 2040

1. Analysis for Belgium is representative of analysis for other borders

ISSUE 2: CARBON PRICE PAID IN A THIRD COUNTRY

Issues relating to demonstration of a carbon price having been paid in GB lead to excessive carbon pricing exposure for all electricity imports from GB

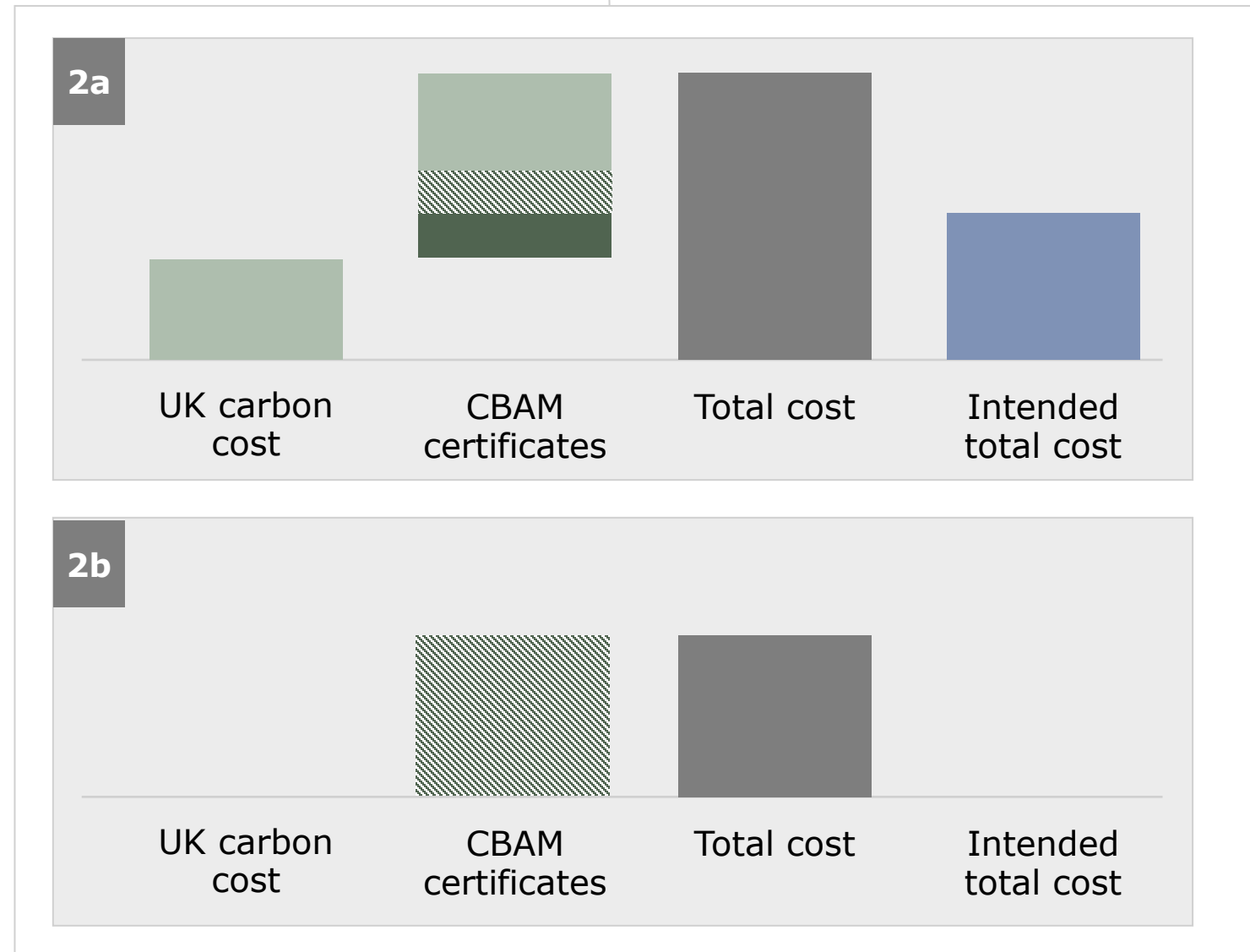
ISSUE 2: CARBON PRICE PAID IN A THIRD COUNTRY

