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Θέμα: Συμμετοχή στη δημόσια διαβούλευση του ΑΔΜΗΕ σχετικά με τον Αρχικό Σχεδιασμό Συμμετοχής των Χαρτοφυλακίων Κατανεμόμενου Φορτίου στην Αγορά Εξισορρόπησης

Σχετ.: Ανακοίνωση ΑΔΜΗΕ 03/09/2020 για την έναρξη της σχετικής δημόσιας διαβούλευσης

Αξιότιμοι κ.κ.

Σε συνέχεια της ανακοίνωσης για την έναρξη Δημόσιας Διαβούλευσης σχετικά με τον "Αρχικό Σχεδιασμό Συμμετοχής των Χαρτοφυλακίων Κατανεμόμενου Φορτίου στην Αγορά Εξισορρόπησης", σας υποβάλουμε κάποιες προτάσεις μας οι οποίες βασίζονται στην εμπειρία μας προερχόμενη από χώρες στις οποίες έχουμε παρουσία σε αντίστοιχες αγορές.

Η εταιρεία μας βλέπει θετικά τις προτάσεις του ΑΔΜΗΕ για τους κανόνες συμμετοχής της Ζήτησης από την πλευρά του «φορέα σωρευτικής εκπροσώπησης απόκρισης ζήτησης», παράλληλα όμως θα θέλαμε να σημειωθεί πως η ύπαρξη ενός μακροχρόνιου μηχανισμού ισχύος είναι πολύ ουσιαστική για την ανάπτυξη και συμμετοχή κάθε «φορέα σωρευτικής εκπροσώπησης απόκρισης ζήτησης» στις αγορές ηλεκτρικής ενέργειας.

Ευελπιστούμε στην αξιοποίηση και συμβολή των προτάσεων μας στην παρούσα διαβούλευση και παραμένουμε στην διάθεσή σας για οποιαδήποτε πληροφορία ή διευκρίνιση.

Με εκτίμηση,

Αριστοτέλης Χαντάβας
Διευθύνων Σύμβουλος

Συνημμένα.: Προτάσεις της εταιρείας μας στην παρούσα διαβούλευση.

Enel X response to public consultation on initial planning for the participation of distributed load portfolios in the balancing market

Dr Paul Troughton, Senior Director of Regulatory Affairs
9 October 2020

We are grateful for this opportunity to comment on the proposed design for demand response participation in the balancing market.

We are responding from the perspective of an independent aggregator of demand response (DR) considering whether to establish a DR aggregation business in Greece. Our comments are informed by our experience as a DR aggregator in many different markets worldwide.

In general, we consider that the proposal is sound. There are many very welcome features that should help ensure that DR resources can participate cost-effectively, such as:

- Aggregation allowed across large zones
- Use of standard, well-established baseline methodologies
- Separate upwards and downwards products
- Minimisation of costly telemetry requirements
- Provision for “stacking” of provision of multiple products

However, we detail below a few suggestions for improvement and areas in which more details would be helpful. We would be happy to discuss any of these issues in more detail.

1 The “uncorrected model”

We understand that the “uncorrected model” described in §4.2 is favoured primarily because it is simple.

What has been proposed does seem like it should work. However, this approach does create a serious distortion: effectively the market ends up paying for the DR energy twice:

- The aggregator is paid for delivering the service. They then share this with the customer.
- The supplier is also rewarded for the service delivered by the aggregator, despite having had no involvement.

It is this unearned reward to the supplier that leads to the need to socialise the costs of the mechanism. Without the double payment, there would be no extra cost to socialise.

If this uncorrected approach is adopted, it will also be necessary to introduce safeguards to prevent suppliers from exploiting the double payment to gain a competitive advantage.

Compared to an independent aggregator, a DR aggregator that is part of the customer's supplier, or has some contractual arrangement with them, would be able to gain roughly twice as much value from the DR energy delivered by the customer. This causes two distortions:

1. It gives this non-independent aggregator a huge competitive advantage over an independent aggregator, hindering the development of independent aggregation.
2. It also puts distributed resources procured through such an arrangement at a competitive advantage over all other balancing resources. In effect, they will be able to bid to provide energy at roughly half of their costs, as the other half of the costs will be socialised.[1]

This clearly cannot be an efficient long-term solution, so we would recommend that, should this uncorrected approach be adopted initially, there should also be a plan to move swiftly to an enduring solution that gives the correct economic signals to all participants.

