



# How aFRR, Europe's new merchant revenue opportunity for energy storage, can appeal to investors

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# CLEAN HORIZON

The Energy Storage Experts



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Since 2009, Clean Horizon has been a one-stop shop energy storage consultancy

## MARKET ANALYSIS



### **Compass**

*Market intelligence services*

**Customized research**

**Business development**

## TECHNICAL CONSULTING



### **CRE-STORE**

*Storage simulation tool*

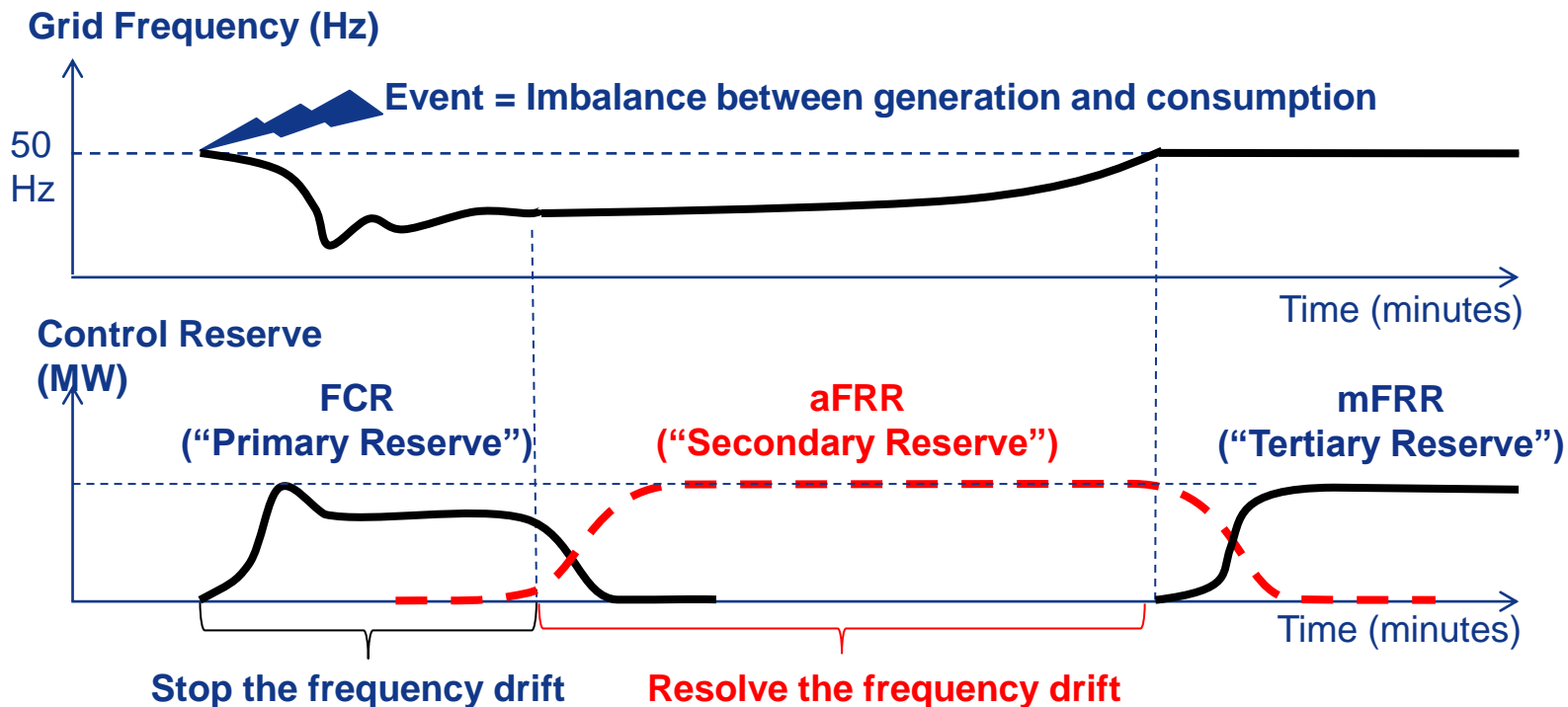
**Owner's Engineering**

**Due diligence**



## What are we talking about today? (it is **in red**)

Frequency control reserves ensure the balance between generation and consumption

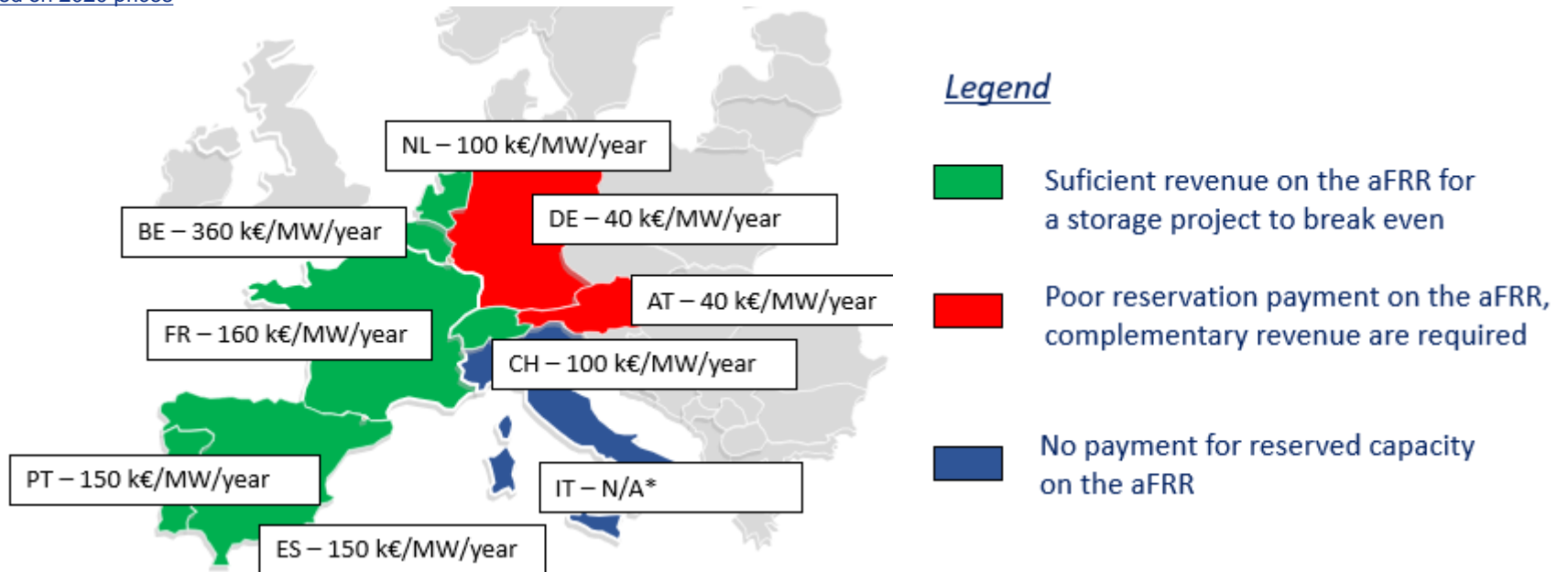




# Today's aFRR capacity remuneration is very attractive for storage systems in at least 6 countries

While not being currently accessible for storage, a lot of countries feature important aFRR market revenues

Average yearly revenue based on remuneration for aFRR reserved capacity based on 2020 prices



Yearly revenue presented here is computed from the capacity payment a storage can receive for a symmetrical bid of both up and down capacities on the aFRR

\*As of today, the Italian aFRR does not provide capacity remuneration but a « start-up » payment for thermal assets



## Technical requirements for the provision of aFRR vary from one country to another

**Standalone batteries willing to participate in the aFRR market must feature a storage capacity higher than systems designed to deliver FCR services**

Country	aFRR market opening to energy storage	Minimal storage duration required to participate
Germany	2017	4 hours
Belgium	September 2020	1 hour and 30 minutes
France	July 2021	2 hours
Spain	January 2021	Not defined yet
Switzerland	Through aggregation only	Not defined yet

- ➔ Each TSO has its own requirements, which can significantly impact the business case of a storage project
- ➔ When the requirements are too challenging, aggregation is often the solution to participate in the service with a smaller battery



## Europe moves toward a common aFRR reserve exchange platform

**The PICASSO project aims at creating a common aFRR platform to improve the economic efficiency of this reserve service**

The PICASSO project : The **P**latform for the **I**nternational **C**oordination of **A**utomated Frequency Restoration and **S**table **S**ystem **O**peration

### Objective:

Implementing a cross-country platform for the exchange of secondary reserve balancing energy, thus enhancing the security of the participants grids and the economic efficiency of the secondary reserve activation.

### Coordinator:

The PICASSO project implementation is supervised by the European Network of Transmission System Operators for Electricity (ENTSO-E)

