



# Price shock: navigating negative prices & revenue stacking risk

Solarplaza

3<sup>rd</sup> June 2026

[www.cleanhorizon.com](http://www.cleanhorizon.com)

# Agenda

- 1. Introduction to Clean Horizon**
2. Status of the French storage market
3. What's up for PV plus storage?

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

## MARKET ADVISORY

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Deep expertise in providing energy storage market studies worldwide.



Our experts have technical, economic and regulatory knowledge, covering different geographies and constantly tracking market evolutions.

## TECHNICAL ADVISORY

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We act as owners' engineers and lenders' technical advisors for IPPs, utilities and lenders worldwide.



We support our clients at all stages of development, from feasibility studies and design, to procurement, construction and commissioning.

### OUR UNIQUE OFFERING

We accompany projects from design to commissioning

Realistic assumptions & accountability for results

Reliable forecasting

# Geographical coverage for electricity and ancillary services price forecast



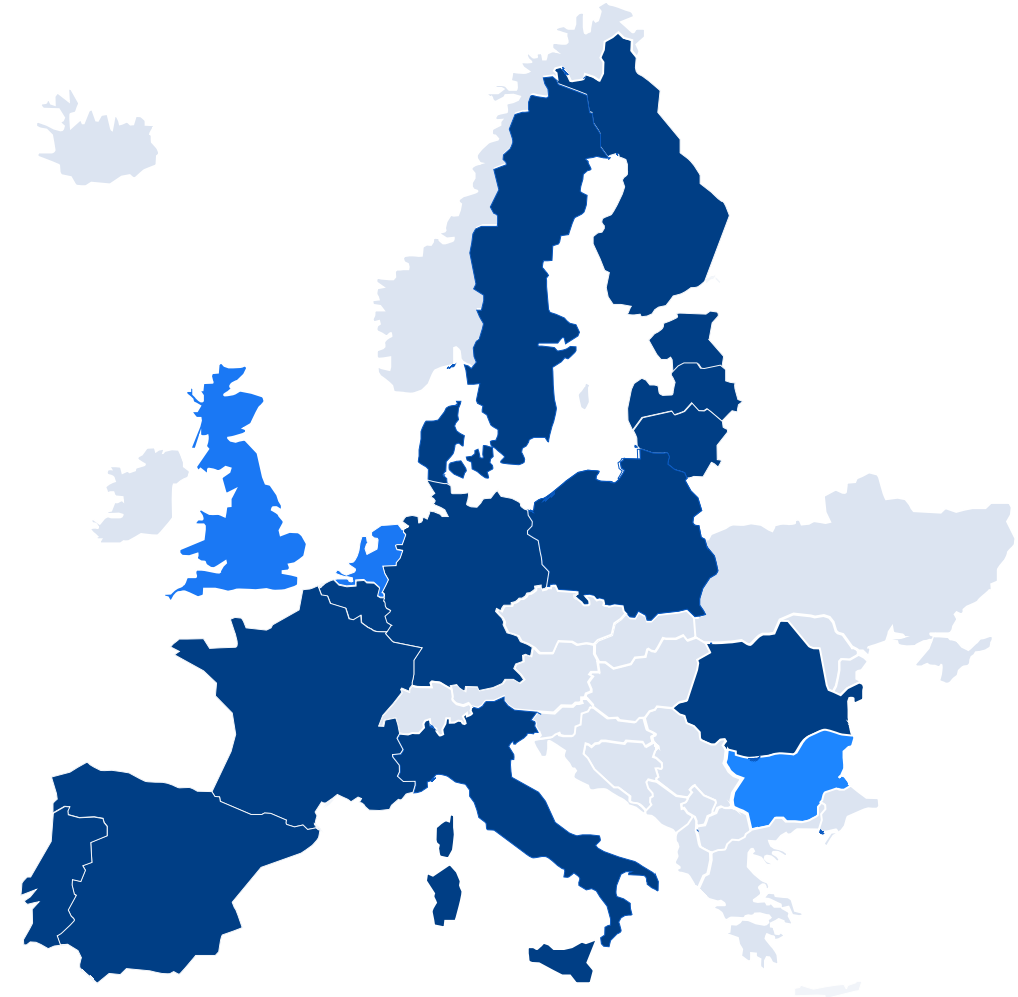
## COUNTRIES COVERED AS OF Q4 2025

- France
- Germany
- Belgium
- Spain
- Portugal
- Finland
- Baltic states: Lithuania, Latvia and Estonia
- Poland
- Sweden
- Denmark
- Italy
- Romania



## ROLLING OUT in 2026

- Great Britain – September
- Netherlands - June
- Bulgaria - September



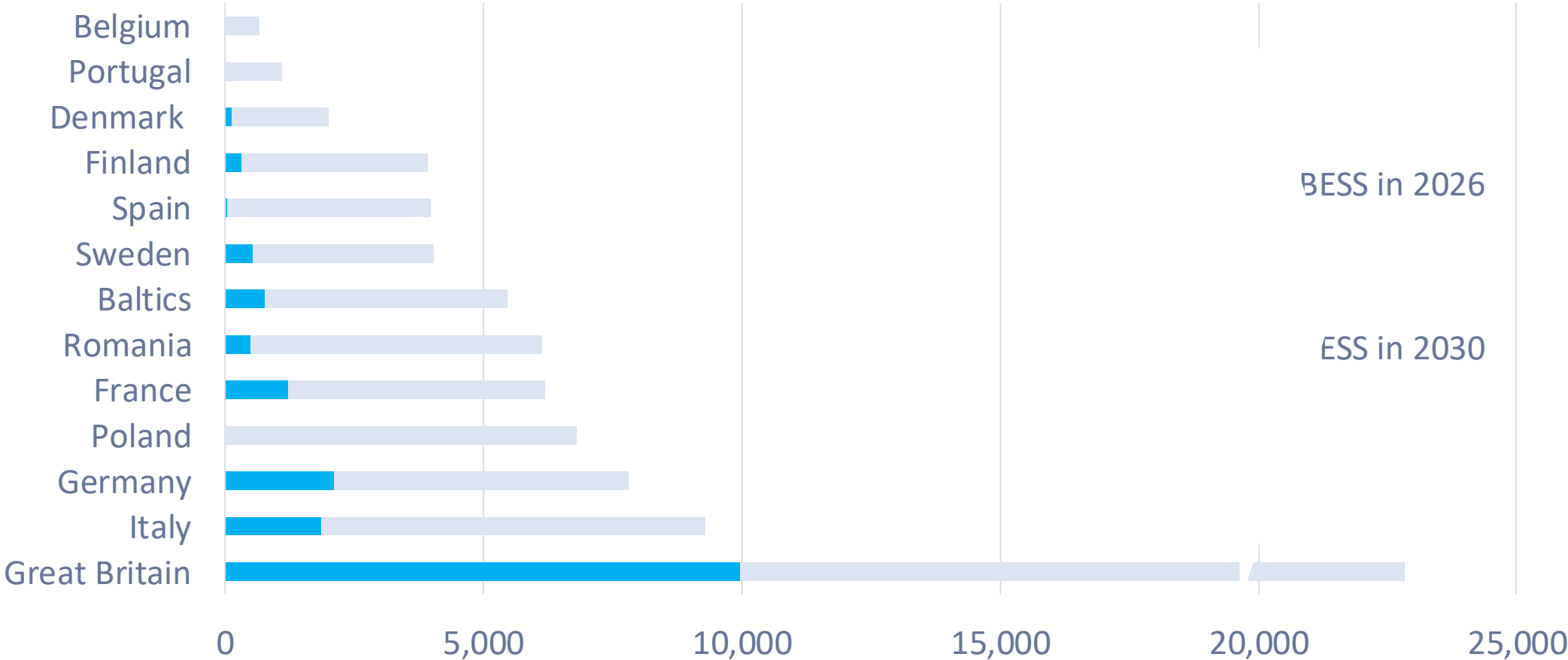
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# Storage is just starting to be built in Europe

