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Comment Submission

For the kind attention of:

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Comments on the Draft CERC Deviation Settlement Mechanism and Related Matters (L-1/260/2021/CERC) Regulation, 2024

Background

The Regulatory Assistance Project (RAP) thanks the Commission for this opportunity to comment on the Draft CERC Deviation Settlement Mechanism and Related Matters (L-1/260/2021/CERC) Regulation.

The regulations are extremely important in light of the nascent stages of growing variable and non-dispatchable resources on the grid.

We commend the CERC for developing these regulations and appreciate the chance to contribute RAP's insights to advance this effort.

Our interest is to contribute to CERC efforts to reform the country's electricity system, to make it more efficient, achieve important public policy goals, and to contribute to serving the public good in India. We trust that you will find our observations below to be objective, independent, and tailored to support CERC's guidance.

RAP offers below comments and suggestions on the draft regulations.

Overview

RAP commends features of the CERC proposal such as making imbalance/deviation prices more reflective of real time costs of balancing the system, by drawing on clearing prices/system marginal prices closer to real time than the existing approach of drawing on day ahead, and the proposed approach in enhancing price signals as frequency deviations become more severe.

An imbalance charging framework that supports the most efficient outcomes will comprise a single price applied uniformly to all parties and technologies, whether contributing to or lessening system imbalance, based on the cost at the margin of the real time resource (in the balancing mechanism) used to balance the system. To ensure efficient price formation when system security is compromised by a shortage of reserves, a reserve scarcity price adder may be incorporated to reflect the opportunity cost of using scarce reserves to address imbalance when this impinges on the capability of the system operator to maintain system security.

RAP recommends that the CERC proposal is a stop gap towards an enduring solution composed of

- ***a single price***
  - at the margin, a resource that contributes to system imbalance and one that lessens incur the same cost or cost saving (of the marginal resource to correct that imbalance), and thus merit facing the same price for their imbalance, and one that does not vary with the absolute or relative of their imbalance
- ***based on costs of the marginal resource deployed to balance the system***
  - the marginal cost of balancing the system means could be taken from
    - a) the clearing price (system marginal price) from the security constrained economic dispatch as cooptimised with ancillary services resources where these overlap with system balancing, thus without link to for instance day ahead prices.
    - b) the variable cost of plants operated by the system operator in out of the market bases to balance the system, for instance natural gas plants not participating in the market.

    A price signal thus formed is efficient in that it encourages the market to exhaust all opportunities to balance the system that are cheaper than the most expensive action taken by the system operator.

- ***a reserve scarcity price adder***
  - reflecting the product of the loss of load expectation and the value of uninterrupted supplies, and ensures the full opportunity cost of using reserves to address imbalance is borne by the market when this impinges on the capability of the system operator to maintain system security.

Single prices or multiple prices

The approach employs multiple prices rather than a single price. Prices vary by factors including by demand or supply, by technology, buyer size, and size of deviation (absolute or proportional). Introducing differences in imbalance charge by these dimensions may lead to sub optimal dispatch of resources. It can distort deployment of energy resources by technology, size of buyers and present incentives to adopt balancing strategies that differ from those which supports system efficiency.

Insulating some technologies like wind and solar (section 8 (4)) or solid waste (section 8 (3)) somewhat from system conditions might have a rationale in absence of a carbon price or on grounds of limited ability to manage their imbalance. However, differences in treatment can lead to system inefficiencies – as costs of imbalance are socialised across parties without stimulating the most efficient actions to limit this imbalance. Insulating parties from the true cost of their contribution to imbalance may also be unnecessary – instead it may be sufficient to provide access for traders or aggregators who can use a portfolio of resources to represent them in the market and manage this risk.

Additionally, the proposal envisages scalars that introduce a wedge on the price between parties that contribute to system length and those that lessen it (with different price signals for deviation by way of over-injection and under-injection, according to system frequency). However, at the margin, a resource that contributes to system imbalance and one that lessens incur the same cost or cost saving (of the marginal resource to correct that imbalance), and thus merit facing the same price for their imbalance. The Competition & Markets Authority in GB found for example that a shift to a single

imbalance price would unlock significant efficiency benefits and remove distorting effects such as artificial incentive to integrate generation and retail operations[1]. With the 4th Energy Package, the EU introduced an expectation of single pricing across Europe, based on merits of efficiency[2].

RAP recommends applying a single price to all resources that contribute to imbalance with as few exceptions as possible.

Marginal or average prices, multiple timeframes or simply real time

The proposal is based on marginal prices – market clearing prices – of three markets (section 7 (1)). The marginal element here is welcome. RAP also welcomes that the proposal makes imbalance prices more reflective of real time costs of balancing the system, by drawing on a basket of clearing prices including those close to real time rather than the existing approach of drawing on day ahead alone.

However, the averaging across multiple market timeframes dilutes the marginal approach. Furthermore as ultimately the resolution of all imbalance hinges on the cost of remedies in real time (here we mean the moment of injection and withdrawal of electrons on the grid), efficiency requires that the cost of imbalance reflects the cost of balancing the system at each moment, as aggregated into settlement periods. Using an average price based on three markets likely dampens volatility of prices, which weakens the signal to balance positions, dampens the incentive to participate in intraday and real time markets, invest in flexibility, and risks leaving the System Operator with more balancing effort at the last minute than is efficient.

