

# Welcome!

**Meeting on the automation of the mFRR energy activation market**

**Stockholm 21 August  
Filippa Pyk, Simon Hansson and Linnea Achour**

# Today's presenters



**Filippa Pyk**

Balansmarknad



**Simon Hansson**

Balansmarknad



**Linnea Achour**

Intäktsprocesser

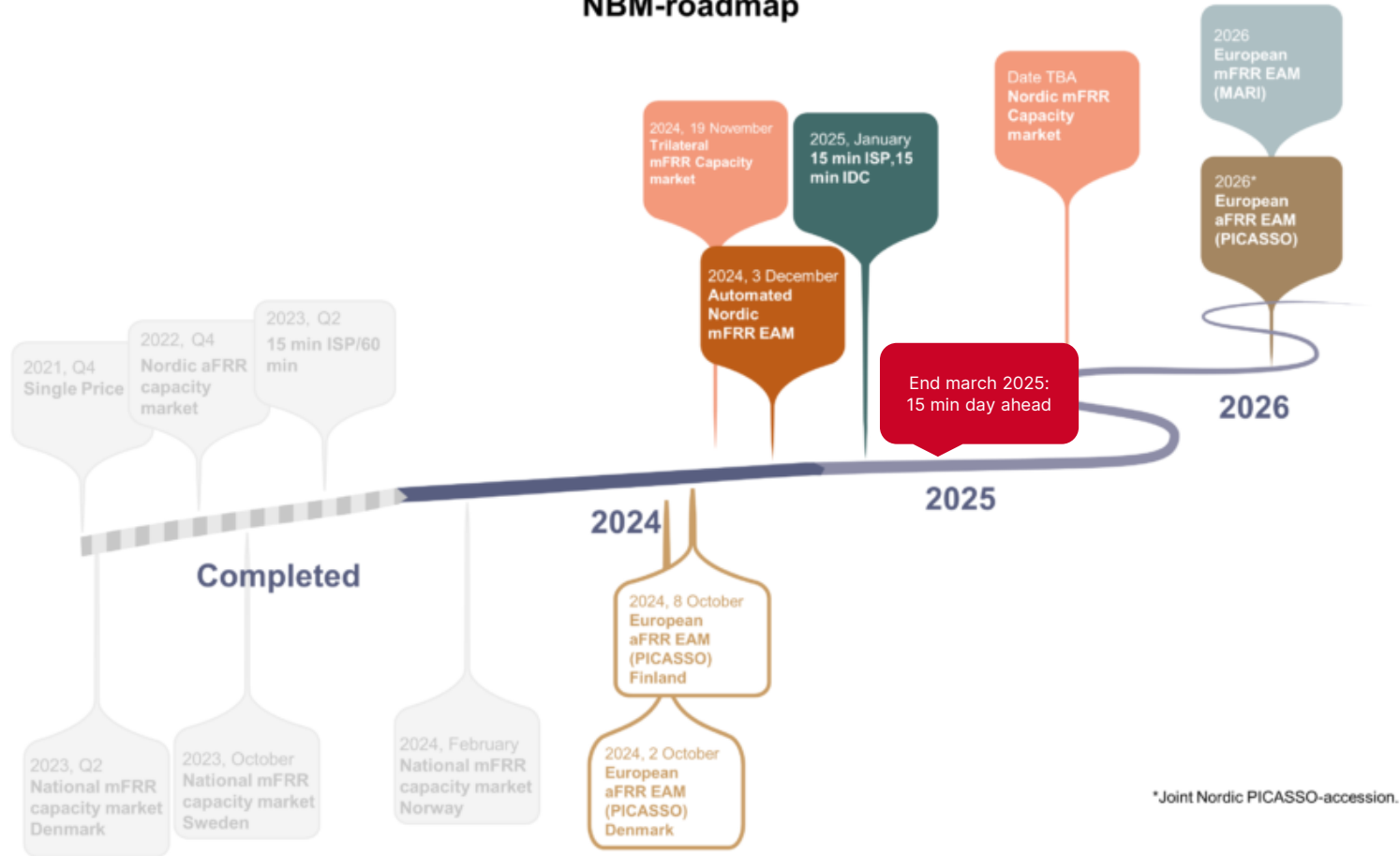


# Agenda for the day

- Timeline and milestones
- How are bids selected?
- Cases based on your questions
- Heartbeat
- Market information
- **Lunch 11.45 – 12.45**
- Pricing principles
- Settlement
- **Fika 14.30 – 15.00**
- BSP access net
- Go-live planning and next steps

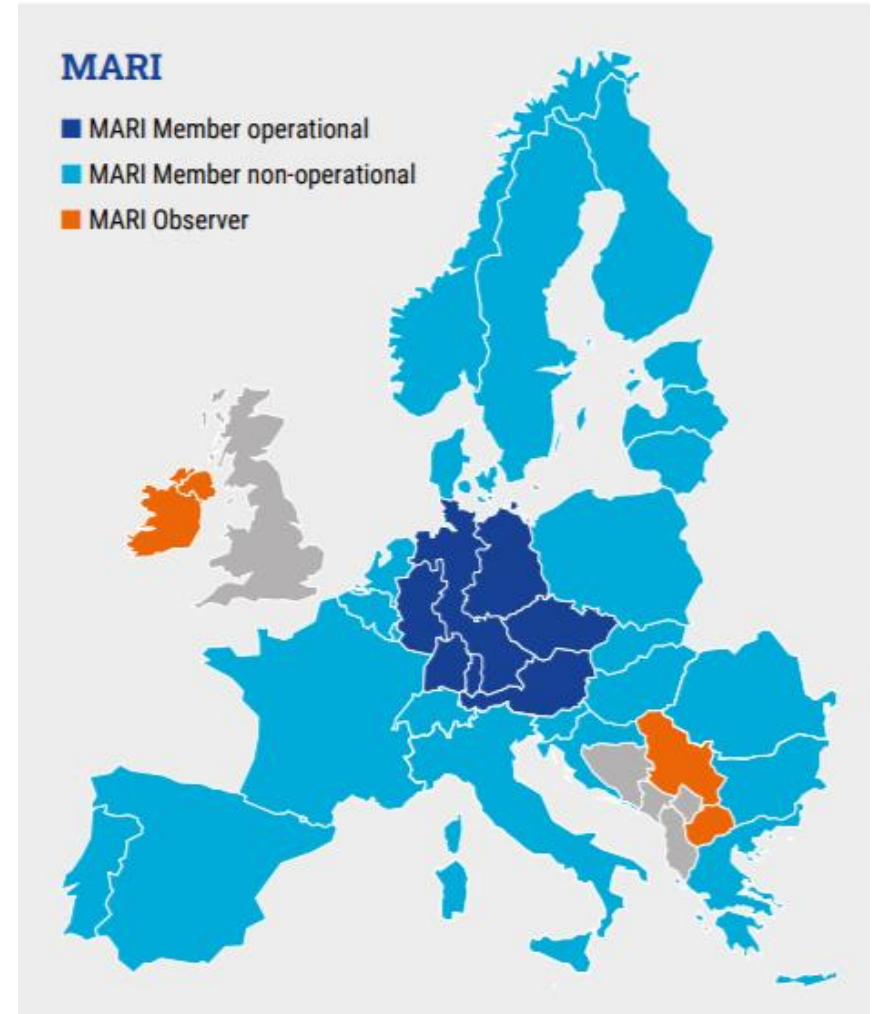
# Timeline

# NBM-roadmap



# MARI status

- Currently six TSOs connected to MARI platform
- Information on prices in MARI can be found on ENTSO-E transparency platform:  
<https://transparency.entsoe.eu/balancing/r3/pricesOfActivatedBalancingEnergy/show>





# How are bids selected?



# Bid selection basics

- Activation process runs every 15 minute
- Uses the Nordic Activation Optimization Function (AOF) to select bids
  - Algorithm seeks to satisfy the (inelastic) mFRR request
- A proactive process based on the mFRR request, determining the activated volumes in the AOF, is based on an imbalance prognosis made by each TSO.
- Direct activation is a local process and not handled by the Nordic AOF
- When MARI, the Nordic AOF will be replaced with MARI.
  - In MARI direct activations will be handled in MARI

# Main process

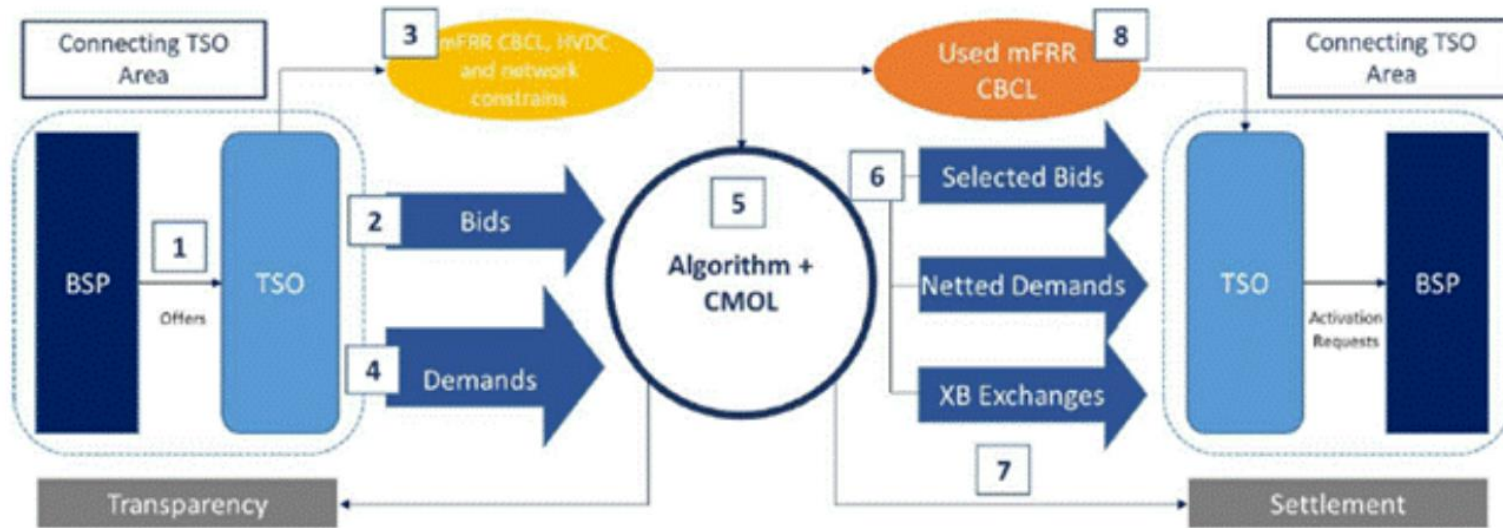
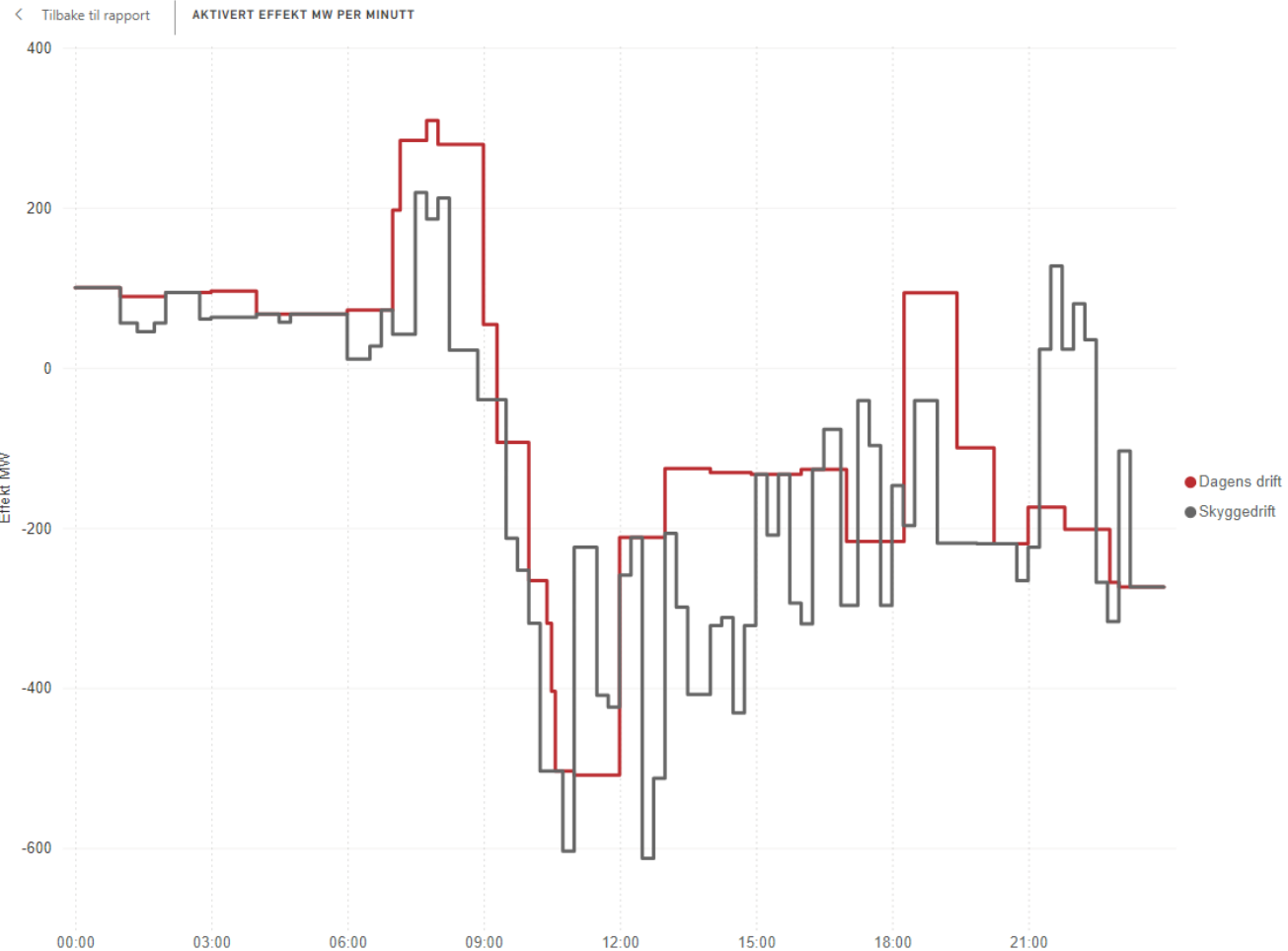