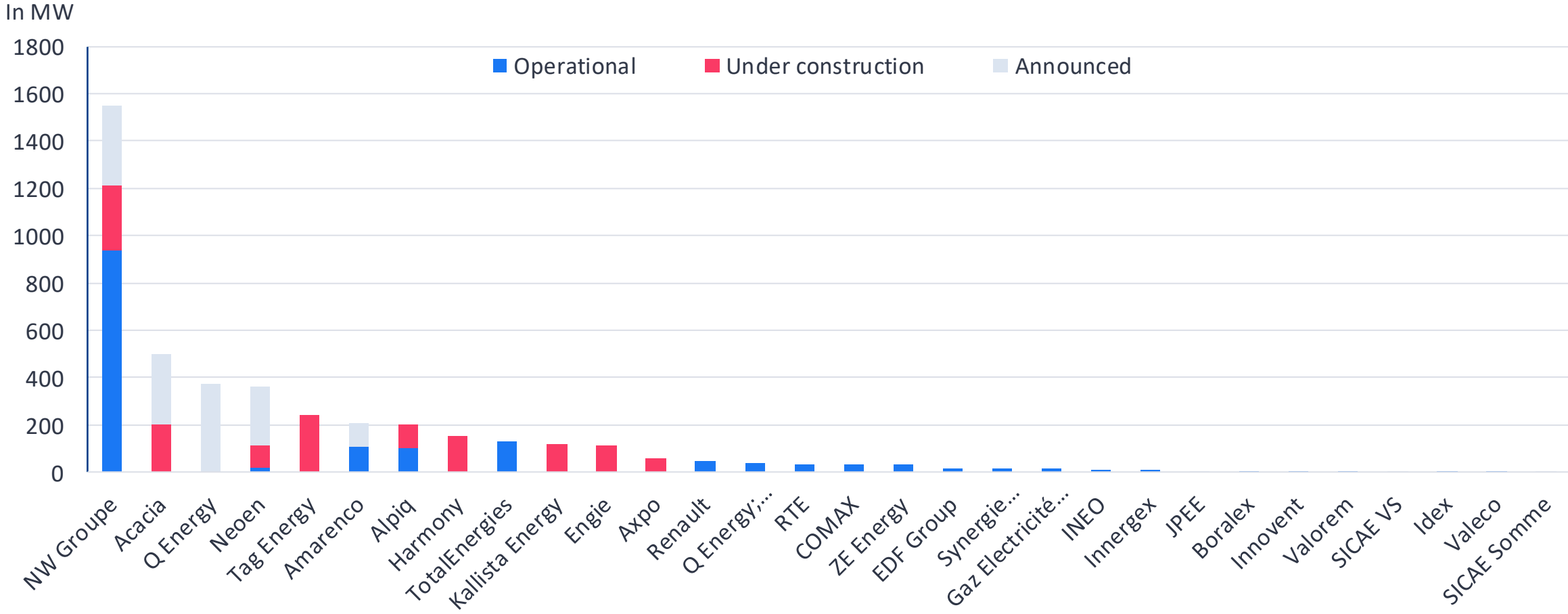
Operational battery storage projects at beginning of year

