K4K Food4Thought

WHO CAPTURES THE VALUE OF BESS OPTIMISATION?

Spain has become one of Europe's most attractive markets for utility-scale battery storage. High renewable penetration, increasing price volatility and the gradual development of new flexibility markets are attracting a growing number of international battery optimisers.

Yet entering a new market involves far more than deploying software or adapting predictive models. It requires understanding a specific regulatory framework, integrating with local operational procedures and establishing relationships with the different participants that enable batteries to access the electricity market.

That is precisely the question explored in this article: who really captures the value of BESS optimisation?

The dominant narrative

Over the past few years, discussion around battery energy storage has increasingly centred on a simple proposition: the real value lies in optimisation.

Batteries are inherently flexible assets. They can charge, discharge, reserve capacity and participate across multiple electricity markets. It is therefore easy to assume that competitive advantage belongs to whoever develops the best algorithm for deciding how and when those capabilities should be deployed.

That is certainly the prevailing narrative. Artificial intelligence. Forecasting. Algorithmic trading. Revenue stacking. Optimising across the day-ahead, intraday and balancing markets, while managing technical constraints and emerging flexibility services.

All of those capabilities matter. But they may not be the most interesting part of the story.

After speaking with battery optimisers, market representatives, Electrical Control Centre ("CECO") providers and other participants in the Spanish electricity market, I have started to wonder whether the industry is looking at the problem from the wrong angle. The question is not simply who has the best algorithm. The real question is who controls the pathway that allows that algorithm to reach the market.

The problem is not optimisation

A battery does not generate revenues simply because someone optimises it on a computer screen. To monetise its flexibility, the asset needs a genuine route to market. It needs market representation. It needs operational access. It needs telemetry. It needs communications with Red Eléctrica ("REE"), Spain's Transmission System Operator (“TSO”). It needs a CECO. It needs to comply with technical requirements. It

needs to be pre-qualified for certain services. It needs settlement, monitoring, reporting and the ability to respond when something goes wrong.

Without all this, the algorithm may be brilliant, but commercially irrelevant.

This distinction matters because the BESS value chain is far longer than it is often portrayed. The simplified version consists of the asset owner, the optimiser and the market. Reality is considerably more complex. Between the asset and the market lies an intermediate layer of capabilities that includes market representatives, Balance Responsible Parties ("BRPs"), Balancing Service Providers ("BSPs"), CECOs, Delegated Dispatch Centres ("CDDs"), telemetry, communications, operational software, regulatory compliance and day-to-day interaction with the system operator.

This intermediate layer is often perceived as operational infrastructure: necessary, but secondary. Yet it may be precisely where much of the sector's economic power resides.

The optimiser decides what the battery should do. The access infrastructure determines whether the battery can actually do it.

The forgotten layer of the value chain

This changes the way the sector should be analysed. It is no longer enough to ask whether an optimiser has sophisticated price models or dispatch software. It is equally important to ask what capabilities it actually controls. Does it have direct market access? Can it represent assets? Does it depend on a third party for its CECO? Does it own the customer relationship? Does it have its own balancing-service capability? Or is it built upon a chain of partners without whom it cannot operate?

My recent experience analysing optimisation business models points precisely in this direction. At first sight, they appear to be optimisation platforms. However, a closer examination shifts the question from *how* optimisation is performed to *which capabilities* the company actually controls.

This distinction is far from trivial. A business may create significant value for its customers without capturing that value for its shareholders if the critical capabilities sit outside the company being assessed. It may depend on commercial relationships with another group company. It may rely on third-party algorithms. It may require a CECO operated by an external provider. It may depend on market infrastructure it does not control. None of these factors invalidates the business model, but they fundamentally change the economic analysis.

The question therefore ceases to be whether the business creates value and becomes who captures that value, and whether it genuinely resides within the company being analysed.

This shift in perspective also has important implications for the due diligence of new optimisation businesses. The market story may appear compelling: Spain needs more flexibility, BESS deployment is accelerating and balancing markets offer attractive opportunities. But due diligence does not stop there. The question is not whether a company should integrate every capability or outsource certain functions. Both models can succeed. What really matters is understanding which capabilities each company controls and how that position influences its ability to capture value. That is probably one of the most important questions facing any new battery optimiser entering the market.

The battle for market access

Optimisers operating in other countries may bring valuable experience from other European markets together with sophisticated optimisation capabilities. But entering Spain is about much more than bringing an algorithm. It requires understanding how to access the market, how to operate assets, how to interact with REE, how market representation works, how to participate in balancing services and how to build trust with asset owners who are delegating economically significant decisions.

Meanwhile, established market representatives and other route-to-market providers enjoy a different competitive advantage. They may not always have the most sophisticated technological story, but they understand the market, have customer relationships, established processes, experienced teams and, in many cases, already control part of the commercial and operational infrastructure required to monetise flexible assets.

Then there is an even less visible layer: providers of CECO services, telemetry, communications and operational software. These companies rarely feature in discussions about optimisation, yet many optimisation strategies could not be executed without them. They are not the algorithm, but they may provide the infrastructure that makes the algorithm useful.

The result is an ecosystem where competition and collaboration coexist. An optimiser may need a market representative. A market representative may need an optimiser. Both may depend on a CECO provider. A battery developer may need all of them. At the same time, each develops a different business model to monetise the position it occupies within the value chain.

What is particularly interesting is that these players are not competing for exactly the same business. They are competing to control different positions within the value chain. The optimiser seeks to control the decision. The market representative controls market access. The CECO controls operational execution. Each seeks to occupy the position from which it is hardest to be replaced. And not all of those positions offer the same bargaining power. That is where the discussion becomes genuinely interesting.

The question, therefore, is no longer "Who optimises best?" It becomes: which position within the value chain offers the greatest ability to capture value? Controlling the decision has value, but controlling the customer relationship may have even more. Whoever has direct access to the asset owner can replace the optimiser, renegotiate commercial terms or gradually develop capabilities in-house. The same applies to market access. Whoever controls market representation, operational infrastructure or execution can work with different technology providers. The reverse is much harder.

Viewed in this way, the question ceases to be who has the best algorithm and becomes who controls the capabilities required to monetise it.

Optimisation is necessary, but not sufficient to capture all the value

The question facing any new battery optimiser is not whether to integrate every capability or outsource certain functions. Both approaches can work. The real question is which capabilities each participant actually controls and how those capabilities determine its ability to capture value within the value chain.

The BESS industry often presents optimisation as a software problem. Market experience suggests that it is also a question of strategic positioning within the value

chain. The algorithm matters, but it only creates value if an operational infrastructure exists to translate its decisions into market participation.

Perhaps, in a few years' time, we will look back and realise that the important question was never who had the best algorithm. The real question was who controlled the critical capabilities connecting assets to the market. Indeed, this dynamic helps explain why many battery optimisers are seeking to expand their role within the value chain, whether by developing capabilities in-house, forming strategic partnerships or incorporating additional functions into their business models.

If that interpretation is correct, the real battleground will no longer be optimisation itself, but the position each participant occupies within the value chain.

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