Figure 1 - Scheduled activation process

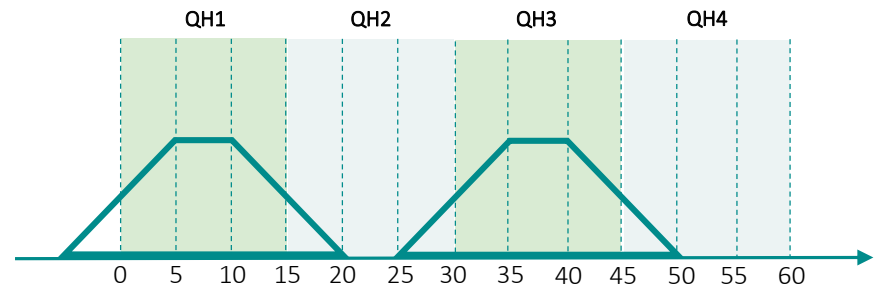
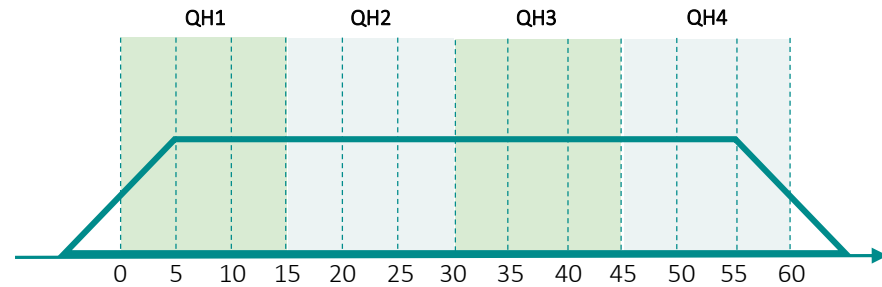
# More starts and stops compared to today



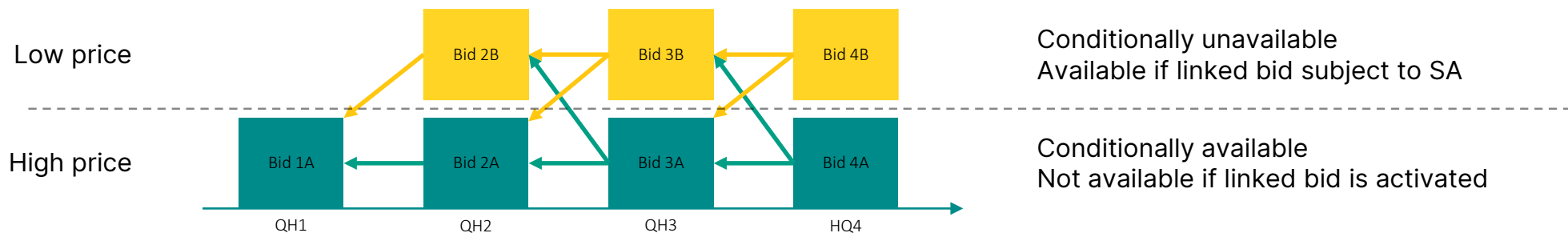
# Questions received by you

# Short activations

- The transition from a 60 to 15 minute market will entail more and shorter activations.
- The times you have to ramp up and down in a hour can double as we can see here to the right. From two to four times.
- This might not be possible or a desirable behavior for your asset.



# Short activations – Conditional link

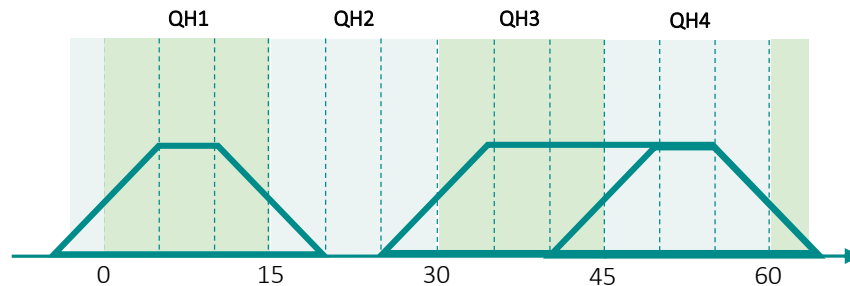


Since the cheaper bids in yellow have a larger chance of being accepted you can increase your chance of longer activations and avoid the short activations.

# Short activations – resting time



- Bid A, C and D is in the money in each MTU. **Bid B is not.**
- Technical linking is used between the four bids
- **Resting time is set to 30 minutes** for all four bids
- **Resting time is set to 45 minutes** for all four bids



Using resting time we can restrict the asset from many activations and increase the time between each activation.

# Short activations – raised price

- Beside restricting the activation of your asset through bid attributes you can use price.
- We have received feedback that more and shorter activation is possible but will tear more on the assets. A good response to this would be to raise the price to reflect the increased cost that this leads to.
- Using bid attributes that restricts how your asset can be activated and raising the price of your bids will decrease your chance of being activated.



# Maximum duration and resting time

## Alternative 1 – Bid not activated (after being activated) trigger resting time

Max Duration	Resting time	QH-2	QH-1	QH0	QH+1	QH+2	QH+3	QH+4
PT45M	PT30M	Avail.	Avail.	SA	Avail.	Unavail.	Avail.	Avail.

*As soon as bid is not activated in QH+1 resting time is triggered (resting in QH+1 & 2)*

## Alternative 2 – Resting time is only triggered when max duration has been reached

Max Duration	Resting time	QH-2	QH-1	QH0	QH+1	QH+2	QH+3	QH+4
PT45M	PT30M	Avail.	SA	SA	SA	Unavail.	Unavail.	Avail.

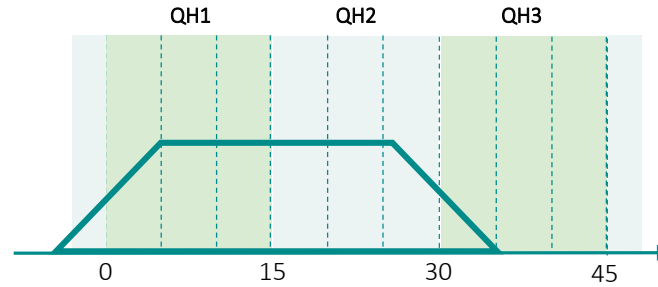
*As soon as the bid gets chosen for the third QH in a row here (QH+1), resting time is triggered for 2 QHs*

# Maximum duration and resting time

- Different preferred solutions from different BSPs
- Same implementation in the Nordic countries
- Same logic as already implemented
  
- Suggestion about a combination of both will be taken into account further on when developing the bid attributes.
  
- As with all other bid attributes, Maximum duration and Resting time must be used so that the commitment from the capacity market can be upheld.

# Direct activation and complex bids

If the whole multipart bid group volume has been accepted on the capacity market, the commitment cannot be fulfilled



 = One Multipart bid group

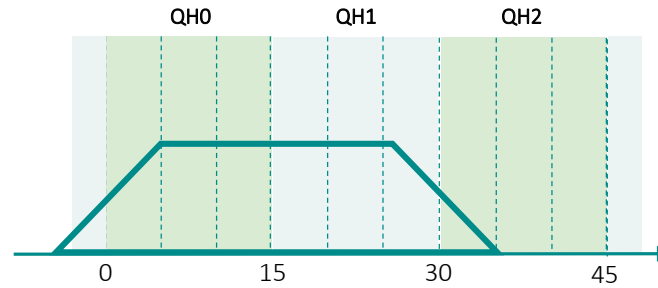
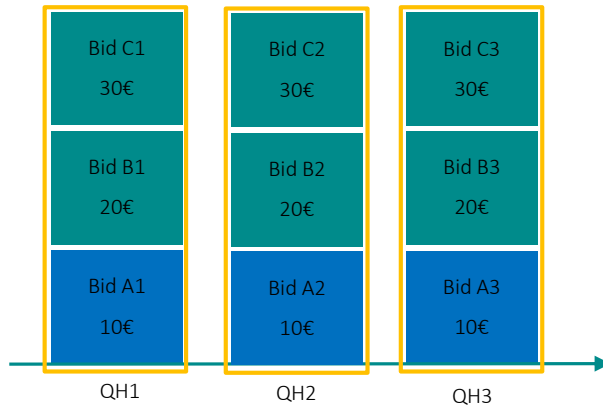
Correction: Technical linking is used between bid groups and not bid components. This does not affect the problem presented or the answer from Svenska kraftnät that the cheapest bid component can be submitted to the capacity market.

# Direct activation and complex bids


- This is unfortunately how it will work when we go-live since it is the same implementation as they have in the MARI-platform.
- Since we want you to deliver on the commitment from the capacity market, we would like that you only bid the capacity that you can deliver. Which is the cheapest bid component in the multipart bid group.

