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## FACTORS TO CONSIDER BEFORE INVESTING IN BATTERY STORAGE: PART II

*This new series of blogs highlights the factors which a prospective end-user should weigh up before deciding whether and how to invest in electric storage.*

In terms of optimisation, such energy management can be done in-house or outsourced. Although there is no hard and fast rule, outsourcing can bring efficiency and expertise that can far out-weight its cost in commissioning. Fortunately, there are various ways of going about this task and the use of third party agents or an Agency Trader is fairly well established and several firms can offer Agency Trading services.

Although much of the financial model can be prepared by the user's agent, supplier or prospective manufacturer, the question of intangibles comes up again. Only the user can really determine what the value of continuity and 'security of supply' to the business will be: the resilience value overall. It is important, therefore, for the user to be involved in the modelling process.

The cost of modelling varies, as does the quality of much of the work; not always in tandem. In some cases, the cost of modelling should be deducted from the cost of any purchase, if charged. Reputable manufacturers will also inform the prospective buyer of cheaper leasing options which they may have on offer, as well as other alternatives which the user may wish to explore if the financials begin to look marginal.

To clarify, the visible savings of a financial model should include:

1. **Reductions in annual electricity bills:** potentially over 50% through Power Purchase Agreement (PPA) tariff reductions or under a bespoke Storage PPA agreed with the supplier.
2. Future income from Frequency Response services to local distribution networks under private-wire agreements or, in the majority of cases, services to National Grid under reverse auctions.
3. **Optimisation using the battery:** This task could be outsourced to an Agency Trader, e.g. a Big Six, independent generator or other energy merchant, who will optimise the battery through their own supply pool and access to the Elexon, OTC, Nord Pool, APX and other markets. This task is less complex than it may sound. Like the battery itself, once in place the process requires little resource from the user, and there are various energy merchants who already offer Agency Trading services, some paid on performance only.
4. **Peak Shifting:** the ability of the user or embedded generator to 'time' their exports of the electricity they sell into the system and so attract higher 'peak' prices in trading markets.

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Again, an Agency Trader could facilitate if the end user does not wish to becoming involved in trading directly, as many may not.

5. **Enhanced Plant Efficiency:** alleviating excess loads, avoiding 'cold starts' and mitigating other impacts to prolong the life and reliability of turbines, minimise wear on machinery and preclude erroneous reset of control systems which some 'black box' DSR systems might place at risk.

It is worth adding here that larger businesses have the option of a Guest Battery. The business will not buy the battery nor pay for anything related to it, but will simply make land available and allow the Provider to install and operate the Guest Battery. The user receives pretty much the same electricity bill savings outlined in paragraph 1 above and the Guest Battery also adds a valuable degree of 'free resilience' as well. To compensate the Provider for such benefits, which entail practically zero cost and zero risk, the user must agree to share any resultant cost savings with the Provider.

In evaluating the resilience benefit for the company, it is important to consider:

- The cost to the business of any 'worst case scenario' occurring within five, ten or fifteen years without any emergency cover or 100% dependable back-up. These will include direct contractual losses and/or consequential damages relating to any power outage, whether it was caused internally or by an outside issue with the local distribution, high-voltage transmission grid or generator: be it human error, one of the cyber attacks targeting grids of late, a force majeure or any other unforeseen event, which may or may not lie within the user's control but remain his financial responsibility.
- The alternative cost of buying 'critical loss' cover or very high premium catastrophe insurance (if it is available) that may be sure to protect the business from damages resulting from short-term or prolonged outages.

Whether or not a battery is finally purchased or leased, the process of exploring this investment can be useful as it will focus attention on optimisation options for the plant itself. The exercise can serve as a 'de facto' energy health check and is offered free by some providers. This exercise must also establish what battery chemistry is best suited for the user, the size and performance specification of any battery, as well as the exact type of long-term warranty on offer, with questions pertaining to its operational life, the number of complete and partial cycles; its flexibility, its depth of discharge, specified breaches and allowed tolerances that may void a guarantee.

The forward service provision is just as important as the battery itself. It is another key question which the agent, supplier or manufacturer will need to be asked.

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*This article has analysed the visible savings a financial model should include, and has also introduced factors to take into account when evaluating the resilience benefit for a company. Part I discussed the importance of valuing benefits, visible and intangible, and including them in a financial mode.*

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