2 Modelling of functional constraints

The constraints set out in §3.3 seem broadly sensible. However, we note that:

1. Most demand-side resources do not have linear ramps, so ramp rate constraints are unlikely to be of much use. Minimum time between dispatch instruction and response would be a more useful measure.
2. The idea of assuming that balancing capacity will be activated as balancing energy in its entirety seems problematic. We would expect most DR resources to aim to clear in the balancing capacity market frequently, but to be dispatched for balancing energy only rarely. So evaluating the constraint in this way could significantly underestimate the potential contributions of DR resources.

[1] This latter distortion occurred very noticeably in the Short-Term Operating Reserve market in Great Britain. There are two routes to market for this, and one of them, "Non-BM STOR", effectively used the uncorrected model, in that the supplier benefited from a "spill payment" that could be shared with the provider. Providers choosing this route were able to undercut other providers' bids. This distortion was removed through Balancing and Settlement Code modification P354, since when the supplier's position has been corrected.

3. We would expect some DR participants to manage daily energy and time constraints themselves, by rebidding to reduce the likelihood of further dispatches if it seems likely that they will be dispatched more than customers will accept.

3 Tolerances

We welcome the approach of having a broader tolerance for over-delivery than for under-delivery. This is a sensible and common approach, as the two tolerances serve quite different purposes:

- The under-delivery tolerance limit is crucial, as it ensures that the system operator receives the service it is paying for.
- The over-delivery tolerance limit is not about value for money. Providers have a natural economic incentive not to over-deliver by much, as it means providing additional response for which they are not paid. The only reason to impose a limit is to ensure that over-delivery doesn't have negative consequences for the system.

There is always some uncertainty about the response available from customer loads, so the tighter the limits, the narrower the range of customer loads that can participate. This means that to maximise participation and hence minimise costs, the gap between the tolerance limits should be as wide as possible.

The table below shows the tolerance limits for some programmes with which we are familiar:

System operator	Services	Tolerance	Reference
AEMO Australia NEM	Frequency Control Ancillary Services	≥ 100%	Market Ancillary Services Specification, version 5.0, 30 July 2017, §3.7(b), §4.7(b), §5.7(b)
Transpower New Zealand	Instantaneous Reserves	≥ 100%	Ancillary services procurement plan, 1 Dec 2016, §B.32.2.1
ERCOT Texas, USA	Responsive Reserve Service	95%-150%	Nodal Protocols, 1 May 2018, §8.1.1.4.2(1)(d)
AESO Alberta, Canada	Load Shed Service for Imports	95%-150%	LSSi Agreement, Schedule F, §3.3 (not publicly available)
EirGrid Ireland	DS3 Fast Frequency Response & Primary / Secondary / Tertiary Operating Reserves	≥ 90%	DS3 System Services Protocol – Regulated Arrangements, version 1.0, 12 Dec 2017, §5.12.1.3, §5.7.1.3, §5.8.1.3, §5.9.1.3

These are all asymmetric. Most have no limits on over-delivery. Those that do limit over-delivery set the tolerance at 150%. We would recommend a similar approach here.

4 Specification of meters

If we have understood §5.2 of the proposal correctly, the accuracy requirements (such as using a Class 0.5s meter) are independent of the size of the load being measured.

This is not normal practice, as it leads to needless extra metering costs on small sites, which, due to their much smaller revenues, are much more cost-sensitive. It is also not necessary: since metering errors tend to be random and uncorrelated between sites, an aggregation of a thousand 100 kW sites even with a 4% tolerance would tend to have an overall error comparable to a 100 MW site with a 0.1% tolerance.

This is why metering specifications typically have tighter tolerances for larger loads and looser tolerances for smaller loads.

We would therefore recommend that all aspects of the metering accuracy requirements scale with the size of the load. To give a recent example of this approach, the recently published Code of Practice 11 in Great Britain sets the following requirements for meters used for DR purposes:[2]

[2] Available from the documents section of https://www.elexon.co.uk/mod-proposal/p375/. Note that this new proposal has not yet been adopted, but, except for the sub-100 kW provision, the accuracy requirements are similar to those in the long-established Codes of Practice available at https://www.elexon.co.uk/bsc-and-codes/bsc-related-documents/codes-of-practice/.

Maximum demand	Meter class	Overall measurement accuracy[3]
> 100 MVA	0.2s	±0.5%
≤ 100 MVA	0.5s	±1.0%
≤ 10 MVA	1	±1.5%
≤ 1 MW	1	±1.5%
≤ 100 kW	n/a	+2.5% to -3.5%

5 Location of meters

Often the DR on a customer's site comes from a small number of controllable assets, with most of the loads on the site not being involved. This is particularly the case when providing more technically challenging services, such as FCR, aFRR, and mFRR, where most loads will be incapable of providing the necessary response.