# Direct activation and complex bids

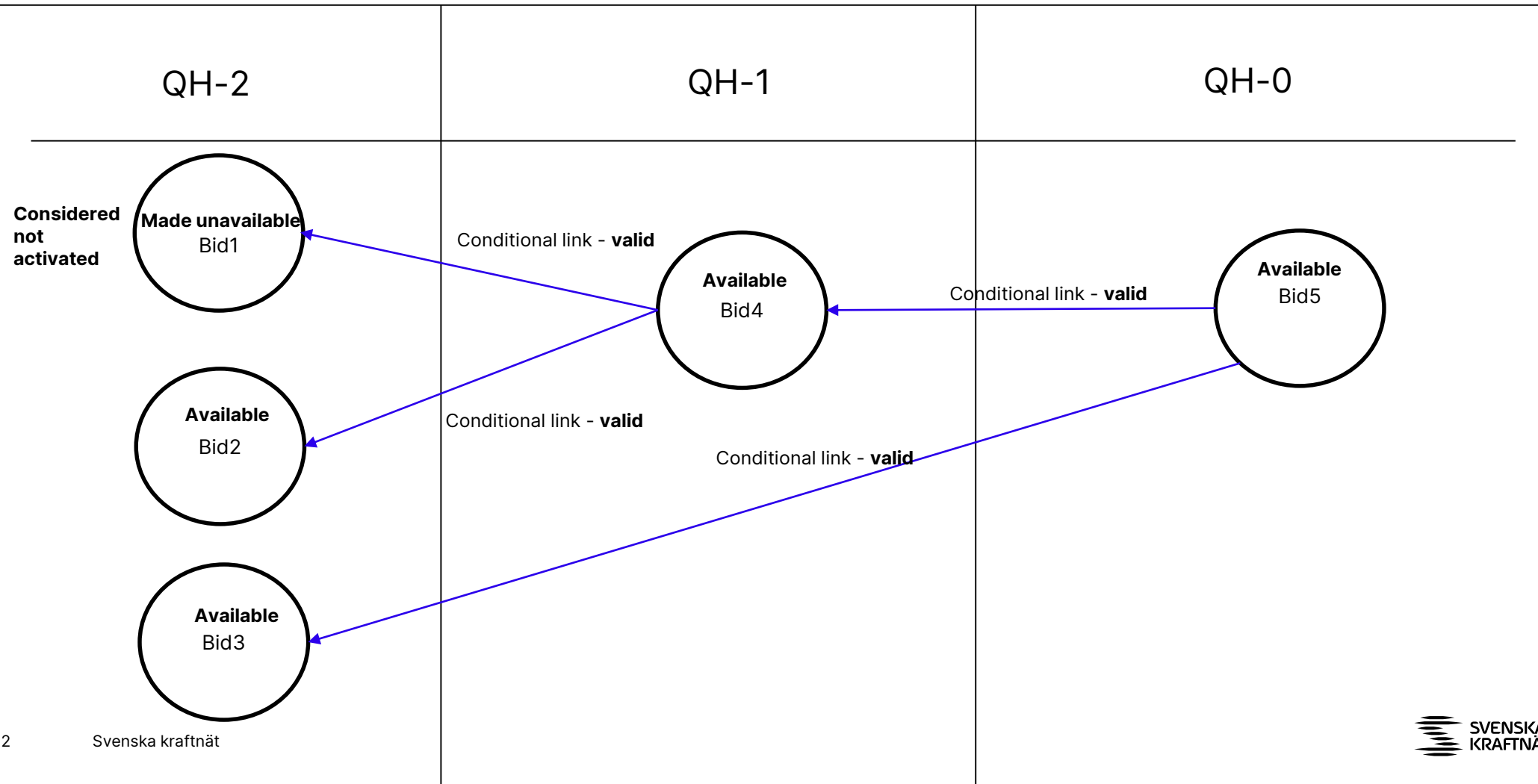
If the whole multipart bid group volume has been accepted on the capacity market, the commitment can not be fulfilled



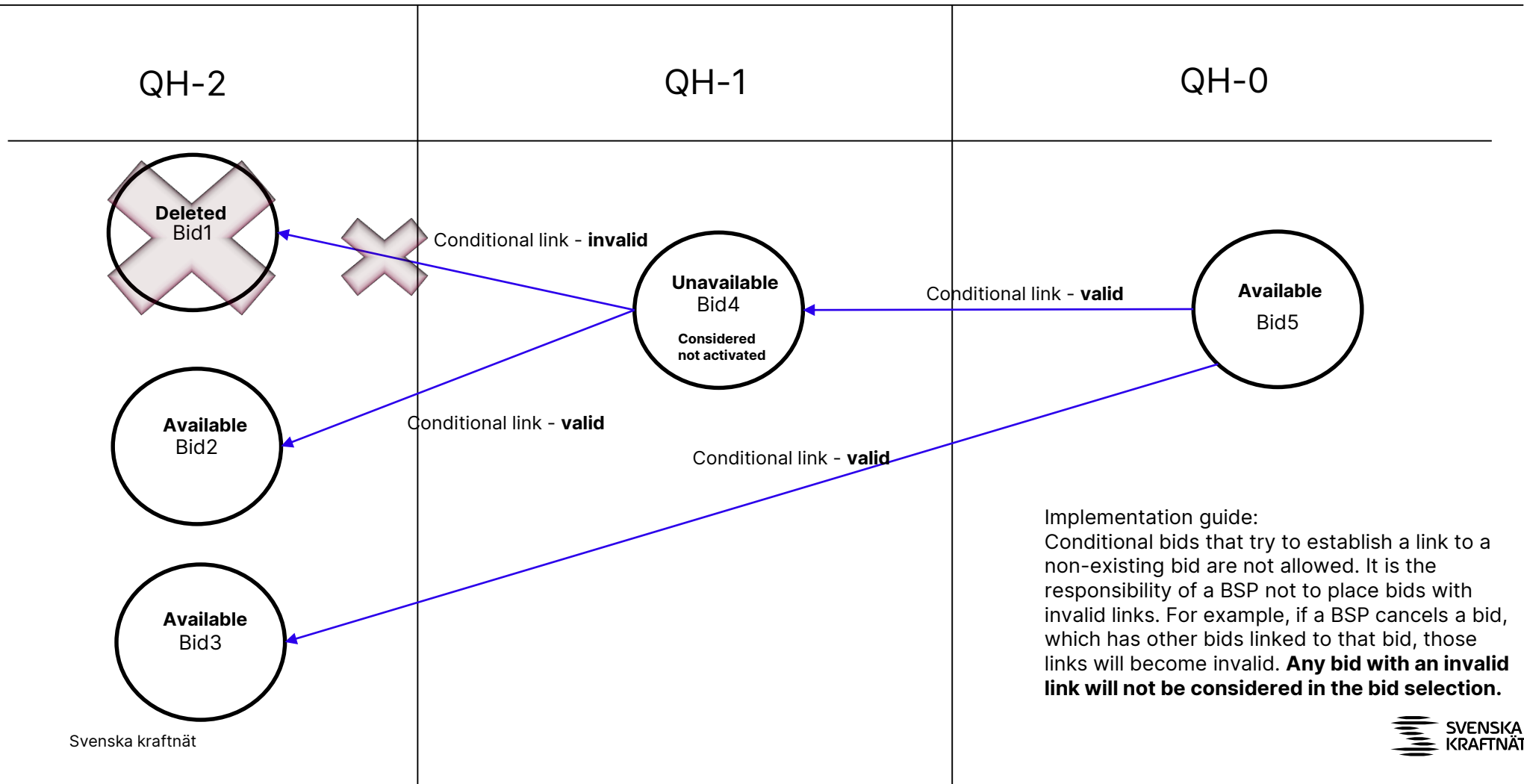
 = One Multipart bid group

 = Capacity that can be submitted to mFRR CM

# Conditionally linked bids – Made unavailable

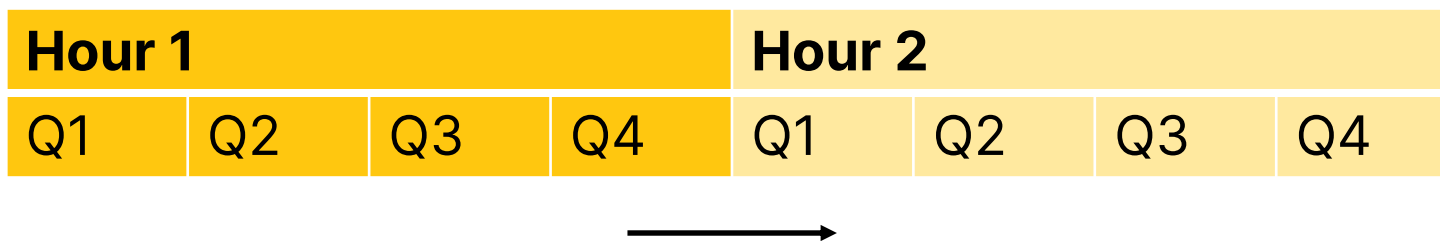


# Conditionally linked bids - Delete



# Direct activation the last quarter

- If a bid is direct activated in the last quarter of hour one, you are obligated to activate in quarter one of hour two which is beyond the delivery period of the capacity market



- This becomes a problem if the same assets are planned to be used on another market in hour two.



# Different options

Alternativ 1 (chosen by Fingrid)


Hour 1				Hour 2			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

Alternativ 2 (chosen by Statnett)

Hour 1				Hour 2			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

Alternativ 3 (chosen by Svenska kraftnät)

Hour 1				Hour 2			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

 = not obliged to deliver in Q1 hour 2 if commitment have changed

If we chose alternative 1 or 2 we are not following the standard product for direct activation. If we chose alternative 3 we are not following ACER document, standard product for balancing capacity. Not straight forward how to combine the two.

# Our analysis

- We have observed two things when making our decision.
  - How large is the difference between hour-hour in the capacity market on average?  
In both directions, for every actor, in each price area and can we observe patterns?

Hour 1 (100 MW)				Hour 2 (200 MW)				Hour 3 (200 MW)				Hour 4 (100 MW)			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4

- EAM-need. How large is the need for mFRR energy and can we find patterns? (Data from Nordic reporting/shadow operation)

# Conclusion

- Our conclusion:
  - The commitment on the capacity market between hours is not changed frequently.
  - When it is changed, it is rather small volumes.
  - Direct activation in the last quarter of an hour might happen a couple of times every year.
- We encourage you to reply in the public consultation of the BSP agreement
  - Add suggestion what you prefer (before August 23, **This Friday**)

# More input regarding the use of bid attributes?

- Please send in feedback and thoughts regarding bid attributes to [mFRR@svk.se](mailto:mFRR@svk.se)

# Bid availability

# Heartbeat

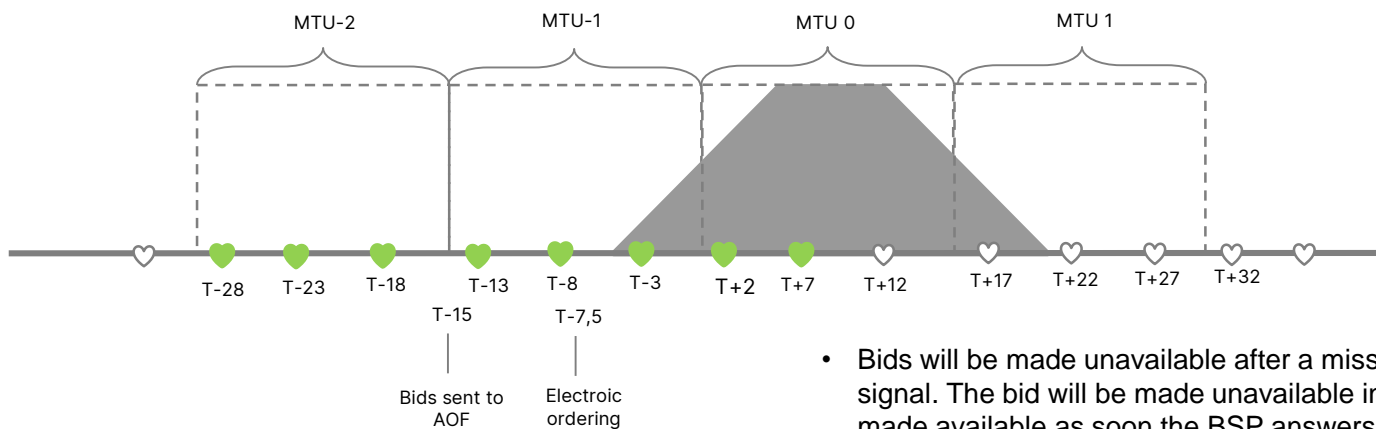
- Empty activation message sent every 5 minutes to verify that the connection with the BSP is working properly
- In the absence of a response to the heartbeat, all bids for the upcoming two quarters from the specific BSP will be made unavailable.
  - This will generate a rebuy in the capacitymarket 2x the original payment.



