BVES – German Energy Storage Association

Public Consultation ENTSO-E Public Consultation on "All Continental European and Nordic TSOs' proposal for a Cost Benefit Analysis methodology"

Berlin, 18.02.2018

Introduction

The German Energy Storage Association BVES is the leading industrial association of German energy storage companies that is open to all technologies in the areas of electricity, heat, gas and mobility. Our association represents companies and institutes along the whole value chain of energy storage (R&D, industry, aggregators, operators).

General Comments

BVES appreciates the endeavour to constitute a transparent, and balanced approach that will allow TSOs to minimise FCR costs while safeguarding operational security.

For BVES market transparency and uniform prequalification requirements for all market participants are of first priority. Batteries can provide their highest accuracy within milliseconds and are able to deliver FCR better than any other technology.

The fact, that batteries are classified as "technical units with a limited energy reservoir" (LER) and have to fulfil higher technical requirements to be able to enter the market, clearly contradicts the technologically open approach according to the European law. Thus, BVES underlines, that it is indispensable to have a market design which is open to all technologies.

In its proposal for a Cost Benefit Analysis methodology to assess the frequency containment reserve, ENTSO-E introduced two main approaches:

- An analytic approach to size FCR and determine the time period for this service, based on Monte Carlo simulations using historical data of frequency deviations in the European transmission network;
- An economic approach to evaluate the cost-benefit impact of the FCR provision, according to the following criteria:
    - The FCR cost for non-LER technologies: difference between the energy price and the marginal cost of the technology.
    - The FCR cost for LER technologies: according to the investment cost of the solutions.

Together with the European Association for Storage of energy BVES has evaluated this methodology focusing on proposing improvements to enhance the proposed methodology. In detail, BVES would like to propose the following amendments and clarifications:

1. **Clear definition of parameters**

   Normal state, pre alert state and emergency state parameters should be clearly defined in the draft methodology. The pre alert state, that ENTSO-E mentioned, is not included in the system operation guidelines. Moreover, as according to the system operation guideline, it seems that the time period neither greater than 30 minutes nor smaller than 15 minutes is only referred to the alert state, it is absolutely necessary to achieve transparency in the pre alert state definition in order to correctly size the LER-FCR reservoirs.

   The FRR behaviour should also be clearly defined in terms of the amount of energy provided by this service and the way this energy is provided in time, since this can have an important effect on FCR provision.

2. **Data base and time frame**

   There should be more transparency regarding the relevant frequency profiles and historical data used to determine the different scenarios and Monte Carlo sampling assumptions.

   - Regarding Article 153 of the System Operation Guideline, the reserve capacity for FCR required for the CE and Nordic synchronous area shall cover at least the reference incident and the results of the probabilistic dimensioning approach for FCR carried out, being the reference incident defined as 3,000 MW in positive and negative direction and a worse case established according to probabilistic criteria. ENTSO-E has established this probabilistic procedure as a Monte Carlo simulation process.
   - In addition, if there has been a worse incident in the last 20 years, this incident must be considered. Regarding the establishment of a worse case according to probabilistic criteria, the detailed definition of the probabilistic procedure to determine this worse case should be included in the ENTSO-E approach. That is why it is not necessary to develop the proposed Monte Carlo approach because it is less transparent and it complicates the assessment.
   - In the last years, the technology evolution has changed dramatically, with a big impact on the generation and demand behaviours. Additionally, more cooperation between the TSOs has been achieved. As this evolution has a great effect on the incidents that could occur in the electricity network, it would be appropriate to evaluate FCR time period taking into account only incidents from the last 10 years. Incidents older than 10 years should not be taken into consideration, because they do not reflect the current electricity system behaviour.

3. Uniform approaches for cost determination

Regarding the economic approach needed to evaluate the cost-benefit impact of the FCR provision, more information should be given in order to determine those costs. A detailed and complete cost evaluation method should be provided by ENTSO-E. Additionally, a real discount rate should be used in order to estimate the NPV of the investments, instead of a new one based on societal criteria (4%).

The information provided by ENTSO-E to determine the cost of the system according to delivery schemes for LER, horizon year, LER share and minimum LER-FCR time period is not enough to clarify the methodology implemented to calculate the costs.
Defining the price range used for FCR cost of LER resources and the type of evolution of FCR cost (linear, piecewise linear, quadratic, etc.) is necessary. In addition, the partiality of LER-FCR investment costs considering that LER resources could also provide other services, shall also be defined.
The cost methodology differentiates between two procedures to estimate the cost of FCR provision, one for non-LER and other for LER technologies:

- The method considers that the FCR cost for non-LER technologies is the difference between the energy price and the marginal cost.
- However, the method does not take into consideration the cost of the capacity to provide the service (available capacity).
- The method considers that the FCR cost for LER technologies is proportional to the investment costs.
- However, this approach neither includes the percentage of the investment cost to allocate the MWh to provide the FCR service, nor the procedure to do it and/or to obtain the revenue.

4. The importance of SOC-management

To give the complete picture, BVES wants to point out as well the importance of SOC-management, which is essential for the successful operation of storage in FCR.
In particular, SOC management enables a fast bi-directional functionality by quickly absorbing or releasing energy in both directions.
It must therefore be taken into account when simulating the "long lasting frequency deviation". In fact, in previous operating experience such events could be fully compensated by the SOC management (e.g., January 2017, 7h frequency deviation around 50mHz).
As well in the occasion of an interrupted communication connection, the storage entity can provide FCR independently and decentrally. On top it also includes an emergency reloading management which autonomously controls loading or unloading as a function of the SOC.

5. **Fair level-playing field for all participating market parties**

BVES clearly underlines the necessity of a technology neutral approach and transparent process.

The described simulation method discriminates batteries because it is assumed that deterministic frequency deviations (meaning hourly peaks) are simply accepted. However, these are caused by power plants that have simultaneously provided the entire FCR. In fact, at an hourly change, we have a loss of most of the FCR reserve and an exhaustion of the other part. With a higher proportion of batteries, this effect would be eliminated as they are providing exclusively FCR being available at all times. Thus, the deterministic frequency response would have to be adjusted in the simulation.

As a second point, BVES wants to clarify emphatically, that a CBA result of only an allowed LER share of a certain percentage in the FCR market would not be acceptable. In particular, this raises the central question of how a LER limitation could get implemented in a later market design and how this could be in accordance with the European law.