Webinar Risk management in renewable energy - FAQ

During our webinar on "Optimal value-stacking with batteries of 7 September 2021, we were very happy to receive your questions! In this document we answer them.

How do you compare physical efficiency to economic efficiency? Whare are the general physical developments (materials, footprints) and how viable can it become economically over time.

Physical characteristics are not the core competency of KYOS. KYOS focusses on the commercial value of energy storage assets. We would like to refer you to more specialized consulting companies in this area.

Any thoughts towards the task of predicting the evolution of stacking revenues forwards, given a presumed focus on present and near future stacking?

This is a very important question. The various revenue streams (e.g., BM, anc. services, ID/DA trading) are still very much in development. What looks like an attractive market now, may not be attractive anymore in 5-6 years' time. Some of the drivers are: the quickly changing generation mix (move from steerable production to non-steerable renewables), strong increase of installed energy storage capacity, regulatory changes.

It is therefore important to do a thorough commercial analysis of potential revenue streams. This includes analysing the expected distribution of revenues and testing various market scenarios. KYOS can assist companies with analysing in detail the commercial business case of an energy storage project. Our proprietary fundamental power model and energy storage optimization model are some of the key instruments used in this analysis.

How does the cost/benefit look like for example for a 100MW wind power site? How big a battery is recommended and what are the investment cost for it?

This question depends very much on the exact location and specifics of the projects. We are more than happy to assist you with analysing a specific business case.

How do you deal with uncertainty of production and prices? Is it meaningful to model revenues from ancillary services for the long run, i.e., over the whole operating period of the asset?

Our models create a large number of price scenarios to assess the possible revenues from different market segments (e.g., BM/ID/DA). This will give a distribution of possible revenues representing the price uncertainty. As mentioned in question 2, assessing uncertainty from revenues from ancillary services is harder. This requires running different market scenarios with assumption on development of the ancillary service market.

To what extent do you think BM revenue for batteries will be higher for those located behind a constraint line?

Grid operators are more and more faced with grid constraints, mainly as a result of rapidly expanding renewable generation. Therefore, many grid operators are looking at ways to reduce such constraints. Putting monetary incentives on assets that actively help to de-bottleneck the grid are high on the list. See for example the Dutch GOPAC initiative: https://en.gopacs.eu/ This trend is expected to grow and project developers should take this into account when selecting a site for their energy storage asset.

Do you expect batteries will be able to play a role in the (a/m)FRR markets?

Batteries can take part in the FRR (a/m) market, for example in The Netherlands. In general, this can be an attractive market, but good care needs to be taken to assess the risks. A major risk can come from the fact that your battery will be called under FRR for more hours than energy is stored in the battery. We recommend to do a thorough upfront risk assessment to fully understand the risks and rewards of each possible revenue stream of your energy storage asset. KYOS can support you with this analysis with our consulting services and analytical software tools.

What is the unit in Low/high numbers for expected battery values?
No unit. We set DA revenues at 100.

Not automatically. An asset needs to be qualified (technically and operationally) by a TSO in order to be able to participate in the FCR system.

Could you explain in bit more detail the model of how the imbalance price is forecasted? for instance, how many past days are used to determine this?

We use sophisticated forecasting models to derive expectations of imbalance prices. In general we see that it is not necessary to take too much history into account to get to good forecasts. Reasons are the temporary nature of imbalance price movements and the fact that imbalances have typically little/no relation with previous events that led to system imbalances.

We can share more in a personal conversation or demo, so feel free to contact us: info@kyos.com

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