The operator in our controlroom does not have the possibility to activate specific bids by phone, if needed they will call and ask for a complementary base activation

# Heartbeat timing

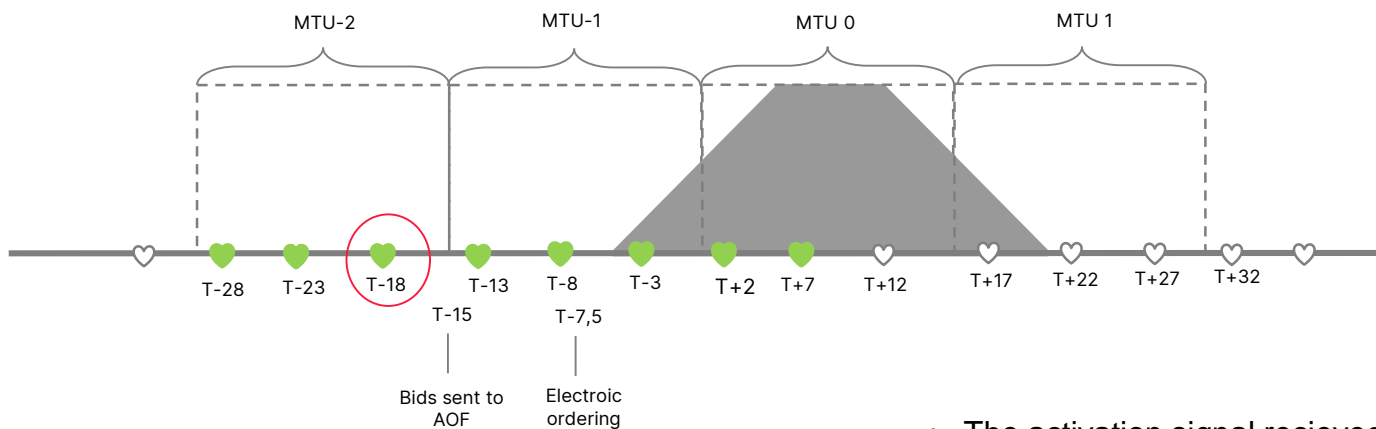
- ♥ Heartbeat fail
- ♥ Heartbeat OK
- ♡ Doesn't affect MTU 0



- Bids will be made unavailable after a missing answer from the heartbeat signal. The bid will be made unavailable in the coming **two MTUs**, but will be made available as soon the BSP answers the heartbeat again.
- If the answer comes after that SVK has sent the bids to the AOF, the operator in our controlroom can override the automatic unavailability by making the bids available but those bids will not be part of the scheduled bid selection, only available for direct activation (given that the bid has that activation type)

# Heartbeat timing

- ♥ Heartbeat fail
- ♥ Heartbeat OK
- ♡ Doesn't affect MTU 0



- The activation signal received 18 min before the quarter starts will set what bids is to be sent to the AOF for the scheduled process. The heartbeat afterwards will only set the availability for direct activations that quarter.



# Publication of real time data

- The new heartbeat functionality can result in that high bid volumes are unavailable due to no heartbeat response
- We have looked in to transparency regulation and our obligation to publish information on that bids are unavailable
- Our obligations to publish market information is regulated in REMIT and in the transparency regulation

# REMIT – definition of insider information

Defintion	Reasoning
Is the information precise?	Yes – a specific volume will be made unavailable
Is the information not public?	Yes
Does it regards a wholesale energy product?	Yes
Would it significatly effect the prices if made public?	No – heartbeat is recieved after GCT and therefore bids cannot be adjusted based on this information

# Conclusion

- We will not send a specific message to the market on unavailable bids due to no heartbeat response
- In situations of low volumes of bids (nöddrift), SVK will send a message in NUCS (same routine as today)

Available here: [Dashboard | Nordic Unavailability Collection System \(nucs.net\)](#)

- There are no clear cases and rules for the balancing market, but this is the interpretation we have done. You will have to make your own interpretation of REMIT and see if you have to publish something if you loose connection with us.

# Unavailability report

- At the same time you receive the activation report you will also receive information on if we have made bids unavailable
- We will specify for what reason your bid was market as unavailable

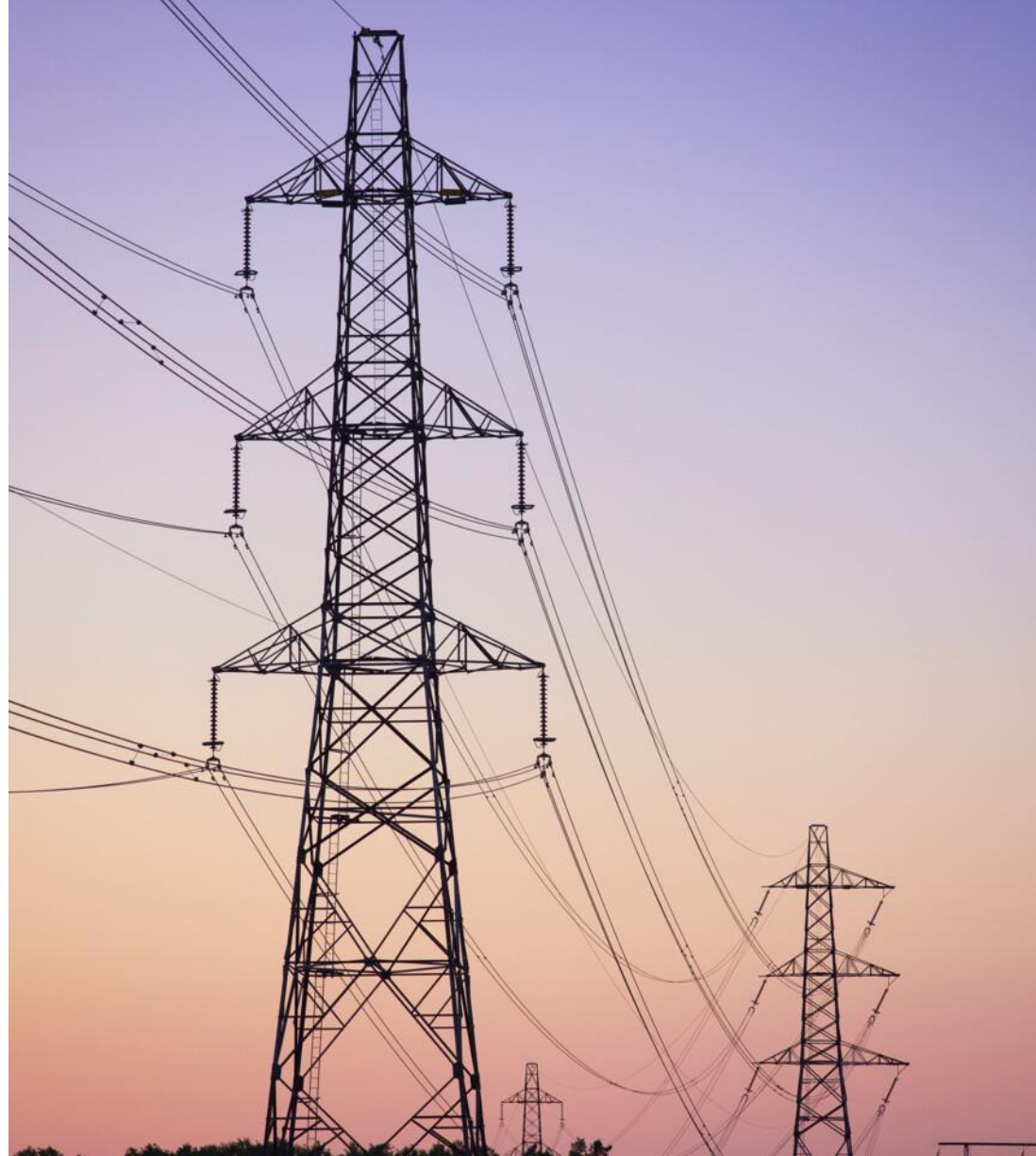
businessType	M	<b>C40</b> – Conditional bid <b>C41</b> – Thermal limit <b>C42</b> – Frequency limit <b>C43</b> – Voltage limit <b>C44</b> – Current limit <b>C45</b> – Short-circuit current limits <b>C46</b> – Dynamic stability limit ZA0 – Missing heartbeat response
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**Lunch break**  
**11.45 – 12.45**

# How are the mFRR- and imbalance prices calculated?

# Agenda: Pricing

- Principles for pricing
- Overview of changes until Nordics join MARI
- Pricing when connection to Nordic AOF is lost
- In case of low bid volumes
- Analysis on imbalance price and activation income in mFRR EAM



# Principles for pricing of mFRR balancing energy

The goal is to keep as much as possible of the current pricing principles up until Nordic connection to MARI.

1. Hourly price (→ 15 min)
2. One mFRR balancing energy price per direction
3. Day-ahead price used as reference price
4. All bids activated in merit order can set the marginal price
5. Common Nordic optimisation for scheduled activation
6. The mFRR balancing energy price can be different even in case of no congestion

**Updated version of memo**

[Implementation guides – nordicbalancingmodel](#)



# 1. Hourly price

- From the start of mFRR EAM, the 60 min MTU will be kept → mFRR balancing energy price will be determined per hour.
- Result of marginal prices from all scheduled activation runs (one per quarter) and direct activation runs (possibly several per quarter)

A direct activation with start in the last quarter of the hour will impact the price of both the current hour and the following hour as the direct activation lasts for two quarters.

# 2. One mFRR price per direction

- There will be one mFRR price per direction (up and down)

# 3. Day-ahead price used as reference price

- The day-ahead price will be used as a reference, setting a cap and floor for bid prices.
- In MTUs without regulation, the mFRR price will be set to day-head price.

# Example: mFRR balancing energy price

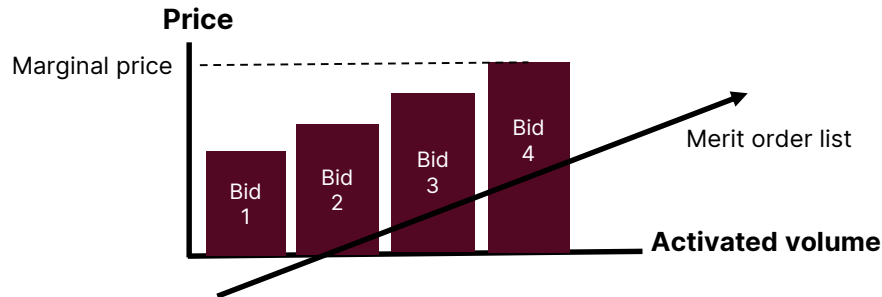
Prices in EUR/MWh

H	QH	Spot	SA marginal	DA marginal	QH		H	
					mFRR up	mFRR down	mFRR up	mFRR down
6	1	35	45	-	45	35	48	25
	2		40	48	48	35		
	3		32	-	48	32		
	4		32	25	35	25		
7	1	40	38	-	40	25	50	25
	2		-	-	40	40		
	3		-	50	50	40		
	4		45	32	50	32		
...	...	...	...	...	...	...	...	...
14	1	-0.5	-2	-	-0.5	-2	-0.5	-3
	2		-3	-	-0.5	-3		
	3		-	-	-0.5	-0.5		
	4		-	-	-0.5	-0.5		

The imbalance price is the mFRR price in the dominating direction. In order to determine the imbalance price, the activated volumes are needed.

## 4. All bids activated in merit order can set the marginal price

- All bids activated respecting the common merit order can set the marginal price.
  - for scheduled or direct activation
  - to solve a demand due to either balancing needs or system constraints
- In line with MARI methodology for pricing



Principle no different from today

## 5. Common Nordic optimisation for scheduled activation

- Bids for scheduled activation will be selected in a common Nordic process, given available cross-border capacity.
- mFRR price for scheduled activation will be set based on the demand and supply in the whole Nordic area.
- In case of no congestion, the price will be same for the whole area. If congestion occur, the price will be same only between bidding zones with available transmission capacity.

## 6. The mFRR price can be different even in case of no congestion

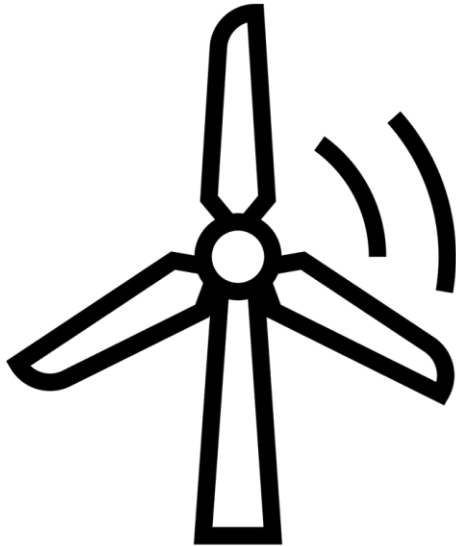
- Bids for direct activation are selected in national processes, taking into account only local bids and available transmission capacity within the TSOs control area
- When direct activated bids are activated, they set the price in only in the control area
- Fallback process to the scheduled activated bid selection is a national process and like direct activations sets the price locally



# Regulation in both directions during the same QH

- We observe today that in hours with close to zero or negative spot prices, some BRPs shut down wind production that is sold in the spot market
- This results in large imbalances (several hundreds of MW, or even GW), need for regulation and bad frequency quality
- The automated balancing will calculate the mFRR need on forecasts based on production plans
- If many BRPs act on spot or scheduled activation marginal prices, there will be a greater need for direct activation
  - Direct activation in mFRR EAM is national → more limited volumes
  - the mFRR and imbalance prices will be affected