A good approximation of the marginal cost of balancing the system is the SMP (system marginal price) of the SCED (security constrained economic dispatch). Even better would be this SMP cooptimised ancillary services with energy. On the latter, to the extent that Grid India, the system operator, utilises plants in ancillary services market that are out of merit in order to balance the system, it is important that the cost of these resources should contribute to calculation of the imbalance cost.

RAP recommends basing imbalance charges on the marginal cost of balancing the system alone, ideally linked to the system marginal price of the security constrained economic dispatch, cooptimised with ancillary services.

Scalars on individual entities to avoid big imbalances

Scalars proposed that augment incentives for individual entities to avoid big imbalances (absolutely or as a percentage of their scheduled energy)[3] may introduce unwelcome or unnecessary distortions in economic signals. From an energy balancing perspective, the effect of a given system imbalance is the same regardless of whether it is the result of a single a generating plant of a single company going offline or multiple smaller ones belonging to multiple companies. The economic rationale is therefore unclear for introduction of scalars that grow with extent of contribution to imbalance (absolute or proportionate) by a particular to entity or company.

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[1] https://assets.publishing.service.gov.uk/media/5773de34e5274a0da3000113/final-report-energy-market-investigation.pdf

[2] See Methodology for the harmonisation of the main features of imbalance settlement, Article 7, paragraph 1. Note national regulators can elect to introduce dual pricing if they can justify it. https://www.acer.europa.eu/sites/default/files/documents/en/Electricity/MARKET-CODES/ELECTRICITY-BALANCING/10%20ISH/Approved/Action%205%20-%20ISH%20ACER%20decision%20annex%20I.pdf

[3] For example Section 8 (1) spells out different for Deviation up to [10% DGS or 100 MW, whichever is less] and f within

Although pro-competition effects might be cited with introduction of absolute (MW) scalars, given small firms are unlikely to breach these, it may be noted that single marginal imbalance prices (without scalars by company imbalance size) likely already have a built-in pro-competition effect, which might dampen the rationale for introducing absolute scalars. This is because the biggest companies are more likely to find their imbalances driving and correlated with system imbalance while this will be less likely for small companies.

Proportional scalars (%) that penalise bigger proportionate imbalances may have an anti-competitive effect (comparing section 8 (1) I with III for example). This is because for any given individual imbalance proportion that exceeds the 10% threshold, the imbalance of smaller firms is less likely to be correlated with system length than for big firms, and thus less costly from an overall energy balancing perspective to correct. Proportional scalars may thus remove the natural advantage that smaller parties should enjoy.

RAP recommends removing scalars that augment incentives for individual entities to avoid big imbalances

Scalars linked to extent of deviation from desired system frequency

Deployment of resources to balance the system can risk system security when doing so deprives the system operator of reserves with which to manage system frequency. The ideal mechanism to express the opportunity cost of reserve scarcity resulting from system conditions including extent of imbalance is a reserve scarcity price adder (as pioneered by Harvard Prof William Hogan[4] and deployed in Ercot Texas and subsequently multiple jurisdictions around the world) linked to the value of loss load. The CERC proposal introduces scalars which strengthen signals as the deviation of system frequency from desired levels grows (see for example, Section 8 (I)).

This may mimic a reserve scarcity pricing function and thereby support efficiency, and as such is welcome. However, it will not do so perfectly. For instance, the scalar may be inadequate to express the opportunity cost of using reserves as they run short when the market prices to which the scalar is applied are low and the scalar insufficiently large. This may lead to inefficiently weak incentives to avoid outages, dampen wholesale prices, weaken investment incentives and risk system security. This in turn may necessitate other interventions with distorting effects.

RAP recommends consideration be given to introduction of a reserve scarcity pricing adder.

Limiting liabilities

The CERC proposal envisages limiting liabilities in the event of forced outages (section 8, paragraph 12). This does not provide the right incentives, nor brings a net economic benefit. Plants that fall into these contingencies have made commitments in day ahead or intraday real/ time markets to generate, and their outage means that other resources needs to be deployed to fulfill the gap, so it is natural for them to pay the real cost of their absence. If needed, financial derivatives could be used by generators to manage this risk, but there is no economic rational of socializing this among the rest of the market participants.

RAP recommends removal of clauses limiting liabilities in event of forced outages.

[4] See for example https://scholar.harvard.edu/whogan/files/hogan_ordc_042513.pdf

Conclusion

RAP thanks CERC for the opportunity to provide feedback on the proposed imbalance deviation mechanism.

The proposed mechanism exhibits many positive features, including making imbalance prices more reflective of real time costs of balancing the system, by drawing on clearing prices closer to real time than the existing approach of drawing on day ahead alone, and in strengthening price signals as frequency deviations become more severe.

RAP recommends that the proposal is a stop gap towards the target model that we outline above.

We hope the comments above assist with finalisation of the Draft CERC Deviation Settlement Mechanism and Related Matters (L-1/260/2021/CERC) Regulation.

Once more, we wish to applaud CERC for developing these critical regulations, and we lend our support to the reforms and advances articulated therein.

Thank you for this opportunity to comment. If we can be of further assistance, please do not hesitate to contact. We would be keen to collaborate with CERC on these and related matters.

Sincerely,

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