

Comments on Discussion & Scoping Paper on Renewable Integration Phase 2

Introduction

The 33% Renewable Procurement Standard is an important and aggressive initiative that contemplates sweeping changes in the make-up of California's electricity infrastructure. As a stakeholder in the California electricity market, Olivine offers these comments on the scoping paper, the stakeholder process, and the CAISO Renewable Integration efforts.

Because it is not yet clear what this infrastructure will look like in 2020, it is imperative that the CAISO Renewable Integration efforts do not presuppose a particular outcome nor assume that clarity will come in the short run. Considering this, we understand that significant efforts and calendar time are needed to get from the present state of market design and operations to a new paradigm, and that the challenge will be to strike a balance between over and under analysis. As such, Olivine urges CAISO management to take a reasonably flexible package of options to the CAISO Board of Governors (BOG) and that the roadmap identify logical future decision "on ramps and off ramps."

Overall, the current scoping paper does a good job of identifying potential changes that may impact grid reliability; however, it seems to conclude that the way to meet these changes is through new market products combined with use of conventional generation resources. We are concerned that this maintains the classic mindset that generation alone must move to meet system variability ignoring that the Smart Grid encompasses solutions that can move consumption as well. In fact, this approach does not seem fully synchronous with the CAISO's own Smart Grid vision. The roadmap to integrate Variable Energy Resources (VER) should be mindful and complementary to the Smart Grid roadmap.

Costs

While the changes necessary to accommodate a migration to achieve a 33% RPS will result in increased costs associated with dispatching the grid reliably, the market infrastructure changes required will also result in increased transaction costs that could be quite significant. A broad array of market tools are being contemplated and as priorities emerge, cost to implement those market changes need to be identified to ensure that priorities are properly set. The discussion of who pays for such changes should also identify where the market system infrastructure costs will fall within the CAISO Grid Management Charge (GMC). The current GMC structure imposes transaction costs that are a very small percentage of traditional resource, but can become significant for smaller resources. If transaction costs represent a significant barrier to participating in the CAISO market, smaller resources may not join the wholesale market connecting and operating at a sub grid level, which potentially exacerbates the problems of forecasting and visibility.

We question the suggestion that a portion of integration and Ancillary Services (AS) costs be applied to VERs in addition to load. A missed forecast for a VER requires the same attention as a thermal resource that doesn't ramp as fast or when expected. If the CAISO is entertaining the idea that certain types or reliability cost be applied to VERs, it should consider applying them to all resource types.

Technology

Within this Phase 2 process, the method by which information is exchanged between market participants, resources and the CAISO should be addressed to ease integration and reduce barriers for participation. It is critical that such interface discussions enter into the conversation early and not be relegated to later implementation phases.

Of specific concern is the likely promulgation of many more CAISO-telemetered and controlled resources. By themselves, VERs present a sea change to the concentrated central plant paradigm. With the investments in the Smart Grid and the potential access to distributed resources such as demand response positioned to complement VER generation, the CAISO will want and need real-time visibility into these sub-grid resources. These resources in total may tend to be smaller and more numerous. As a result, communication methods to support such a broad set of resources need to be addressed in a cost-effective and straightforward solution that goes beyond the CAISO RIG standards of today.

Another critical issue will be how fast-acting regulation resources are integrated into the market. These have been identified to help balance out VERs and can be disbursed to provide the maximum benefit to the reliable operation of the grid. A traditional AGC signal may be insufficient to capture the benefits of such resources. Any discussion of new regulation products needs to address this issue, possibly through the real-time broadcast of AGC subcomponents such as ACE.

Market Design Elements

There are a number of design changes discussed in the paper that appear to be low-hanging fruit and obvious candidates for inclusion in market design changes; however before embarking on a path that presupposes implementation of these changes, several warrant cost-benefit analysis. Specifically,

- We believe that enabling the hourly contingency flag should be adopted independent of this initiative, barring significant development costs or potential far-reaching impacts to the optimization algorithm. Such a change would enable more innovative resources in the market today.
- We support an Ancillary Service buy-back mechanism in principle. Presuming that the RT market will optimize AS and energy in a manner similar to the IFM, we do believe that some study and disclosure of the potential changes to the cost of AS overall and the impact to RT energy prices. Intuitively it would seem unlikely there would be a large-enough amount of buy-back activity to significantly impact AS costs or RT prices, and that such a buy-back mechanism would benefit the DR market. With an AS buy-back mechanism the CAISO may also want to consider a stronger disincentive for AS nonperformance than the current rescission of AS capacity payments only for the portion and period of unavailability.
- While logical and fair, regulation pay for performance could become an unnecessarily complex settlement issue. While the CAISO may have the capability to measure and store the measured regulation more precisely and accurately, a major issue is how that data are made available to Scheduling Coordinators for settlement validation purposes. This warrants a significant technology discussion along with the product design discussion.
- Load following reserves, a full Hour Ahead market, and a 15-minute market in real-time may all contain useful elements to address VER generation. All three of these products attempt to address the shortcomings of a 5-minute energy dispatch solution that isn't conducive to all resources or all grid operation needs. Alternatively, these three products could be captured in a single product: 30-minute energy. Considering the CAISO's vast experience with static hourly prices on the ties, we believe that adapting to 30-minute static prices would be relatively easily without the burden of petitioning for load following reserve standards, nor the significant changes required to move to a full hourly market settlement with its plethora of charge codes. Further, a 30-minute energy product

could be a good stepping stone to the refinement that the other products bring and potentially implemented in a shorter time horizon.

Conclusion

We cannot assume that any roadmap developed within the next 10 months will accurately predict the end-state of 33% renewables or what the grid will look like in 2020. Attempting to develop precise mechanisms to deal with a situation that cannot accurately be known could result in inefficient markets and unnecessary costs. Not unlike previous roadmaps to the future, this process needs to be informed by an effort that identifies the complexity and estimated costs of each design element and the benefit that it brings. While the least expensive method to integrate 33% renewables may be to maintain the status quo (i.e., more frequent dispatch of thermal resources), such an outcome clearly defeats the environmental purpose of the 33% RPS initiative.

Olivine believes that an important issue that needs to be addressed is that of education about the costs, and complexities introduced by renewable VERs. While many electricity consumers understand that such resources may cost more to build, we believe that these consumers as well as many new stakeholders, have little understanding of the complexity introduced by variability into the grid, and that as a result such resources will likely cost more to operate. That said, it is our belief that the costs to integrate VERs to achieve 33% RPS can be cost effective, and that the greater environmental benefit must be taken into account when costs are analyzed.

It is with this in mind that we stress the importance of Smart Grid innovation and objectives which focus on the development and expansion of alternative generation and responsive-load resources to meet the reliability and operational needs of the grid.

Olivine thanks the CAISO for this opportunity to comment and looks forward to further participation in this process. For questions, please contact sgerber@olivinecorp.com.