# Example: regulation in both directions during the same QH

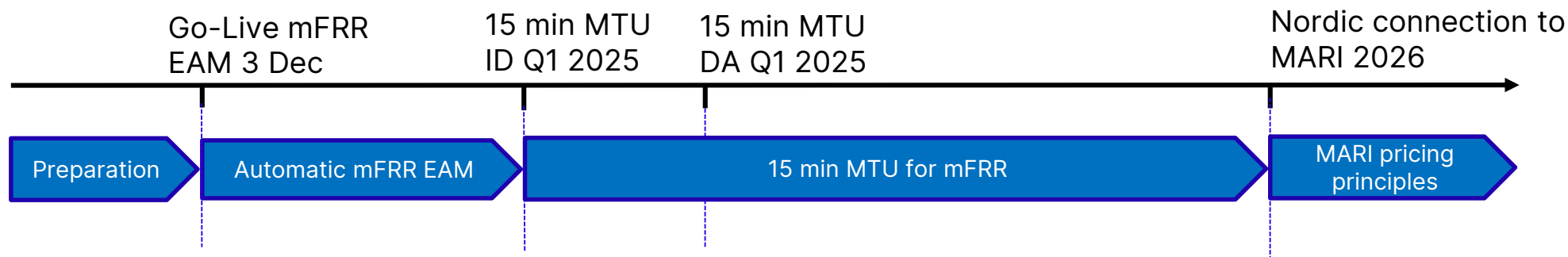


Prices in EUR/MWh

H	QH	Spot	SA marginal	DA marginal	QH		H	
					mFRR up	mFRR down	mFRR up	mFRR down
15	1	-1	-2	15	15	-2	15	-3
	2		-3	12	15	-3		
	3		-	-	12	-1		
	4		-	-	-1	-1		

# Stepwise changes until Nordics join MARI

- Preparation before Go-live of Automatic mFRR EAM (ongoing)
- Automatic mFRR EAM (with 60 min MTU for mFRR prices) (December 2024)
- 15-minute MTU in energy markets before connection to MARI (with 15 min MTU for mFRR prices)



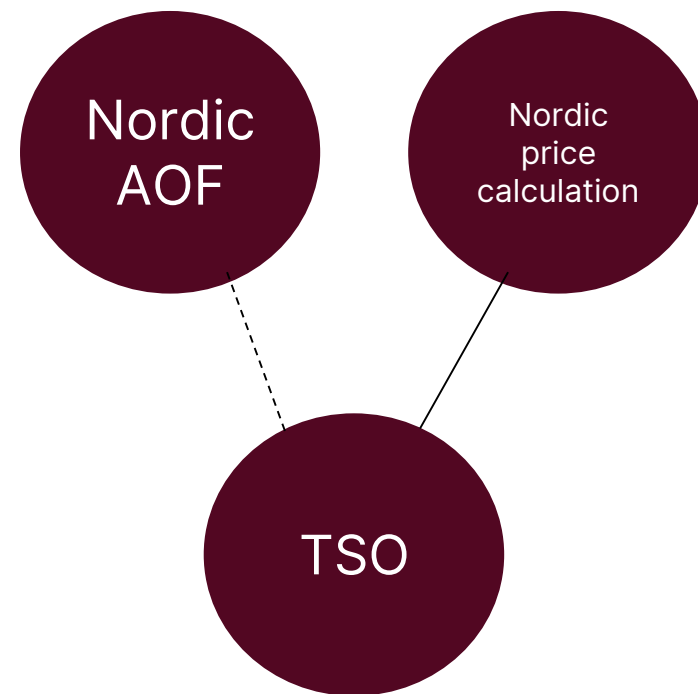
# Overview – changes to mFRR and imbalance pricing

	mFRR EAM Q4 2024	15 min MTU (ID trade 15 min) Q1 2025	15 min MTU (DA trade 15 min) Q1 2025	MARI and PICASSO
mFRR price	<ul style="list-style-type: none"> <li>•60 min MTU mFRR</li> <li>•One mFRR price per direction</li> <li>•Day-ahead reference price (60 min) and mFRR price in case of no activation for a given direction</li> <li>•National direct activation will not set mFRR price in other countries.</li> </ul>	<ul style="list-style-type: none"> <li>•15 min MTU mFRR</li> <li>•One mFRR price per direction</li> <li>•Day-ahead reference price (60 min) and mFRR price in case of no activation for a given direction</li> <li>•National direct activation will not set mFRR price in other countries.</li> </ul>	<ul style="list-style-type: none"> <li>•15 min MTU mFRR</li> <li>•One mFRR price per direction</li> <li>•Day-ahead reference price (15 min) and mFRR price in case of no activation for a given direction</li> <li>•National direct activation will not set mFRR price in other countries.</li> </ul>	<ul style="list-style-type: none"> <li>•MARI pricing</li> <li>•Separate price SA (1 price) and DA (up to 4 prices)</li> <li>•No reference price (mFRR price only based on bid prices)</li> <li>•National specific products will be priced separately based on national rules</li> </ul>
Imbalance price	<ul style="list-style-type: none"> <li>•60 min (actual) ISP</li> <li>•Dominating direction determined across bidding zones based on scheduled and direct mFRR activations.</li> <li>•VoAA and IC provide imbalance prices in ISPs with no dominating direction (equal to day-ahead)</li> </ul>	<ul style="list-style-type: none"> <li>•15min (actual) ISP</li> <li>•Dominating direction determined across bidding zones based on scheduled and direct mFRR activations.</li> <li>•VoAA and IC provide imbalance prices in ISPs with no dominating direction (equal to day-ahead)</li> </ul>	<ul style="list-style-type: none"> <li>•15 min ISP</li> <li>•Dominating direction determined across bidding zones based on scheduled and direct mFRR activations.</li> <li>•VoAA and IC provide imbalance prices in ISPs with no dominating direction (equal to day-ahead)</li> </ul>	<ul style="list-style-type: none"> <li>•15 min ISP</li> <li>•Dominating direction determined by satisfied demand per bidding zone</li> <li>•VoAA based on bid price(s), Day-ahead will not be used as reference price (possibly ID prices over time)</li> <li>•Strategy still to be decided on how several balancing product prices in the dominating direction will set the imbalance price.</li> </ul>



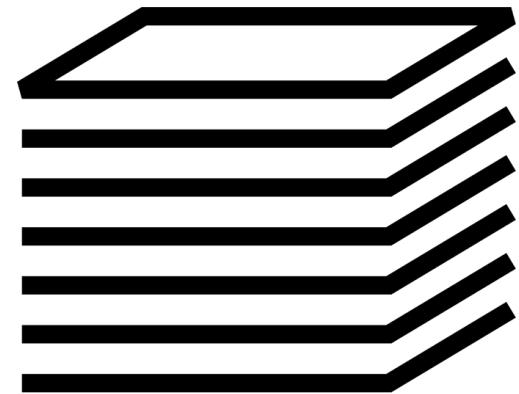
# Pricing when connection to Nordic AOF is lost

- Same pricing principles as with AOF
  - Common Nordic price calculation regardless Nordic or national bid selection
  - If connection to Nordic price calculation is lost we will wait until it is up again (99 % availability requirement)



# In case of low bid volumes

- When Svenska kraftnät can predict that the bid volume is too low to maintain the system stability Svenska kraftnät can ask for additional mFRR bids.
  - Svenska kraftnät can, due to operational safety reasons request regulation that are not included in the bid list
- Payment for those bids will be pay-as-bid

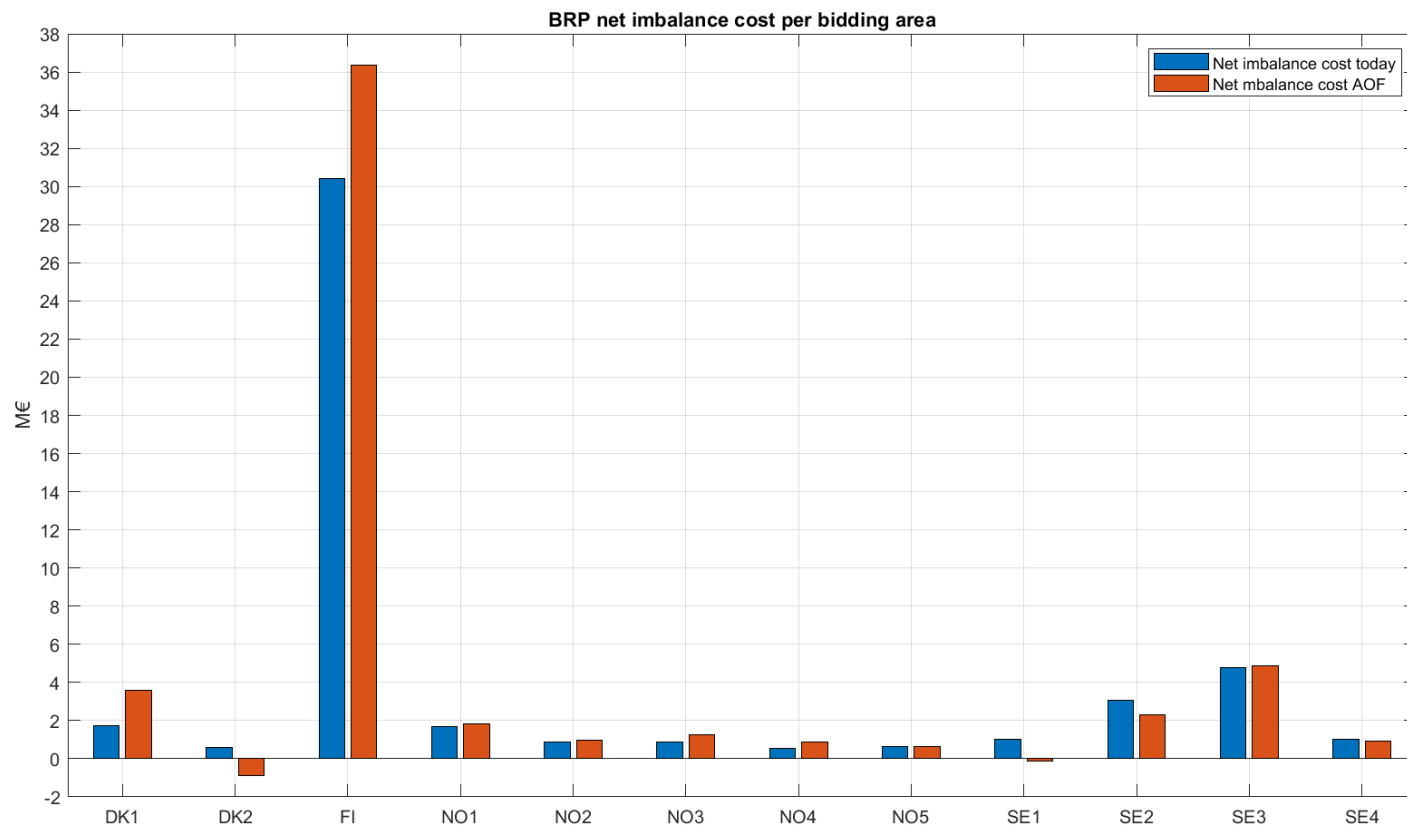


# Analysis on imbalance cost in mFRR EAM

- Due to increased number of activations in an automated market we can see indications of increased net imbalance cost for BRP increased net activation income for BSP
- Performed an analysis with available data **21 december 2023 – 8 january 2024**