*In MW*

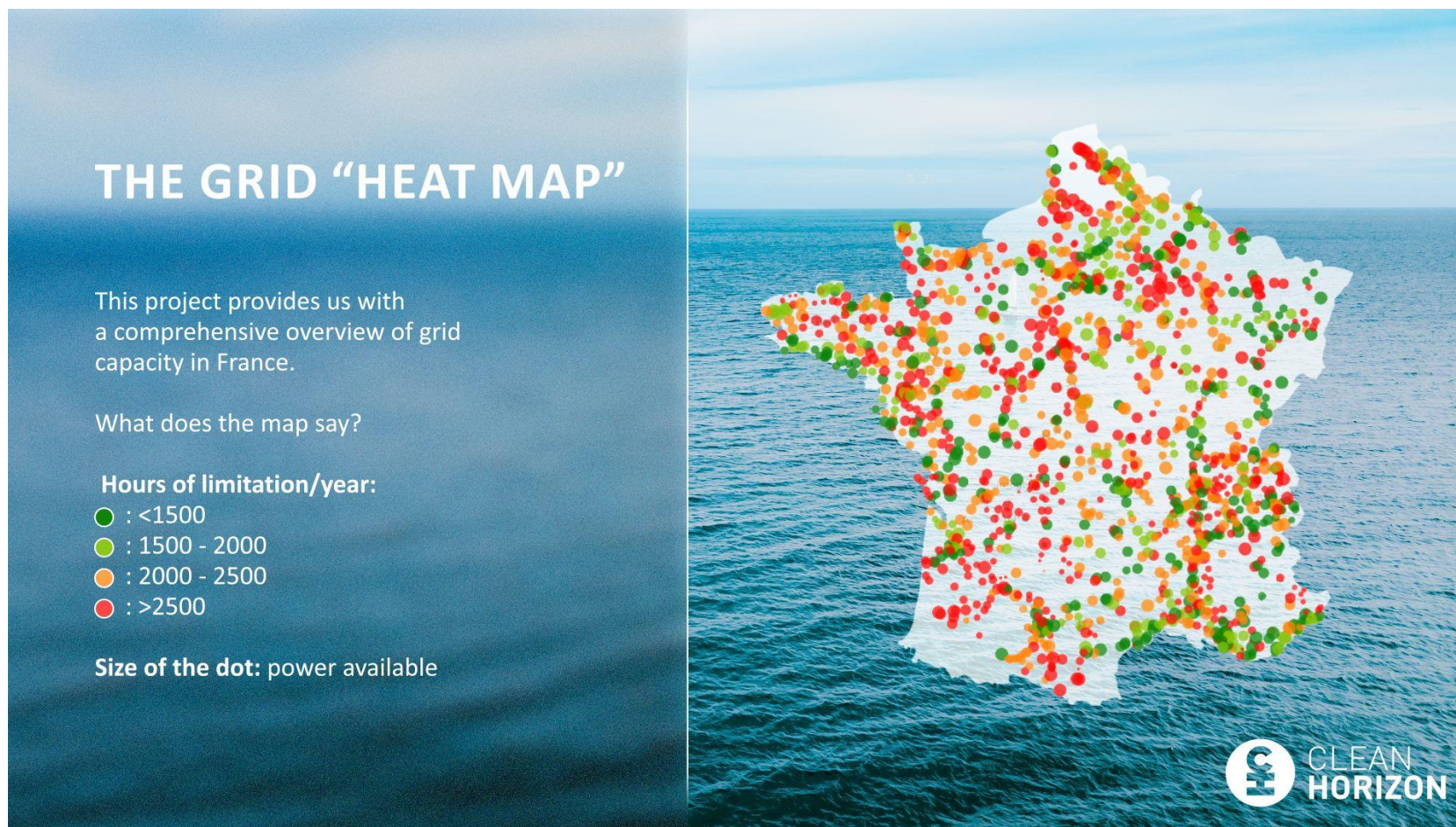


# Installed capacity about to double as 1.7 GW installed and 1.4 GW under construction

Energy storage capacity installed and publicly announced in France – April 2026



## RTE is working on improving the transparency of grid congestions (simuracco)



# RTE is working on improving the transparency of grid congestions (simuracco)

Évolution du réseau de transport | Carte des projets mis en service | Vision Temps Réel des flux | Capacités de raccordement des batteries | **Simulateur de raccordement**

Dernière mise à jour : 26/05/2026 ⓘ

Type d'Installation

**Stockage** | Production EnR

Puissance de raccordement (MW)

1 MW

Point de raccordement

Latitude

48.927041

Longitude

2.358562

**Simuler le raccordement**

🔄 Réinitialiser

### Résultat de la simulation

↓ Télécharger (.xls)

Stockage | Puissance 1 MW | Lat 48,927; Long 2,359

Coût ouvrage(s) raccordement (HT) *	Délais du raccordement *
<b>Entre 4M€ et 5M€</b>	<b>Entre 50 et 54 mois</b>

**Limitations Temporaires**

Le raccordement de l'installation de stockage nécessite au préalable la réalisation de travaux de renforcement de réseau, en dehors du périmètre d'extension. Par conséquent, le Délai de raccordement est estimé entre 9 ans et 12 ans à compter de la date d'acceptation de la PTF.

**Limitations Pérennes**

Offre de Raccordement Optimisée - entre 2000h et 3000h/an

### 📍 Localisation

Commune du point de raccordement	Saint-Denis (93200)
Poste Rte de raccordement	POSTE 63KV N0 1 SEINE

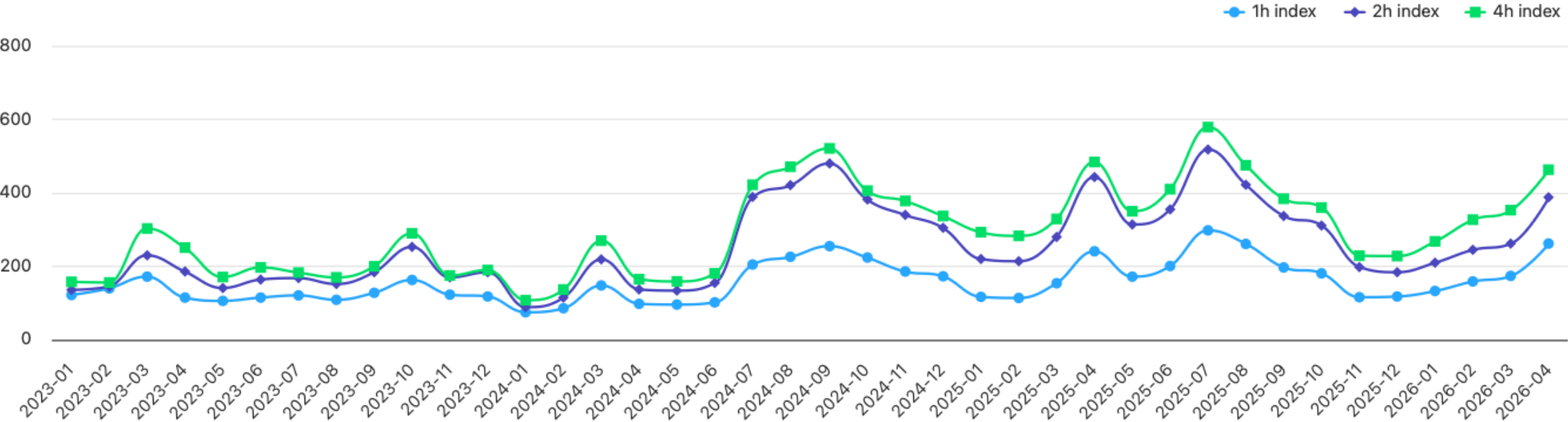
\* Le simulateur de raccordement est un outil d'aide à la demande de raccordement en ce qu'il permet d'affiner un projet donné en vue d'une demande de raccordement. Ainsi, il repose sur des hypothèses génériques et simplifiées, dont les résultats constituent de simples estimations indicatives, qui n'engagent pas RTE et n'ont pas vocation à se substituer aux résultats d'une étude exploratoire telle que définie dans la Documentation Technique de Référence (DTR), qui pourraient être différents.

# The storage index shows that battery revenues have recently increased in France

- Belgium
- Denmark DK1
- Denmark DK2
- Estonia
- Finland
- France**
- Germany
- Italy
- Latvia
- Lithuania
- Poland
- Portugal
- Romania
- Spain
- Sweden