Issue 2a

- While **carbon emitting generation** in GB will have paid the domestic carbon price, the nature of trading (i.e. frequently traded anonymously and multiple times) means it is **not practicable to demonstrate this**.
- This blocks ability to claim CBAM rebates, which **increases carbon price exposure** of GB electricity exports.¹

Issue 2b

- Even if proof of carbon price paid was practicable, **zero carbon** generation does not pay carbon price and so **cannot demonstrate** payment domestically.
- It will be **unable to claim a reduction in CBAM certificates**, meaning it **faces an undue carbon price**.



Note: Schematics are indicative for problem statement illustration. | 1. To illustrate that payment made under UK ETS cannot be demonstrated and so is duplicated, the UK carbon cost is replicated in the CBAM certificates column.

ISSUE 2: CARBON PRICE PAID IN A THIRD COUNTRY

Evidence of carbon price having been paid and quantity of emissions will be particularly challenging to provide, presenting a significant blocker





Selection of reporting items to be provided	Ease of provision	Comments
CN code; the type of carbon price; the country where the price is due	✓	Basic administrative information can be provided
The amount of carbon price due, a description of the carbon pricing instrument and potential compensation mechanisms	✗	Due to electricity traded not being able to be traced back to the generating installation, demonstration of payment of UK ETS price will be difficult (if not impossible).
An indication of the provision of the legal act providing for the carbon price, rebate, or other forms of relevant compensation, including a copy of the legal act	✓	Can be provided
The quantity of embedded direct or indirect emissions covered	✗	Due to electricity traded not being able to be traced back to the generating installation, this cannot easily be established

Source: EU Commission

Action is needed now to progress measures to lessen impacts in the short-term and to secure enduring exemption for the longer-term

REVISIONS TO APPLICATION TO BETTER REFLECT GB CONTEXT

EXEMPTION ROUTES

	Demonstrating carbon price paid 	Carbon intensity basis 	Economy wide via ETS linkage 	Electricity specific via market integration 
What	<ul style="list-style-type: none"> Implicit recognition within reporting of UK carbon price having been paid in GB for any electricity imports from GB into the EU. 	<ul style="list-style-type: none"> Base derived carbon intensity for electricity imports on an alternative to a 5-year average fossil-based measure (e.g. system CO₂ factor from Y-1), to better reflect GB decarbonisation. 	<ul style="list-style-type: none"> Agreement fully linking the UK ETS to the EU ETS. 	<ul style="list-style-type: none"> Deliver market coupling arrangements and steps in support of market integration needed to fulfil cumulative conditions for exemption.
Why	<ul style="list-style-type: none"> To overcome reporting requirement impracticalities and support realisation of CBAM rebates, as per the design intent, and lessen risk of undue carbon price exposure. 	<ul style="list-style-type: none"> To avoid unduly over-stating the assumed carbon intensity to be applied to electricity imports from GB and so lessen issue of excess carbon cost exposure and its impacts. 	<ul style="list-style-type: none"> To exempt the UK, as a whole, from the scope of the CBAM. 	<ul style="list-style-type: none"> To exempt GB from the scope of the CBAM with regard to the importation of electricity into the customs territory of the Union.
How	<ul style="list-style-type: none"> Create approach to recognise in reporting UK carbon price paid. Implementing acts, which are under development, are intended to specify reporting requirements for definitive regime. This change could be progressed via this step. 	<ul style="list-style-type: none"> Link between emission factor and fossil-fuel intensity is defined in Regulation, but where objectively justified, there may be scope for implementing acts to advance a change, but this is not clear. 	<ul style="list-style-type: none"> Regulation creates provision for an agreement for full ETS linkage to be concluded between the EU and a third country and an ETS linkage precedent exists¹. 	<ul style="list-style-type: none"> Regulation provides for exemption, reliant on cumulative conditions being fulfilled, although process and full details on requirements are not clear. However, steps being followed by Western Balkans provide guidance².
Need	<ul style="list-style-type: none"> Methodology via implementing acts for implicit recognition of UK carbon price. 	<ul style="list-style-type: none"> Methodology via implementing acts to allow use of recent GB system carbon intensity measure as basis for GB export emissions. 	<ul style="list-style-type: none"> Advance political agreement to create full ETS linkage. 	<ul style="list-style-type: none"> Ensure developing GB-EU implicit coupling model fulfils market integration requirements and political alignment on condition fulfilment.
When	<ul style="list-style-type: none"> Next 6-12 months. 	<ul style="list-style-type: none"> Next 6-12 months. 	<ul style="list-style-type: none"> By 2026. Route via Trade and Cooperation Agreement process. 	<ul style="list-style-type: none"> By 2026. Route via Trade and Cooperation Agreement process.