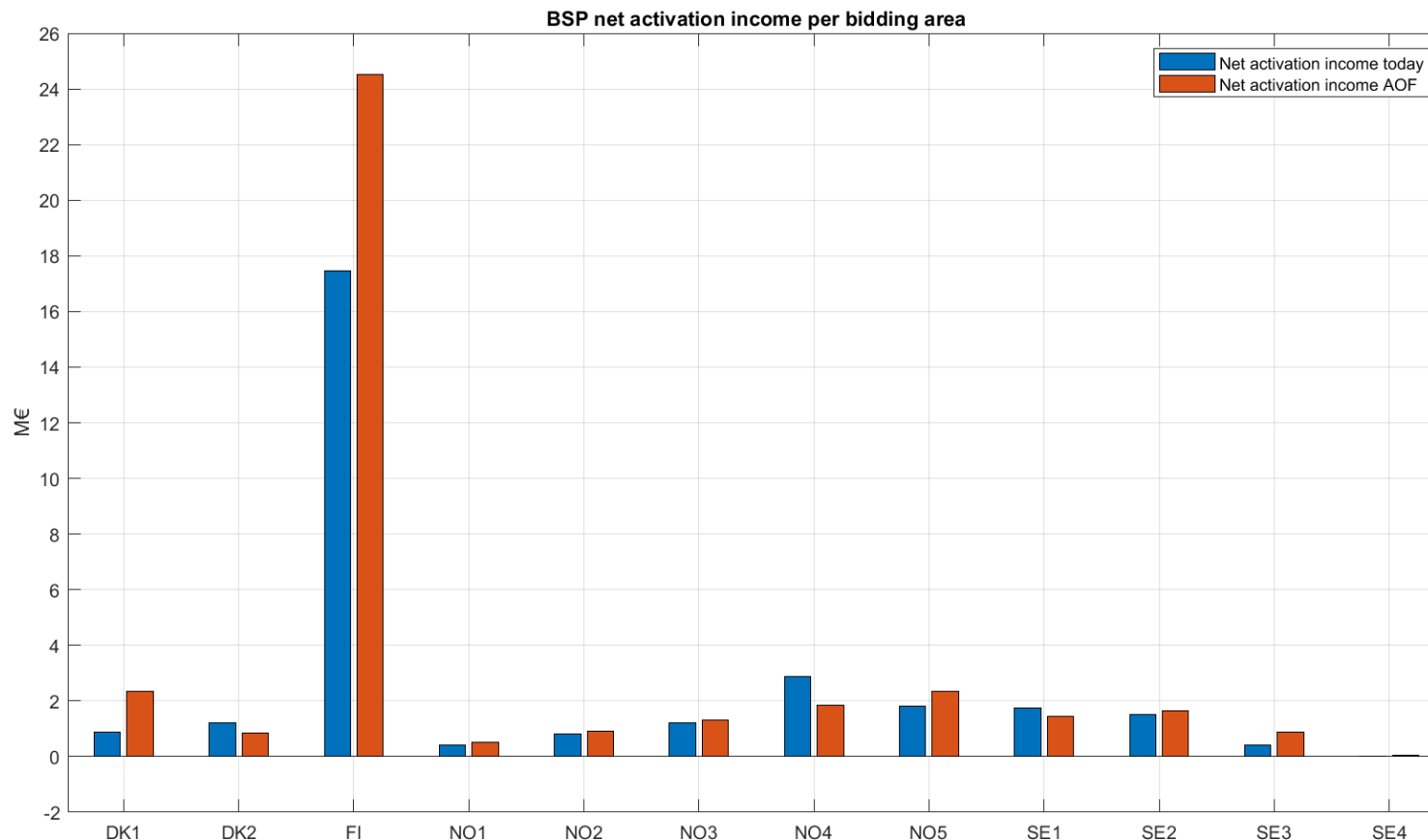
# BRP net imbalance cost per bidding area



Increase in imbalance cost with 12 % in the whole of Nordic

Note! The high numbers in Finland is due to scarcity of resources during winter – same analysis today would not give as high numbers for Finland

# BSP net activation income per bidding area

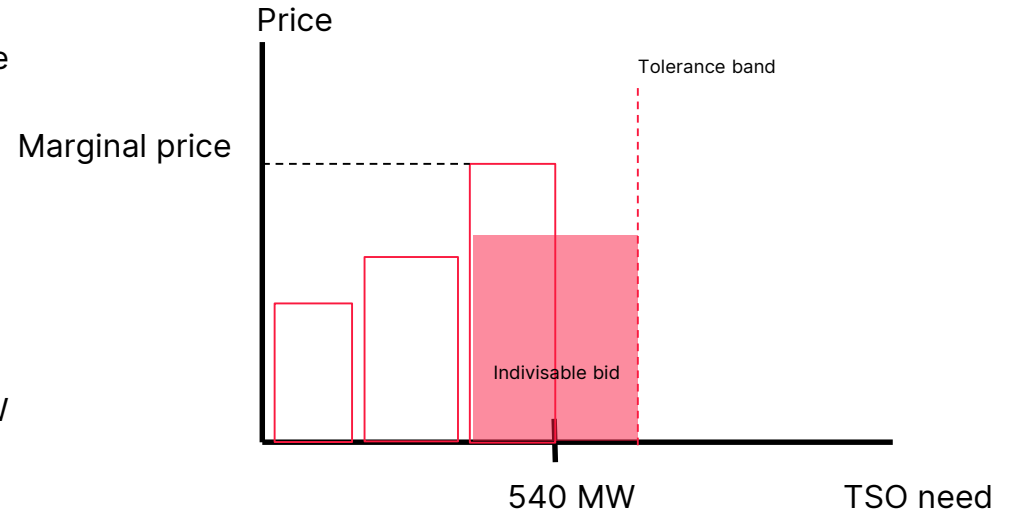


Increase in activation income with 27 % in the whole of Nordic

Note! The high numbers in Finland is due to scarcity of resources during winter – same analysis today would not give as high numbers for Finland

# Measures to reduce increased imbalance cost

- Activation income and imbalance cost is affected by the amount of requested mFRR
- A large share of indivisible bids risk to increase imbalance price
  - Indivisible bids risk to force expensive activations
  - Reduced risk for high imbalance price with less indivisible bids
- On TSO side we plan to implement "tolerance band"
  - Tolerance band = AOF is allowed to activate more MW than mFRR request if that is cheaper than activate the next indivisible bid



# Nordic webinar October 2nd

- We will have a Nordic webinar in October where we will present more data and analyses like this.
- Please give us input if there is anything specific you want us to present, email us at: [mfrr@svk.se](mailto:mfrr@svk.se)

# Settlement





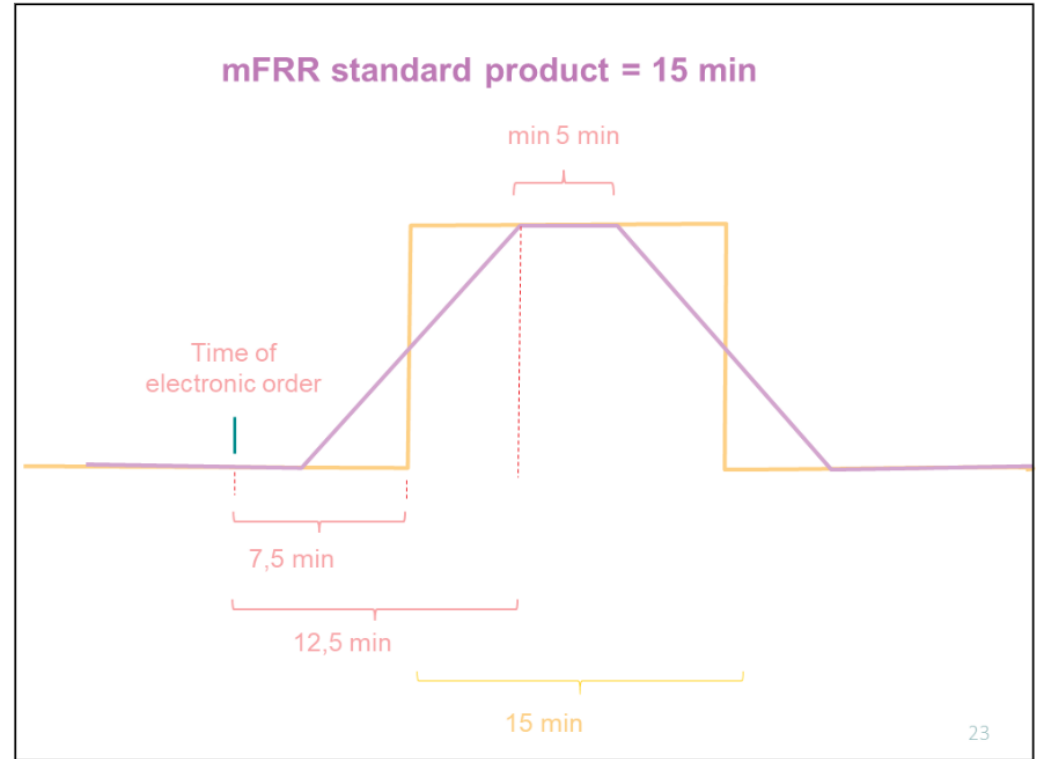
# Agenda: Settlement

- BSP activation
- Volume calculation for activated bids and imbalance adjustment
- Settlement price
- Price and amount - BSP
- Example: implementation in eSett

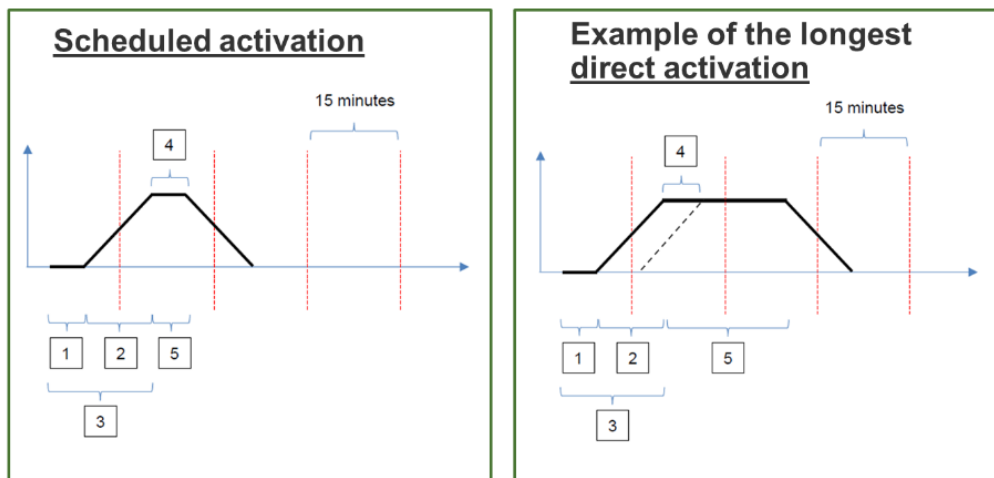
# BSP activation

mFRR standard product:

- based on the European standard product for the MARI platform
- the profile BSPs are requested to deliver



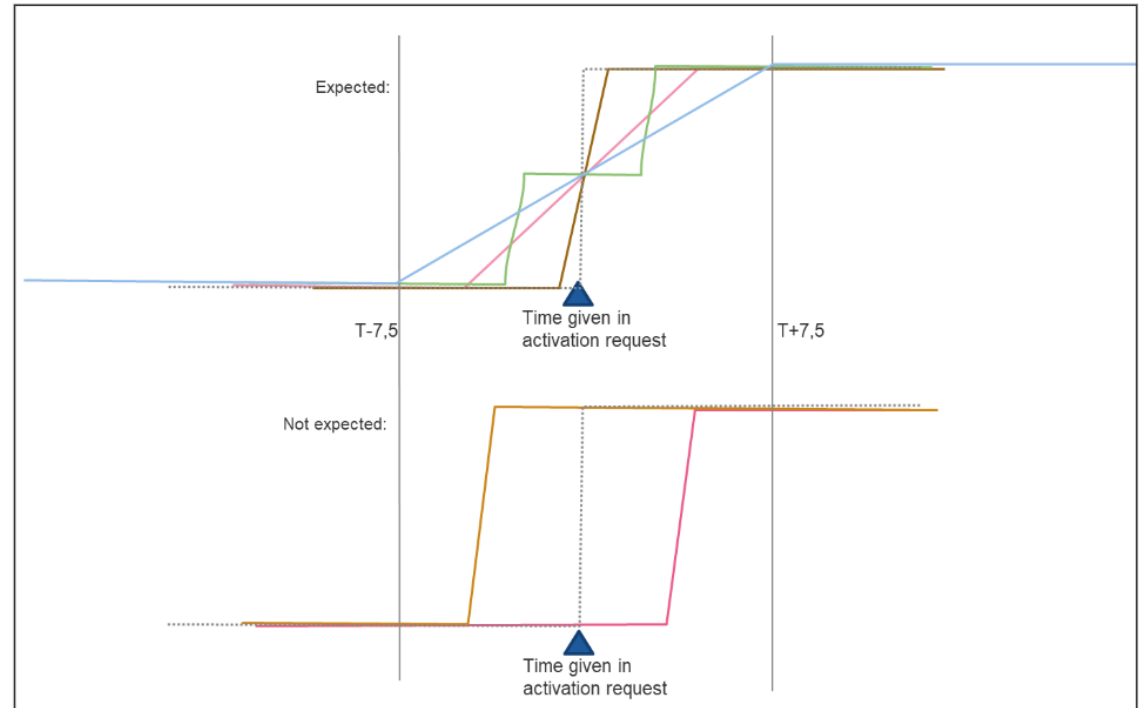
# BSP activation – SA and DA



- 1 Preparation period
- 2 Ramping period
- 3 FAT – full activation time
- 4 Minimum duration of delivery period (5 min)
- 5 Maximum duration of delivery period:
  - 5 min in scheduled activation
  - 20 min in direct activation

# Symmetrical ramping

- The expected BSP response is at least to ramp symmetrically around the quarter shift



# Volume for BSP and BRP settlement

- The technical requirement will allow deviation from the standard profile
  - There will be no penalty charge for not following the standard profile
  - Only the imbalance cost for the BRP from any imbalances caused
- Pre-qualified assets will **not** need to renew the pre-qualification for mFRR EAM
  - Current pre-qualifications are valid until expiration
- The technical requirements are being reviewed in a common Nordic process
  - More information will be available later this year

# Volume for BSP energy activation and BRP imbalance adjustment

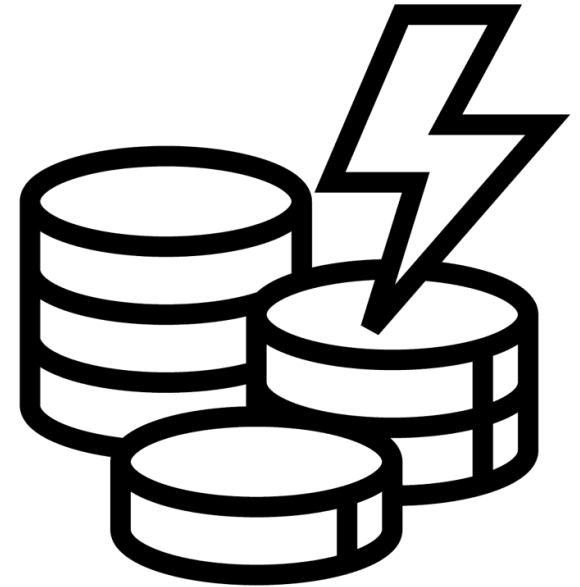
In eSett, the *ramped* volume based on 12.5 min FAT will be presented for both mFRR activation and BRP imbalance adjustment.