## French Storage Index

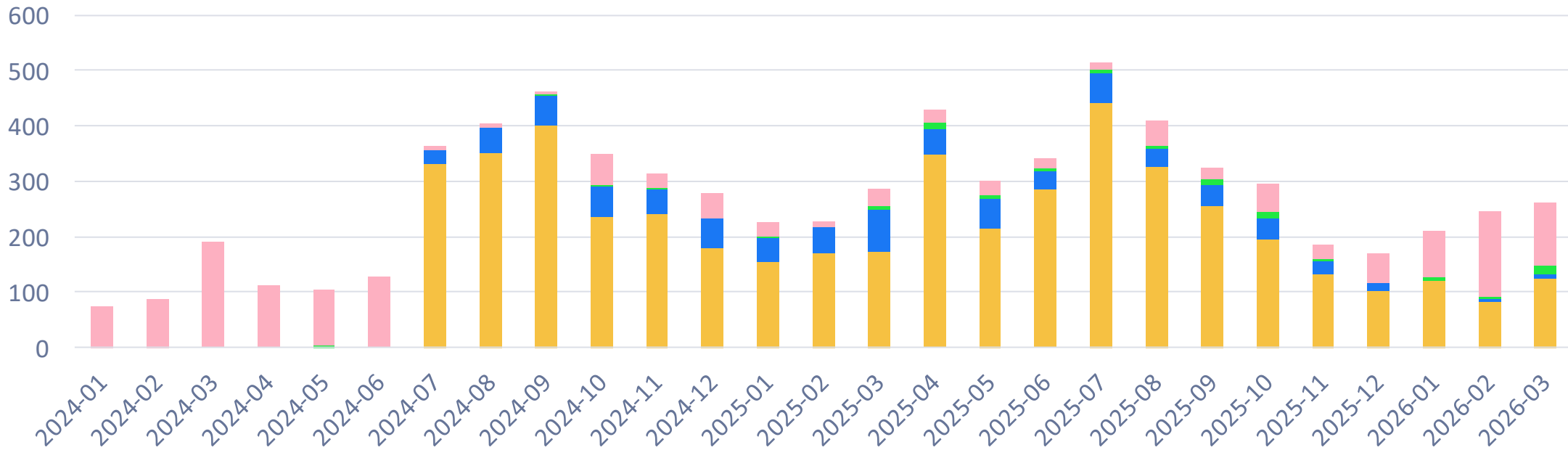
Annualised revenue in k€/MW/year



# Why? Trading opportunities increased substantially as well aFRR reservation

## Historical revenues for a 2h storage project in France

In k€/MW/year



239 k€/MW/y on average in 2024

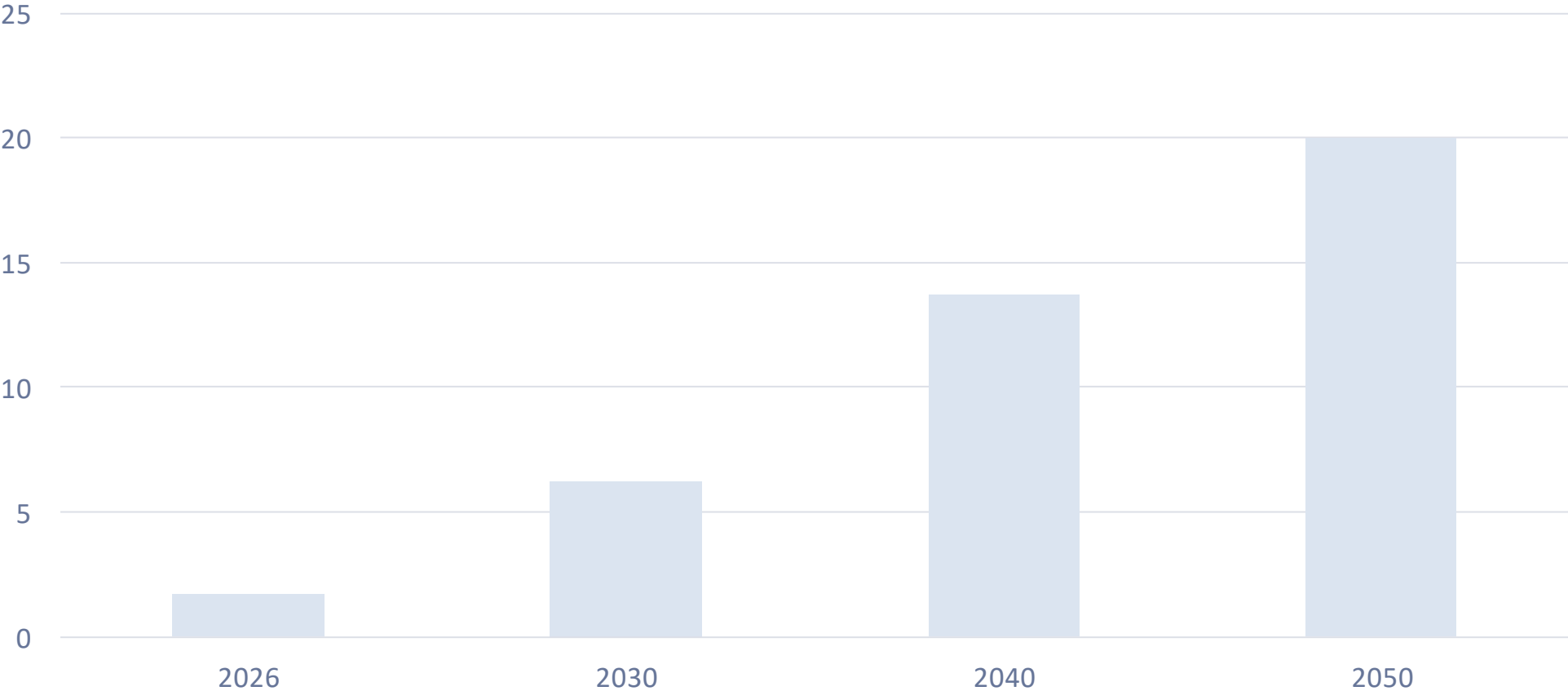
309 k€/MW/y on average in 2025

- Revenues generated on aFRR capacity reservation by BESS (€)
- Revenues generated on aFRR energy activation by BESS (€)
- Revenues generated on FCR by BESS (€)
- Revenues generated on trading by BESS (€)

# In Clean Horizon central scenario 6.2 GW of batteries are installed in 2030

Amount of utility scale battery storage projects installed in France in the central scenario