1. An agreement to link EU and Swiss emissions trading systems has been in operation since 2020. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L:2017:322:TOC>
 2. Western Balkans' progress towards CBAM exemption. <https://balkangreenenergynews.com/energy-community-tracker-western-balkans-progress-towards-cbam-exemption/>

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3. Looking ahead 16



Most third-party reports see CBAM as detrimental to the EU market

CBAM Report Views



“The phase in of CBAM certificates, coupled with the phase out of the EU ETS free allowances, may raise prices for CBAM goods in the EU market”



“The CBAM is designed as self-transforming regulation, so its features might look quite different in the future from what they are now”



“**Linking the UK and EU Emissions Trading Schemes** can support efficient trade and the cost-effective achievement of climate goals”



“We think the impact of CBAM on interconnectors between UK and EU and carbon emissions may not be as onerous as the article imagined”

Other News Quotes



“EU electricity carbon tax will hit net zero targets and consumers, industry says”



“Government under pressure to set up green levy on UK imports”



“CBAM: European businesses grapple with ‘bureaucratic madness’”

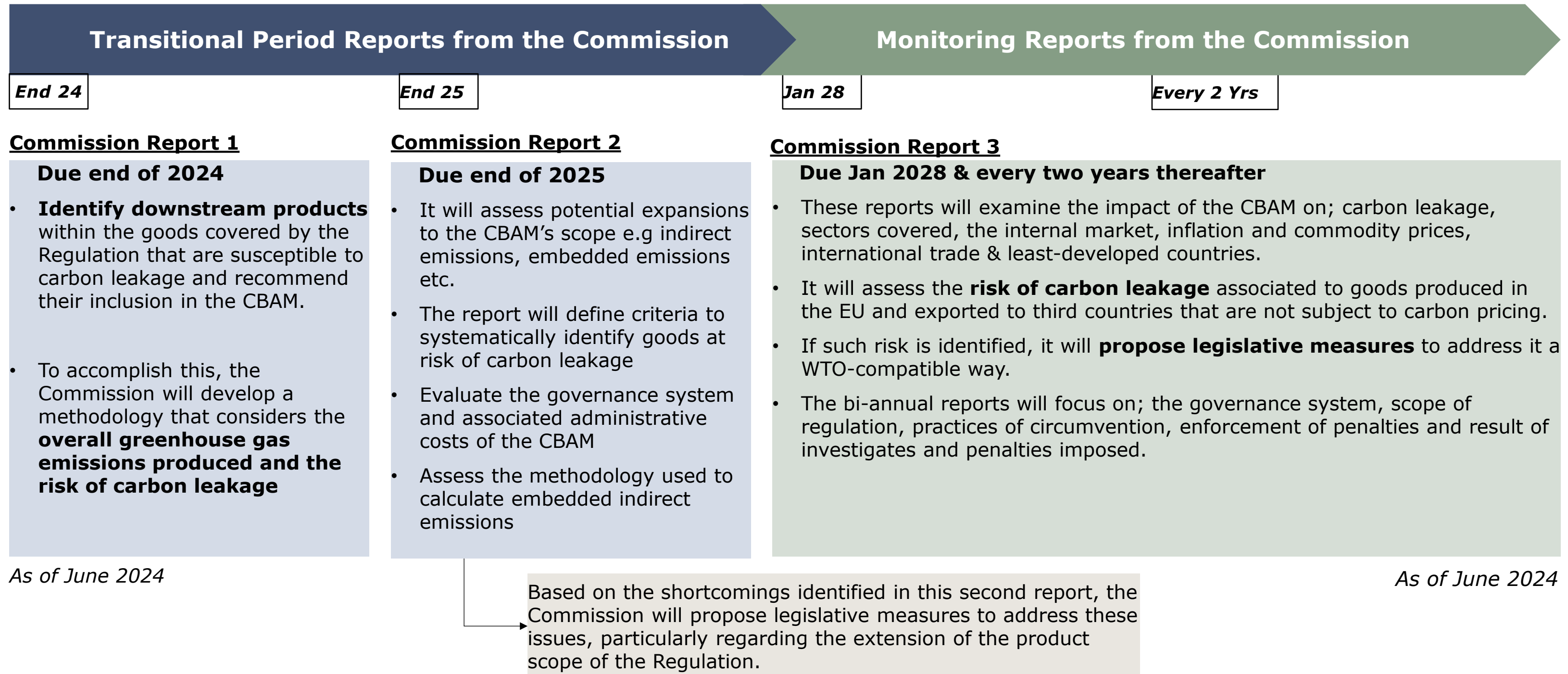
Agenda

- | | |
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KEY MILESTONES

During the transitional period and beyond, the Commission will be fulfilling obligations to continually evaluate the CBAM features and impacts



Source: Sandbag; A Scrap Game – Impacts of the EU Carbon Border Adjustment Mechanism. June 2024

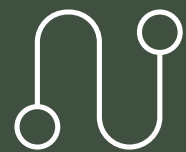
LOOKING AHEAD..

AFRY can help to understand and address future risks for TSOs and interconnectors



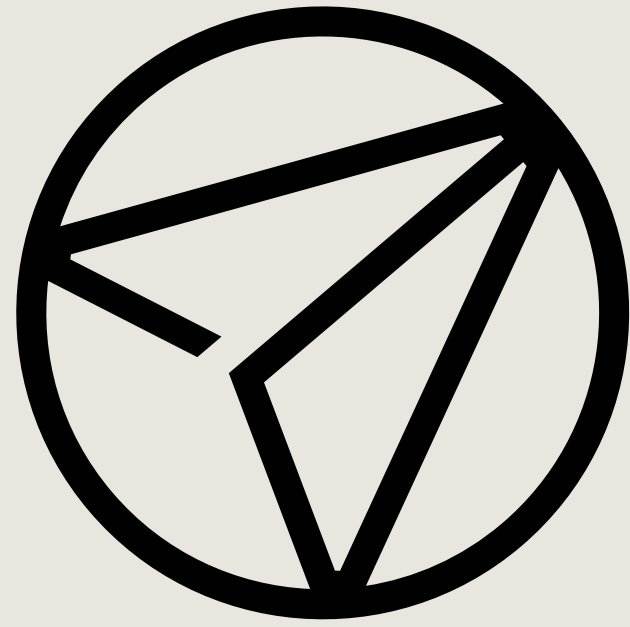
IMMEDIATE

- **Implement 24/7 trading of clean energy as a way to demonstrate carbon price paid**
- **Develop methodology that allows use of recent GB system carbon intensity measure as basis for GB export emissions**



ENDURING

- **Understand the impact of GB's Review of Electricity Market Arrangements (REMA) and zonal pricing on interconnectors**
- **Uncertainty linked to EU's Bidding Zone Review**



AFRY

ÅF PÖYRY

DINNER

ANGELA HARNETT'S COVENT GARDEN RESTAURANT, CAFÉ MURANO | 18:00