		Bid	Expected activated volume
H	QH	MW	MWh
1	1		1
	2	48	10
	3		1
	4		-0.5
2	1	-24	-5
	2		-0.5
	3		
	4		

# Settlement price

Activated mFRR bids will in general be settled with the best of the mFRR balancing energy price and bidding price of respective activation direction.

- Scheduled and direct activation bids activated for balancing are settled at mFRR price in regulating direction
- Direct activations for system constraints reasons are settled at best of bid price and mFRR price in regulating direction



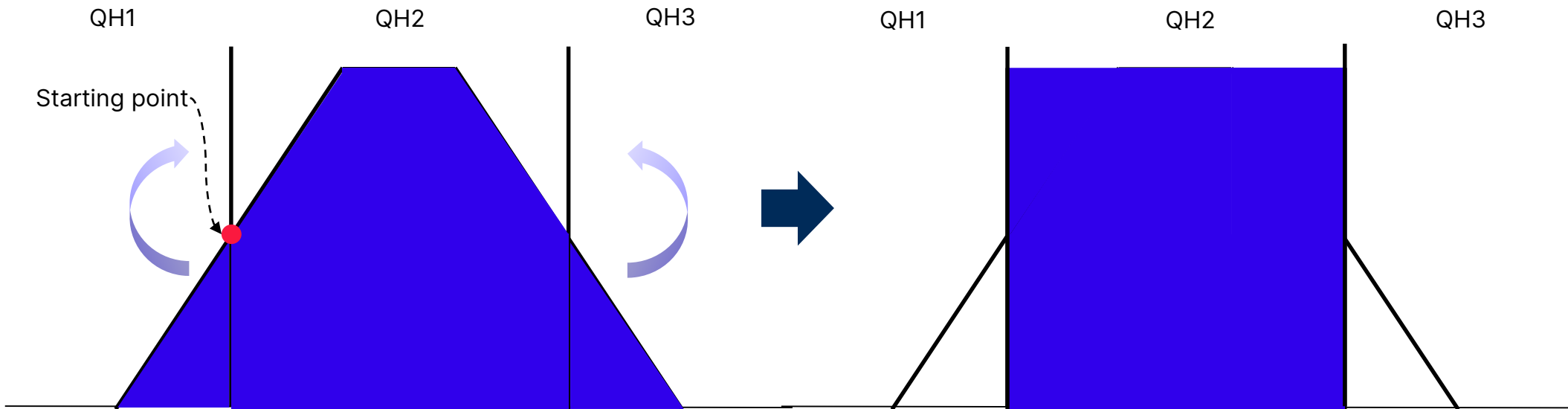
# Price and amount – BSP

- The price for mFRR energy activation will be mFRR price (or bid price) in the QH (QHs) of the bid.
- The amount to be settled with the BSP is calculated based on a block volume per quarter

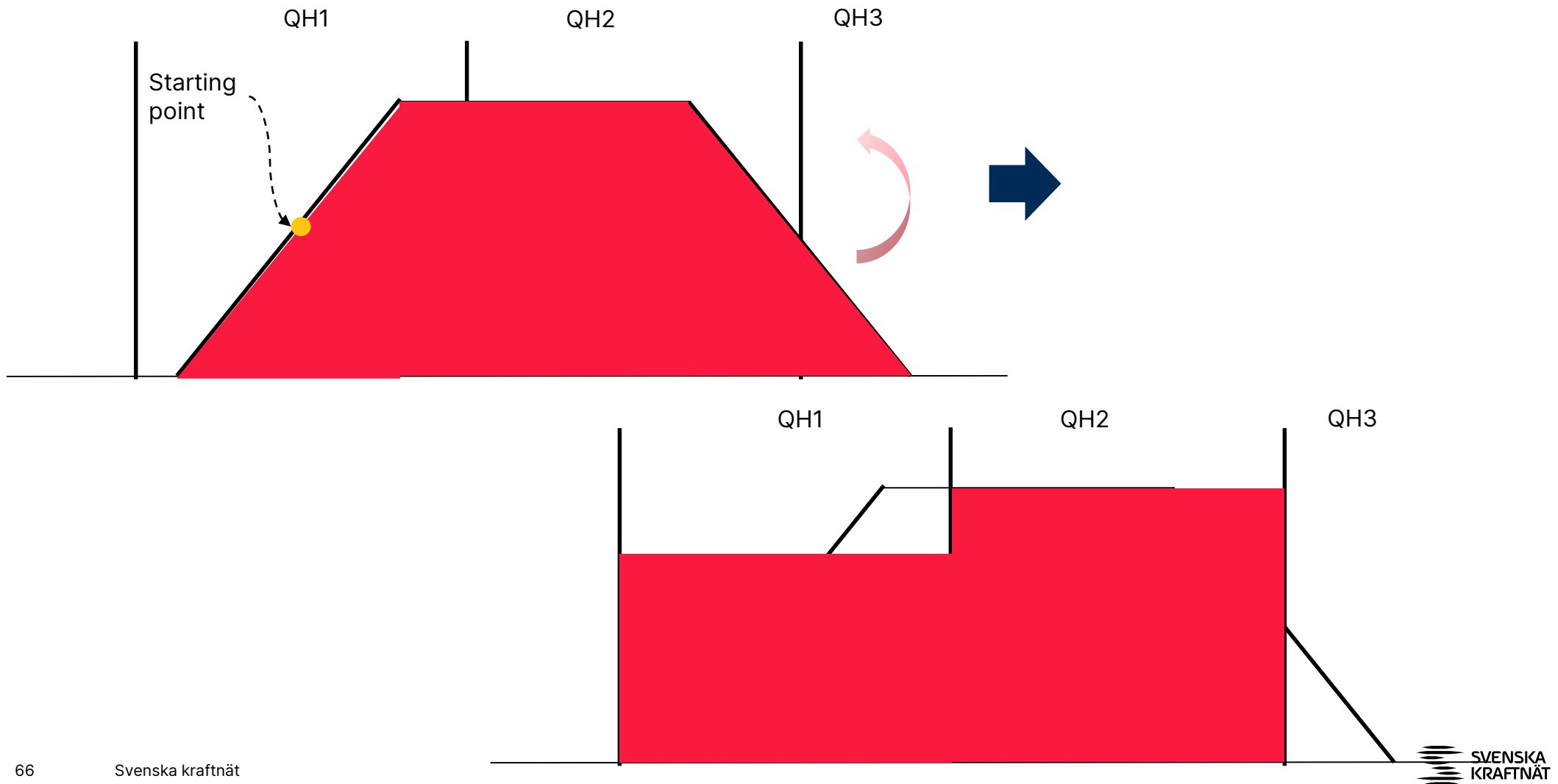
H	QH	Bid	Expected activated volume
		MW	MWh
1	1		1
	2	48	10
	3		1
	4		-0.5
2	1	-24	-5
	2		-0.5
	3		
	4		



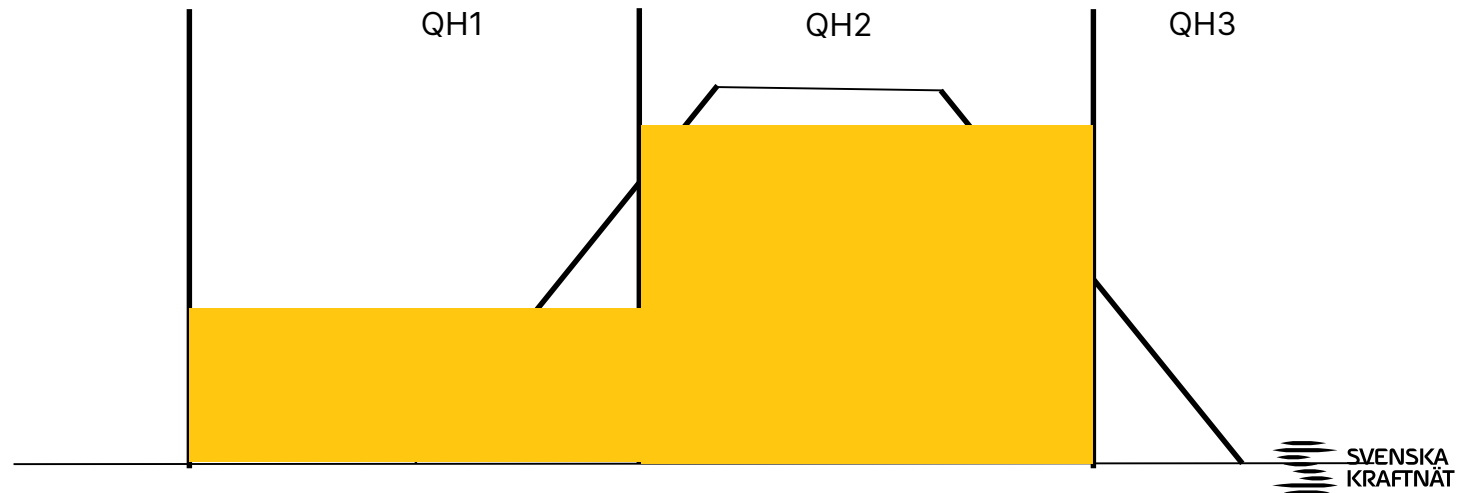
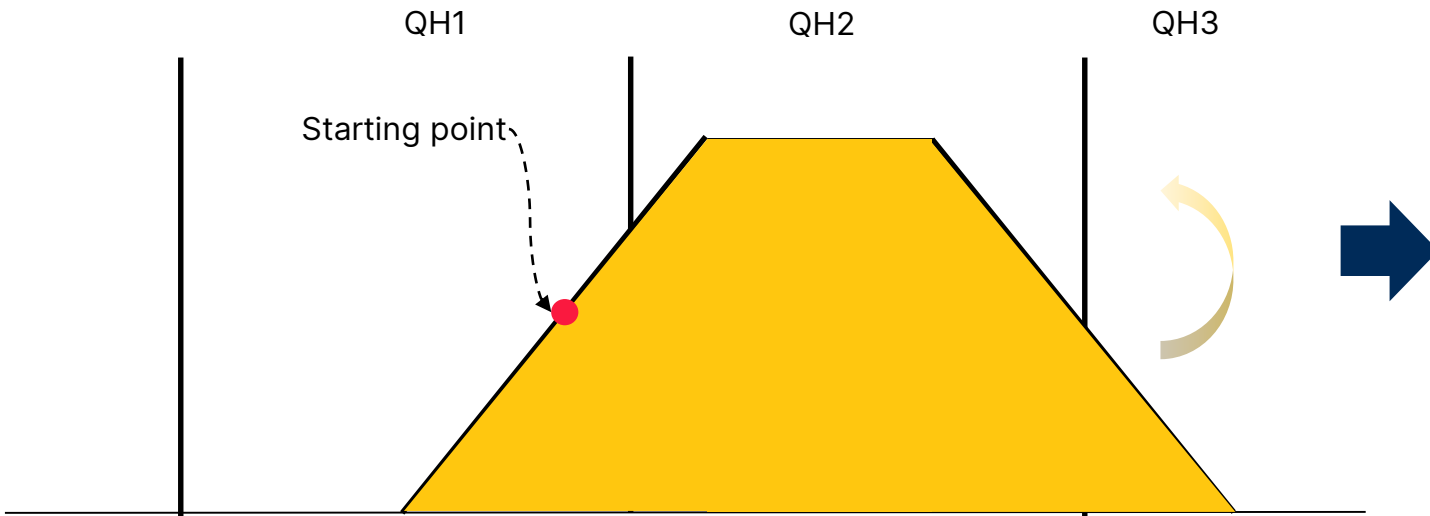
# Example 1: Scheduled activation