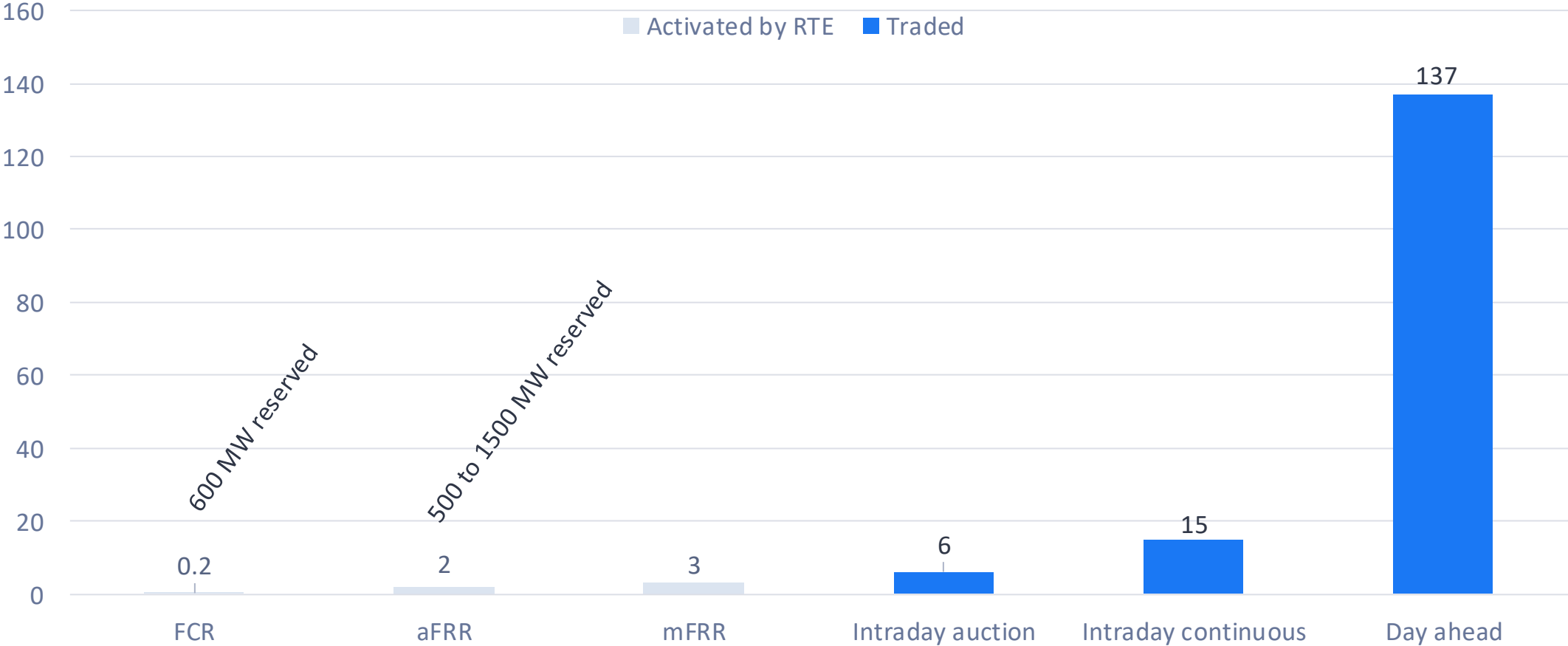
In GW



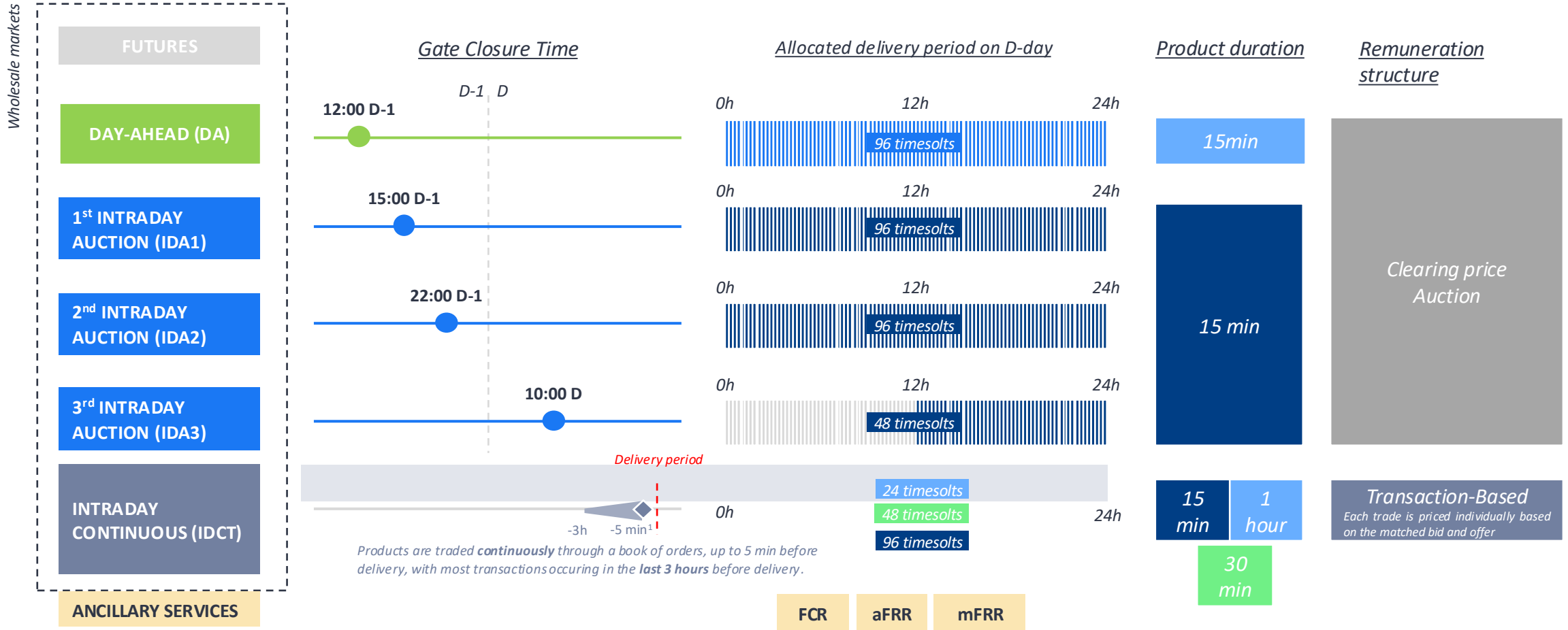
# As aFRR will saturate, revenues will shift to mFRR and trading on ID & DA

Volumes on the different markets in 2025 in France

In TWh



# What's after secondary reserve (aFRR)? Tertiary reserve! As well as DA and ID trading

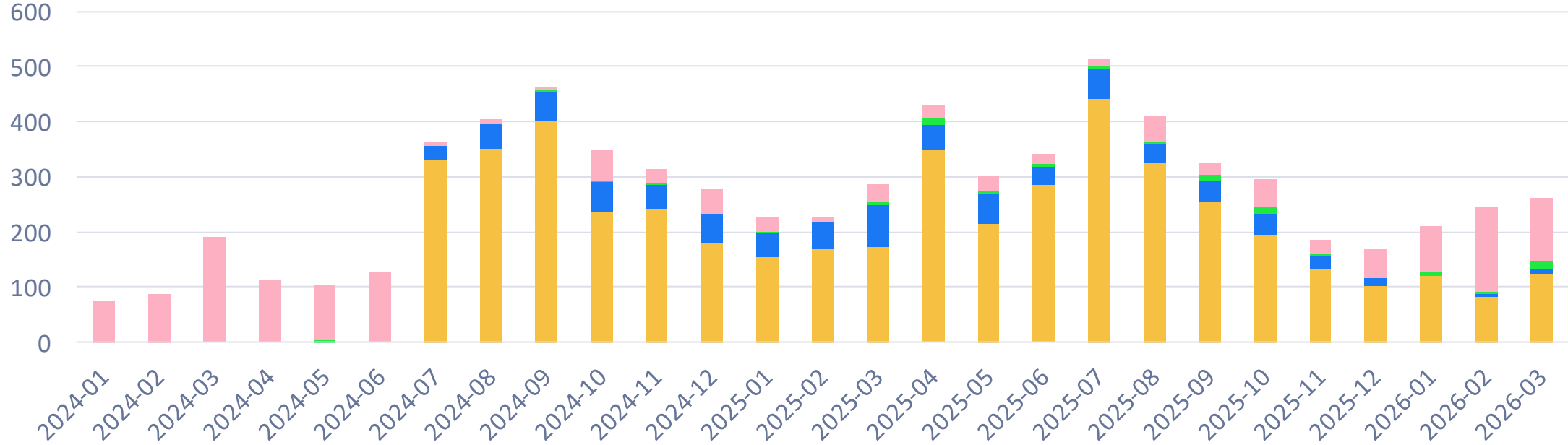


<sup>1</sup>The gate closure is 5 min before delivery but due to balancing settlement constraint, trades are not possible before 1h prior delivery.