### Legal date of implementation:

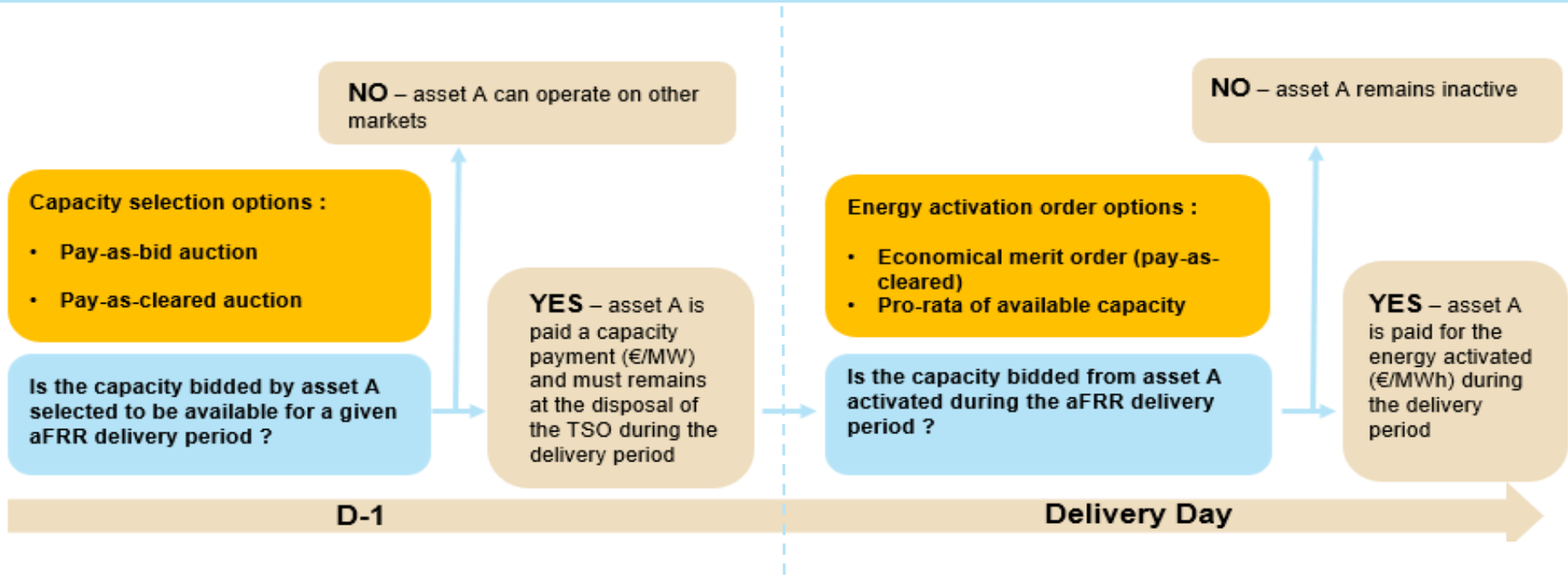
The platform should be legally going live on **July 24th 2022**.

In many ways, the **PICASSO** project objectives are similar to the **FCR** common platform initiative, this time for the **aFRR**.



## aFRR contracting includes two separated processes : capacity selection and energy activation

Capacity selection is independent from the energy activation : an asset can get paid for reserved capacity without being activated



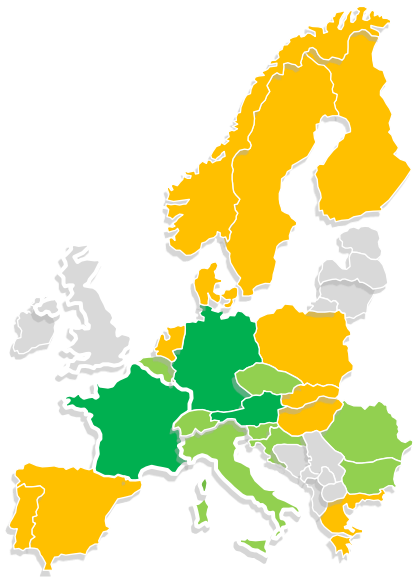




## All member countries will not implement the PICASSO platform at the same pace

**Most member countries will be respecting the July 2022 legal deadline for the PICASSO platform implementation**

PICASSO implementation date according to April 2021 roadmap



Start the platform in Q1 2022



Join the platform later in 2022



Join the platform in 2023/2024  
(deadline derogation)



TSO is not participating

- While France, Germany and Austria are planning to lead the way, a lot of members wants to delay their participation to the common platform
- Most of Eastern Europe countries should be ready on time for joining the common aFRR platform in 2022
- Spain, Portugal and several other countries will not join the platform before 2023/2024



## The creation of a common platform implies the standardization of national aFRR products

### All TSOs participating in the PICASSO project will progressively standardize their aFRR energy product toward a standardized item

The implementation of a common exchange platform requires TSOs to standardize their aFRR product with the following requirements

1 MW bid granularity

15 minutes bids

Full activation time: 7.5 minutes  
(5 minutes in 2025)

Bid modification up to 25 minutes  
before delivery

These features are out of the PICASSO project's scope and therefore remain a national TSO's decision

Auction mechanism for  
available capacity ?

Storage minimal duration ?

- The requirements of the energy bids for the PICASSO project are favorable to storage in terms of flexibility
- The project does not interfere with local TSO's prequalification rules and available capacity selection



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Thanks for your attention!

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