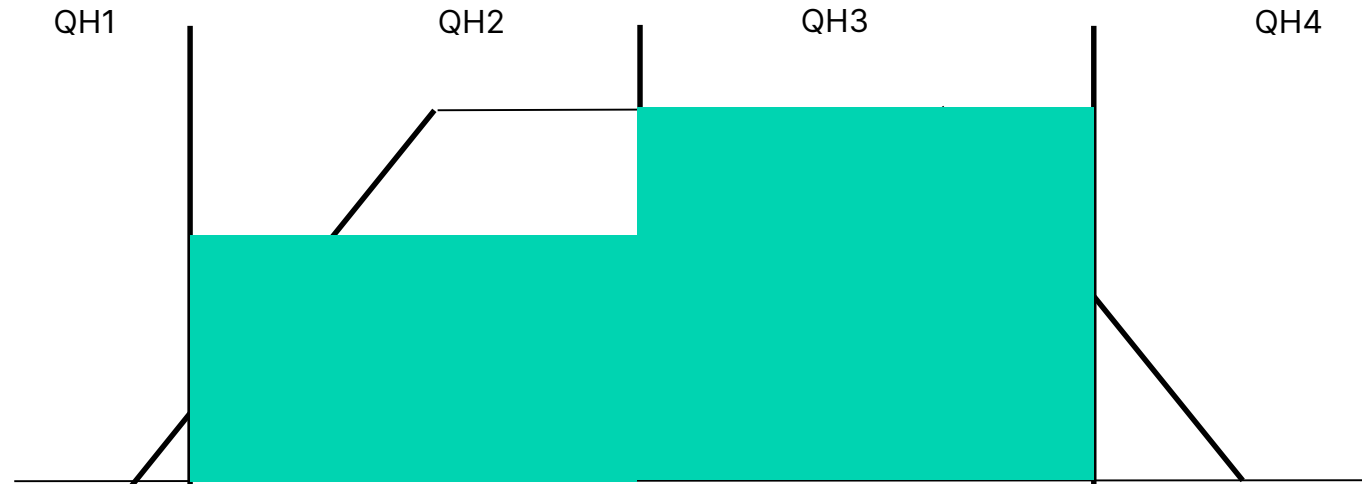
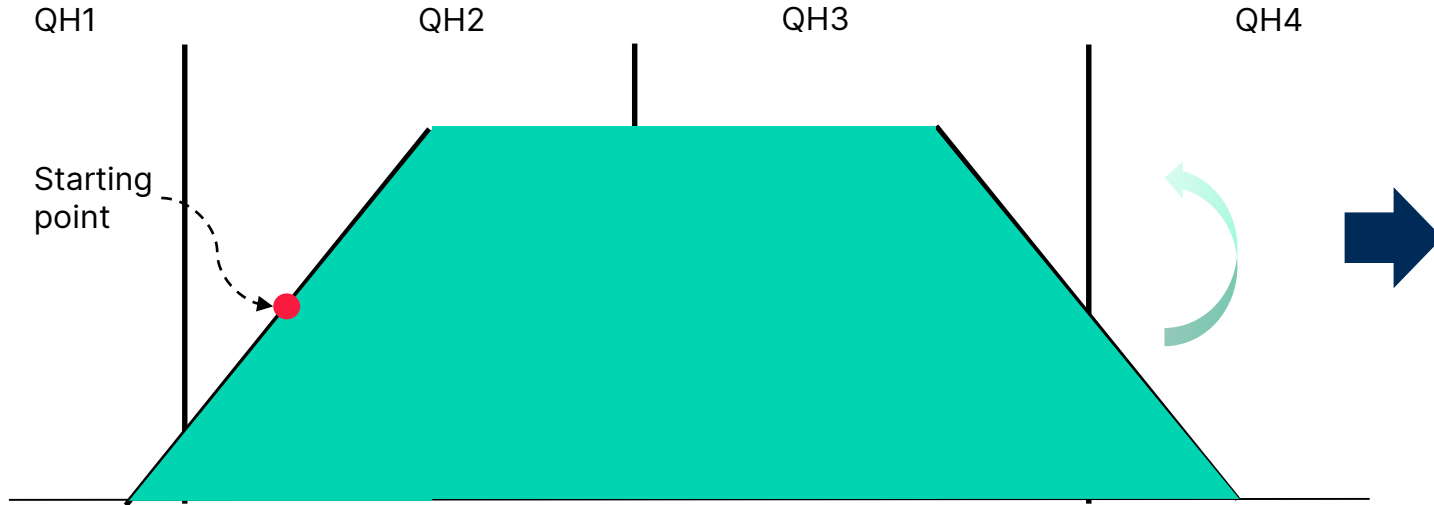
## Example 2: Direct activation



### Example 3: Direct activation

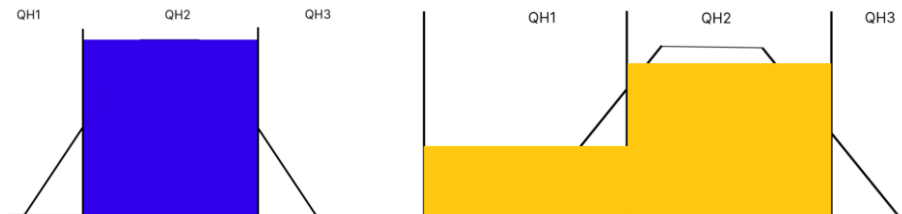
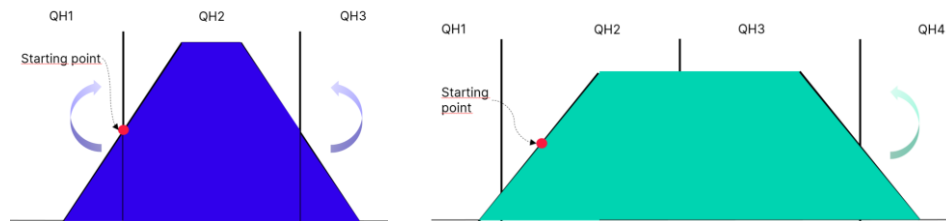


# Example 4: Direct activation



# Amount – key points

- Activation spans over three to four QHs
  - Scheduled: three QHs
  - Direct: three or four QHs (depending on starting point)
- Settlement price from one or two QHs
  - Scheduled: one QH
  - Direct: two QHs



# Example, implementation in eSett

- Activations per regulation object
- Per direction
- Per scheduled and direct activation
- Volumes (Quantity) with ramp (3-4 QHs)
- Amount in QHs of activation (2-3 QHs)

	Market party			
	MBA			
	Regulation Object			
	FRR-M, Balancing Power			
	Down Amount, €	Up Amount, €	Down Qty, MWh	Up Qty, MWh
00:00-00:15	0,00	0,00	1,000	0,000
00:15-00:30	100,00	0,00	10,000	0,000
00:30-00:45	0,00	0,00	1,000	1,000
00:45-01:00	0,00	150,00	0,000	10,000
01:00-01:15	0,00	0,00	0,000	1,000

# Report from Svk

- Svk will report the activations in MW with start time
- Direct activations will be reported in a separate document
- All other activations will be reported in one document
  - Separate timeseries for different activations

Details about reporting is found in the Implamenation guide: [Implementation guides – nordicbalancingmodel](#)



# Coffee break



# BSP access net and next steps

# BSP access net

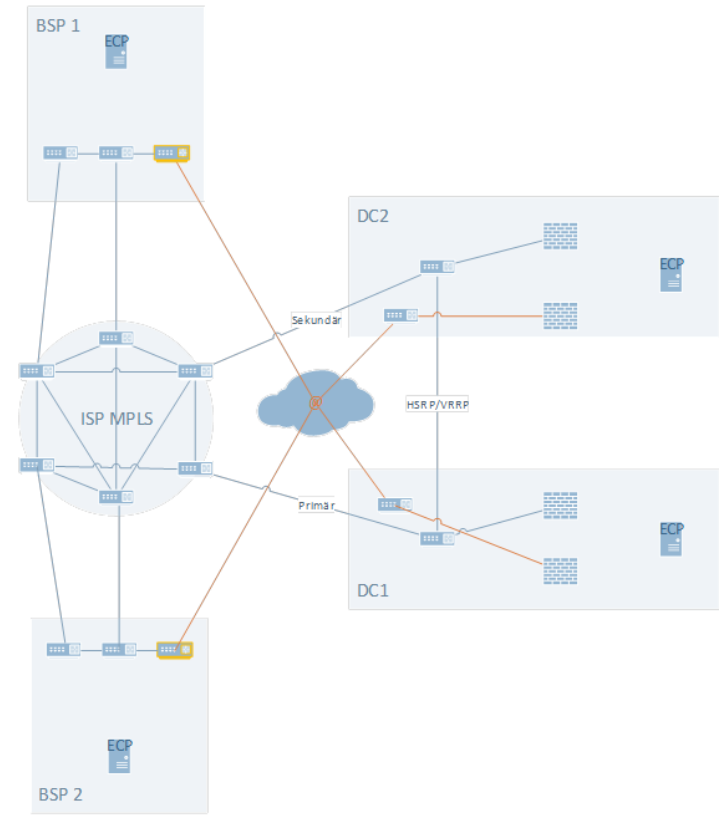
Two carrier forms; MPLS as primary, secondary and Internet as tertiary

Solution required by larger BSPs. Smaller BSPs have it as an option

BSP/ Technical subcontractor procure solution from Telecom operator. Configuration and setup is decided between BSP and Telecom Operator

Initially only for **mFRR EAM traffic** over ECP Test and ECP Production. Available for other applications that require

The image shows the setup of networks for one (1) Telecom operator and two BSPs. However two Telecom operators will be available.



# Summary

- Ediel anvisningar specifies the upcoming directive on who need to access through BSP Access Net. In Ediel anvisning named «Särskild bärartjänst»
  - Ediel anvisningar: <https://www.ediel.se/Portal/Document/3314>, Chapter 3.2.1: Användning av Särskild bärartjänst
  - Will be active 1 October. Until then it is possible to place comment and discuss changes
  - When active there will be a grace period giving, each BSP time and its technical subcontractor, time to prepare and implement the solution
- Access to the network for the BSP is initiated by Svk but carried through by the BSP itself or its subcontractor together with the Telecom operator. Svk will when agreement has been established with Telecom Operator provide details
- It is possible to order BSP Access Network together with Svk. Please let us know if this is the case and we can help to initiate the contract arrangements
- Estimated time given by the Telecom operators to deliver a solution is 30-90 days depending on existing conditions at site
- Each BSP and technical subcontractor is responsible for a security assesment since this is required according to current understanding between Svk and the BSP. Svk is currently not allowed to conduct a securiy assesment at the BSP site.
- **Current plan (confirmed by the Telecom operator when agreement is signed)**
  - **Q3-2024: Establish agreement between Svk and Telecom Operator**
  - **Q3-2024: Possible for BSP/Technical subcontractor to order access to the BSP Access Net**
  - **Q4-2024: Suitable testing period**
  - **Q1 2025: BSP Access Net available for use instead of Internet**
  - Note; Currently agreement is made with Telia. We are waiting for response from Tele2

# BSP-agreement

- On consultation until 23rd of August.
  - Noticed error in Villkor mFRR artikel 5.2: "Bud om mFRR-balansenergi ska lämnas per leveranslvar, för samtliga kvartar", bids do not need to be submitted for all quarters within an hour in mFRR EAM. Will be adjuted in final agreement
- Please provide us with any feedback on the innehåll
- [Pågående och avslutade remisser - BSP | Svenska kraftnät \(svk.se\)](#)

# Go-live planning

- We welcome your views in the go-live planning, please send an email to [mfrr@svk.se](mailto:mfrr@svk.se)

SVENSKA KRAFTNÄT

**Thank you!**

[mFRR@svk.se](mailto:mFRR@svk.se)