# So this revenue stack could transform into...

## Historical revenues for a 2h storage project in France

In k€/MW/year



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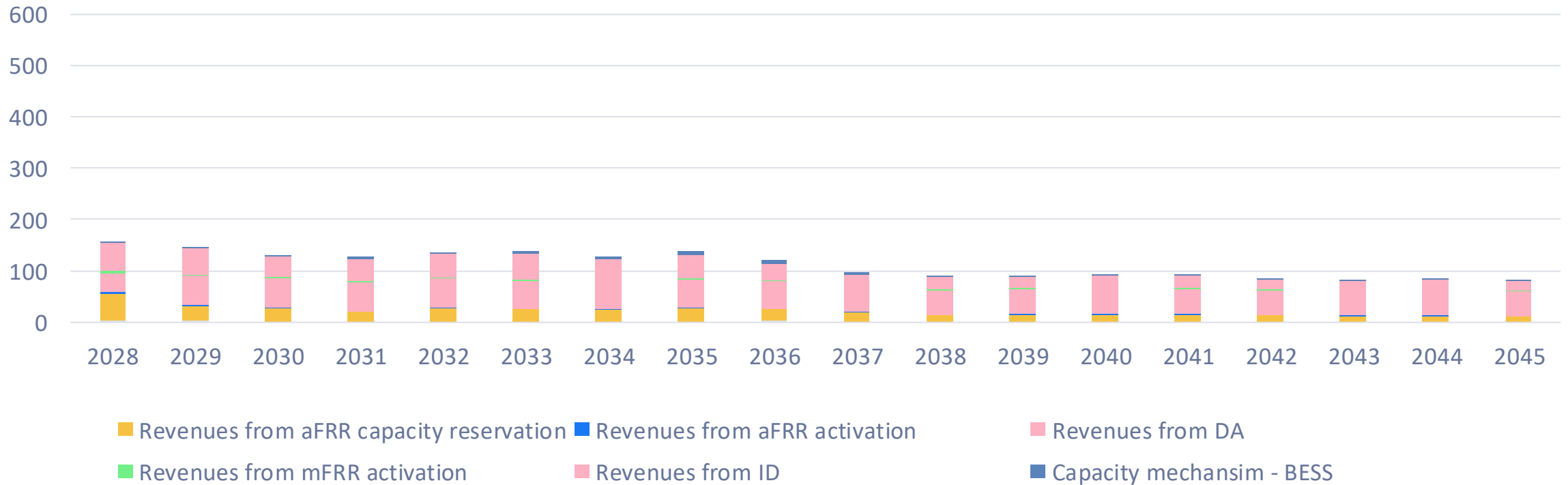
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## ...A revenue stack mostly relying on trading

### Historical revenues for a 2h storage project in France

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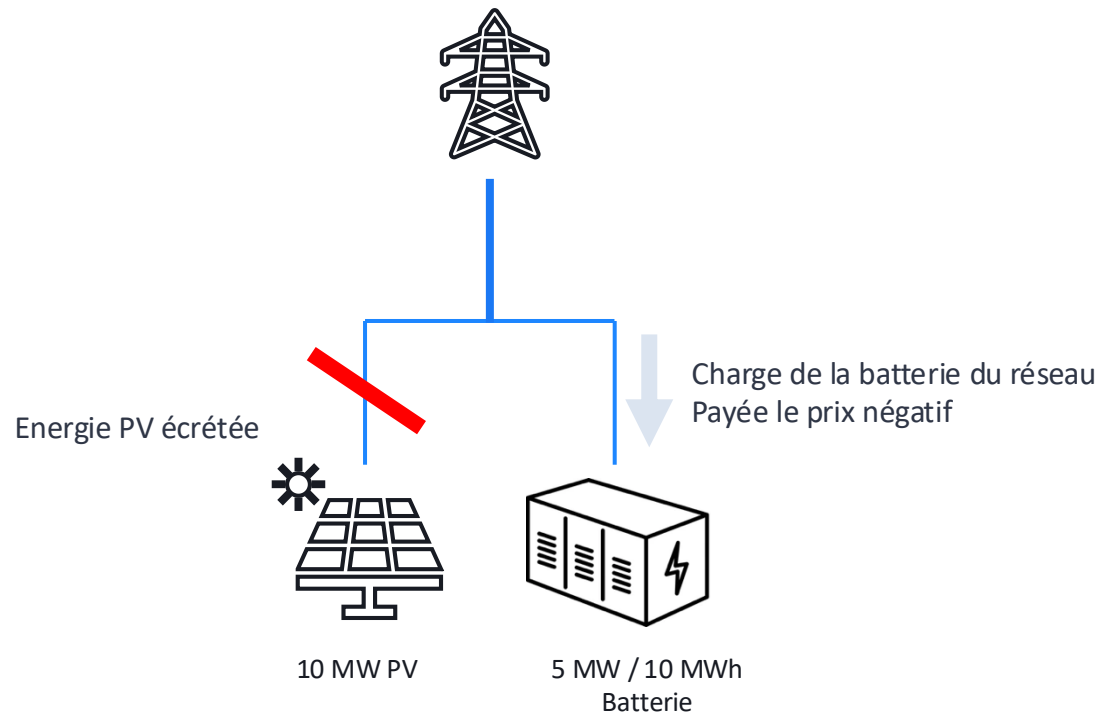