On a large site, if you measure the response just at the boundary meter, the response from the small controllable assets can be drowned out by "noise" from random changes in consumption by other loads. If you only allow metering at the site boundary, then such sites are either prevented from participating altogether, or wrongly subjected to non-delivery penalties and imbalance charges, despite delivering the required response correctly.

The measurement errors caused by these uncontrolled loads can be reduced by sub-metering closer to the controlled assets. Or (equivalently, but sometimes easier in practice, depending on the site topology) by sub-metering the major uncontrolled loads, and then using differencing to remove their contributions.

Such sub-metering is standard practice in ancillary services markets, and quite common in balancing and capacity markets.

There is some care required, however, as the use of sub-meters introduces the potential for fraud. Specifically, a customer could have several similar machines on their site, and sub-meter only some of them. They could then pretend to respond to a dispatch instruction by transferring load from the sub-metered machines to the other machines. The sub-meter data would show that they had responded as required, but the boundary meter data would correctly show that there had been no change in overall consumption, and no actual service had been provided to the wider system.

The rules should state that this is not allowed: that any response delivered on the site must not be systematically counteracted by changes elsewhere. This rule can then be enforced by either:

[3] These are the overall error limits at unity power factor when measuring between 10% and 120% of the rated maximum load. Looser limits are specified for other conditions.

1. Requesting single-line diagrams of sub-metered sites, so that it is clear whether there are other loads on the site similar to the sub-metered ones. Where a site does look potentially problematic, this can be resolved by requiring either that those other similar loads are also included, or that a more detailed investigation be carried out by an independent expert.
2. Performing statistical checks using data from the boundary meter. During a dispatch on a normal site, you would expect to see the same size of response on both the sub-meter and the boundary meter. The boundary meter measurement of the response will be a lot noisier (and hence not suitable for settlement of individual events), but when assessed over multiple events, on average the response should be the same, without any bias. On a site that's attempting a fraudulent approach, the boundary meter will not show the expected response. It should be straightforward to develop a metric which can be calculated routinely for all sites with sub-metering, and will flag any outliers for more detailed investigation or audit.

In Great Britain, the capacity market has adopted the first approach, and the balancing mechanism is adopting the second. We think the second is less labour intensive and likely to be more reliable, but either would suffice to deter participants from attempting to use sub-meters for fraudulent purposes.

While allowing sub-meters does necessitate some effort in compliance monitoring, we consider that the benefits from broader participation and reduced errors should vastly outweigh these costs.

Sub-meters are particularly beneficial where the response is being provided by a battery, as batteries can behave entirely differently from the rest of the site – e.g. providing a very precise FCR or aFRR response – and can be used very frequently. Accommodating such behind-the-meter batteries without sub-meters can put the baseline methodology under great stress, requiring elaborations such as "add-backs".

While sub-meters used in this way currently tend to be conventional meters, just like those used for billing purposes at site boundaries, we expect to see increasing use of embedded sub-meters, where the metering functionality is built in to devices such as smart electric vehicle charges, heat pumps, and inverters. The sub-100 kW class in Code of Practice 11 covers these use cases, relaxing many of the typical meter specifications that are not relevant for this usage (such as displays, user interfaces, physical dimensions). Such embedded meters are likely to be useful not only for DR measurement, but also for participation in the citizen energy communities envisioned in the Clean Energy Package.

6 Avoidance of unnecessary testing

When working with a large number of customers together to make a robust portfolio, the aggregator will need to make changes to that portfolio quite often as customers join or leave the programme. If there is vigorous competition between aggregators, this leads to even more frequent changes.

We appreciate that there has been some effort to reduce the bureaucratic overheads involved in adding customers to a portfolio, by not requiring previous supporting documents to be re-submitted (§6.3). However, we would recommend that similar attention be paid to the testing regime (§7), because tests are not only a bureaucratic burden for the aggregator and market operator, but also impose direct costs on participating customers. Excessive testing will deter customers from participating in the market.

Any new sites clearly need to be tested. However, there should be no requirement to re-test unchanged sites in a portfolio just because some other sites are being added or removed.

This should be straightforward: there is no need to re-test the unchanged sites in most cases: the capability of the portfolio can be assessed by combining the test results of any new sites with the already known capabilities of existing sites.

The only exception is where individual sites are not able to deliver the required performance by themselves, and so can only pass the tests when tested jointly with other sites. In such cases (which we would expect to be rare for most of these services), it is reasonable to require re-tests of some sites, but it would still make sense to try to minimise these, for example by allowing subsets of the portfolio to be used in testing.

END OF TEXT