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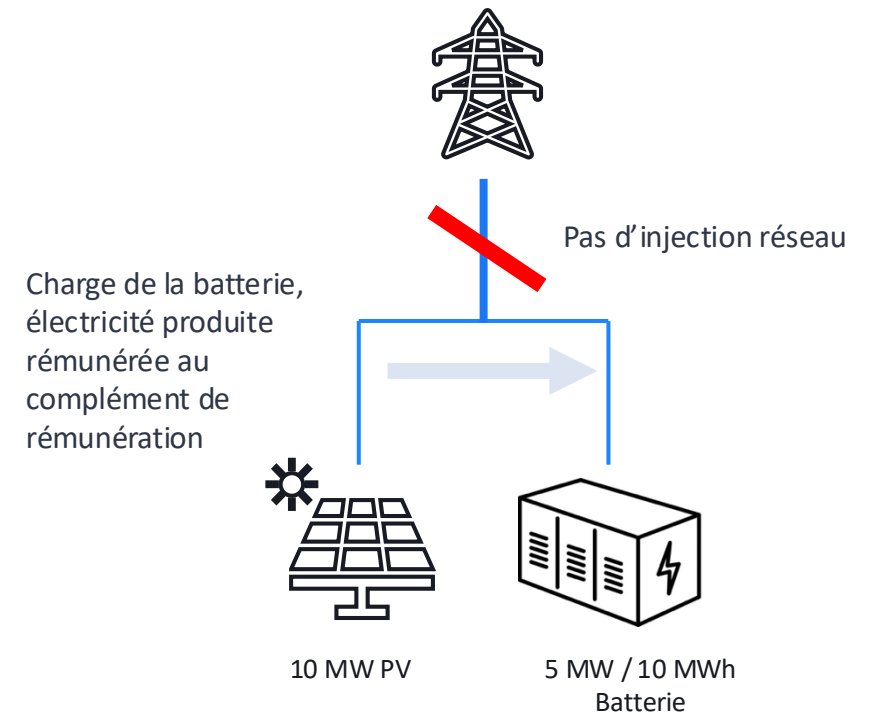
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# In case of negative prices for a hybrid project in France

Projet AO CRE avec ancien cahier des charges

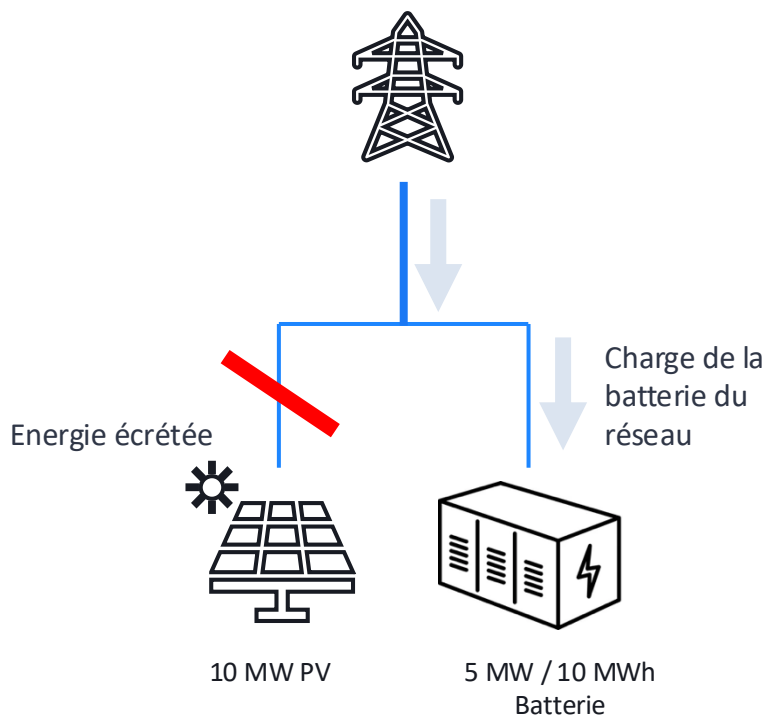


Projet AO CRE **avec** nouveau cahier des charges (période 9)

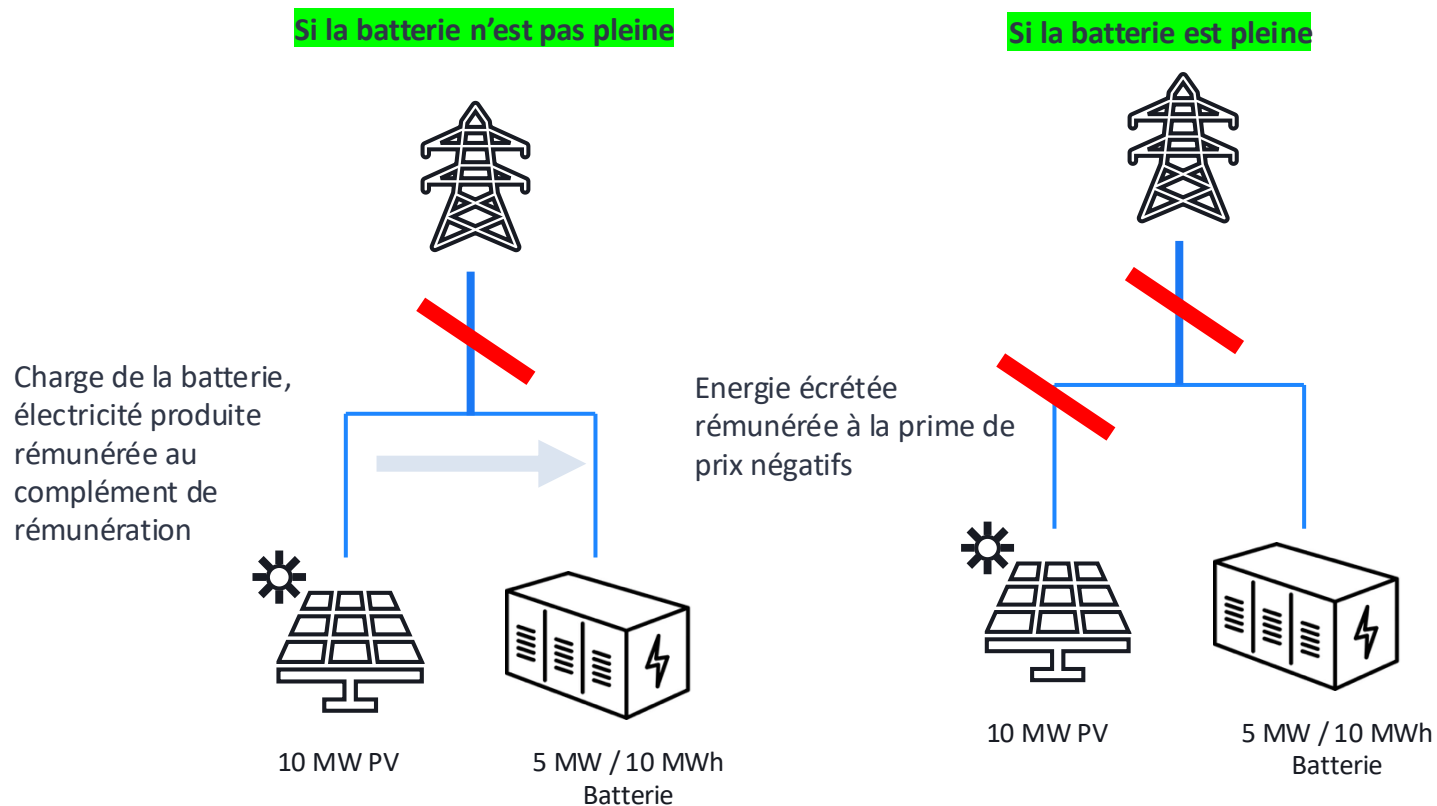


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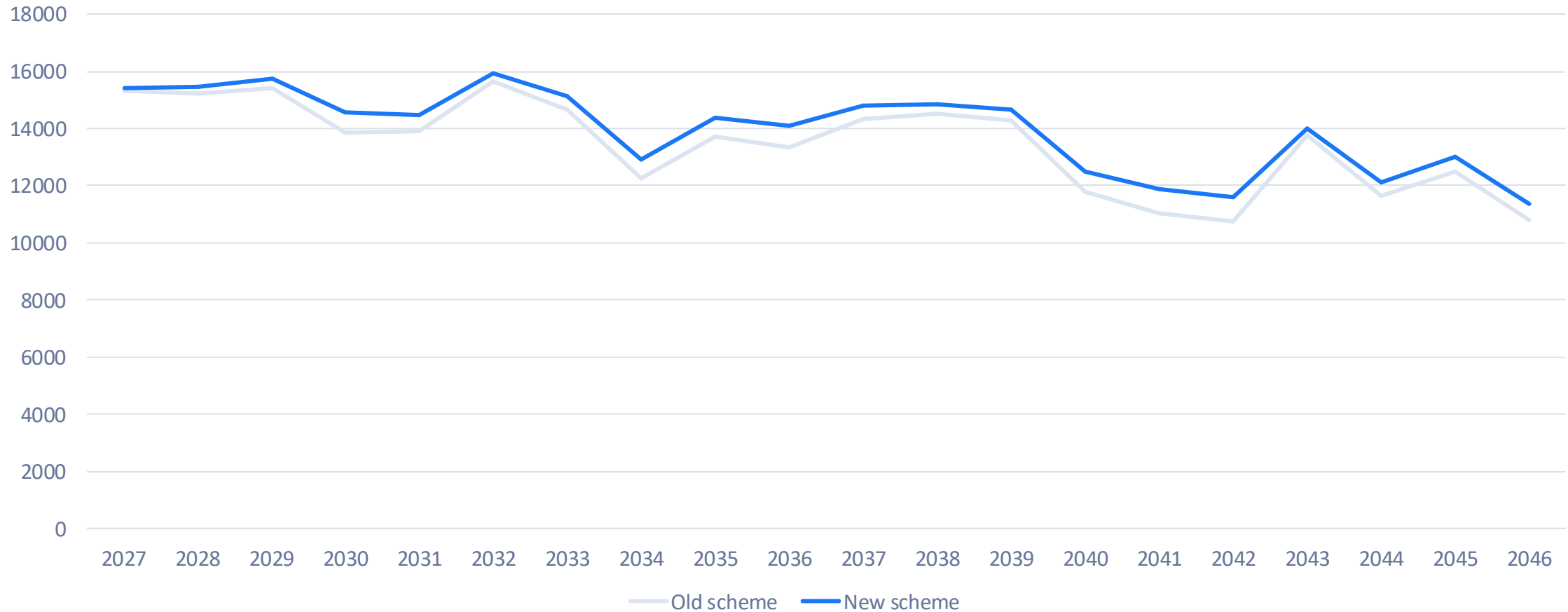


=> La batterie doit plutôt être vide avant d'entrer en période de prix négatifs

# More PV electrons are « saved from curtailment» thanks to this rule

PV electricity generated

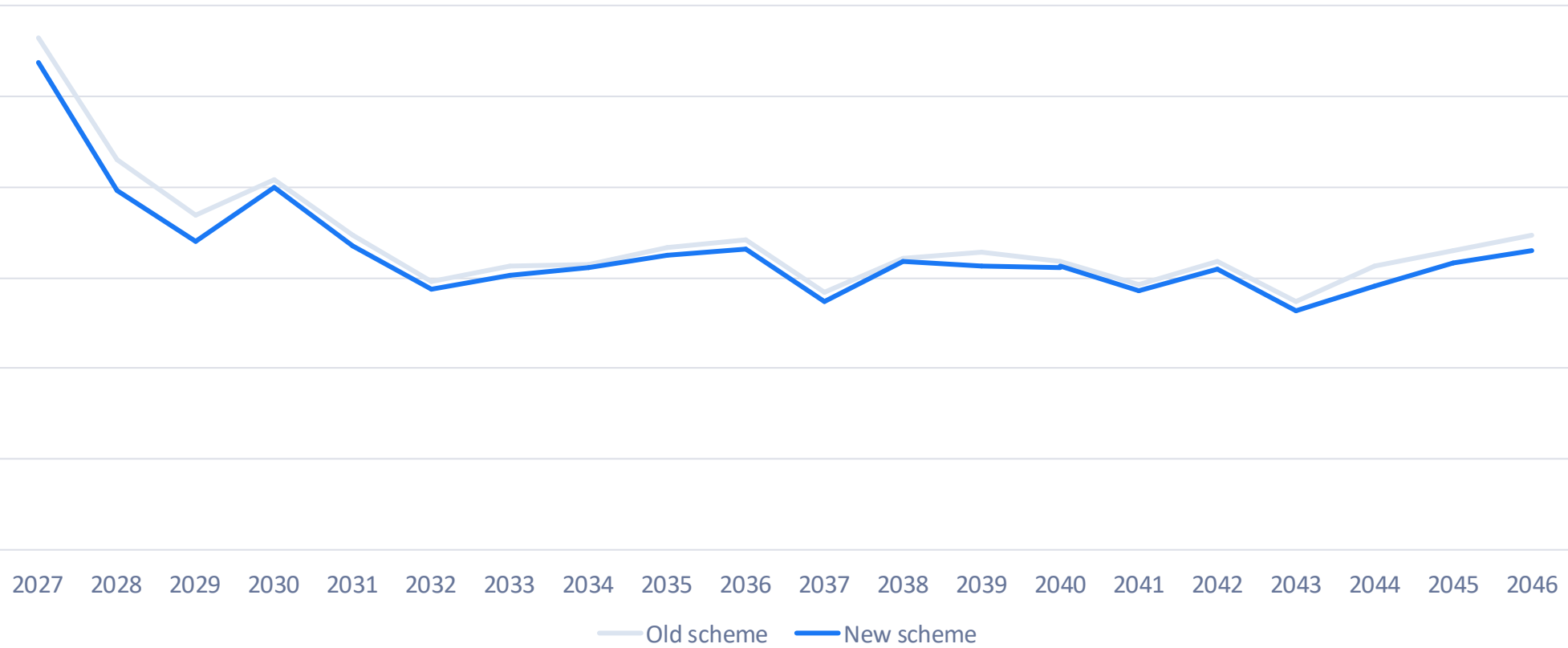
*In MWh*



# Slightly less revenues for storage as it supports more the PV case

Storage merchant revenues in case of a PV plus storage project

In k€





# Any questions welcome!

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