

Joint Authors to Publish “Issue Alerts” to Inform Public Dialogue on Day-Ahead Market Choices

In recent months, there has been considerable industry dialogue focused on the market seams that will exist between EDAM/EIM and Markets+, as well as the EDAM/EIM governance enhancements being pursued through the Pathways Initiative. While both topics are important, a number of the Markets+ Phase 1 Funding Parties¹ (“Joint Authors”) believe this dialogue is incomplete without also considering the numerous governance and market design differences between Markets+ and EDAM/EIM that are driving continued support for Markets+. To address this gap, the Joint Authors have worked together expeditiously to prepare timely information in this fifth “Issue Alert.” The Joint Authors will continue this collaboration to issue a series of Issue Alerts identifying and explaining the key governance and market design elements that differ between Markets+ and EDAM/EIM and why these differences have important consequences for customers in terms of reliability, economic value, and environmental objectives.

The Joint Authors will share a new Issue Alert every few weeks covering the following topics:

1. Governance
2. Reliability
3. Fair and Accurate Market Pricing
4. Seams Issues
5. Support for Clean Resources
6. Market Operator Actions & Modeling
7. Durable Customer Benefits

¹ Arizona Public Service Co, Chelan County PUD, Grant County PUD, Powerex Corp., Public Service Company of Colorado, Salt River Project, Snohomish PUD, Tacoma Power, Tri-State Generation and Transmission Association Inc. and Tucson Electric Power Company prepared this Issue Alert 5.

Issue Alert 5: **Support for Clean Resources and State GHG Policies**

This Issue Alert is part of an ongoing series highlighting the key governance and market design elements that differ between Markets+ and EDAM/WEIM and why these differences have important consequences for customers in terms of reliability, economic value, and environmental objectives.

Key Take-Aways

- **Markets+ encourages the use of clean resources through price formation best practices, enhanced flow-based deliverability, and its congestion revenue allocation framework.**
- **Markets+ is specifically designed to incorporate diverse environmental programs, including GHG pricing programs, non-priced GHG reduction mandates, and voluntary utility and customer goals.**
- **The Markets+ approach for GHG pricing programs will provide transparent GHG price signals and compensation for clean resources, respect forward commitments to loads within a GHG pricing zone, and limit leakage and impacts to entities not subject to GHG pricing programs.**
- **Markets+ offers first-of-its-kind tracking and reporting of GHG emissions to provide a new level of transparency and support for GHG reporting requirements across the footprint.**

In recent years, numerous Western states have adopted regulations designed to reduce GHG emissions and encourage the use of clean resources to serve load. Many Western utilities and utility customers have also adopted voluntary goals with similar objectives. Participation in a centralized day-ahead and real-time energy market can help support clean resources and emission reductions through, for example, reduced curtailment of clean resources. Markets+ is the best choice to help achieve these objectives through its foundational design features that will result in transparent and accurate market prices, enhanced deliverability of clean energy to load, and a uniform approach for market participants to reduce their exposure to congestion costs associated with those deliveries.

Furthermore, Markets+ has been specifically designed through immense collaboration by a large and diverse group of stakeholders to reflect the needs of a large multi-state footprint with numerous GHG emission reduction programs, including GHG pricing programs, non-priced GHG reduction mandates, and voluntary utility and customer objectives. The Joint Authors believe that the stakeholder-led and consensus-based market development process of Markets+ has led to a market design that appropriately balances interests from across the Markets+ footprint.

Markets+ Provides Enhanced Support for Clean Resources

Clean resources like wind, solar, and hydro are often developed remotely from load, in regions with more favorable weather patterns and geography. For this reason, market price formation, deliverability, and congestion risk will all materially impact the feasibility and expected value of investments in clean energy that can be brought to load. Markets+ supports the development of clean resources in all three areas:

- 1) **Price Formation:** As described in Issue Alert 3, Markets+ adopts FERC best practices for price formation, including fast-start pricing and graduated scarcity pricing, sending transparent price signals to encourage investment and use of clean and flexible resources and storage when they are needed most.

- 2) *Increased transmission availability through flow-based dispatch*: As described in Issue Alert 4, the flow-based dispatch used in Markets+ increases the deliverability of resources across the BA-to-BA and TSP-to-TSP seams within the footprint, resulting in less congestion and more delivered clean energy than the EDAM design.
- 3) *Protection from congestion costs*: Markets+ allocates congestion revenue directly to firm transmission rights-holders proportional to the congestion costs incurred on their specific transmission paths. This approach provides an opportunity for remote resources to hedge congestion costs and reduce the price risk of delivering clean energy investments to load. In contrast, the EDAM congestion revenue structure increases the financial risk for those delivering remote clean resources as the congestion revenue allocation is split between the Market Operator (at BAA boundaries) and EDAM Entities (internal congestion). This bifurcation creates significant uncertainty that the allocation methodology selected by each EDAM Entity may not allocate congestion costs on an individual transmission path basis,² preventing those delivering remote resources from being able to accurately forecast or hedge against congestion.

Markets+ GHG Pricing Features

State GHG pricing programs, such as Washington’s Climate Commitment Act and California’s cap-and-trade program, incentivize the use of cleaner resources by placing a price on GHG emissions from in-state resources and imports that serve load in the state. Markets+ and EDAM/EIM are both designed to facilitate GHG pricing programs by ensuring that market participants can include the cost of compliance in their market offers through a “GHG adder.” Both markets seek to avoid imposing GHG costs in jurisdictions outside of GHG pricing zones by including a GHG adder in offers of resources external to a GHG pricing zone *only* when the market dispatch software selects those resources to serve load inside a GHG pricing zone. Similarly, GHG adders are only included in the energy price paid by load within a GHG pricing zone.

Beyond the high-level similarities described above, the two markets differ in the mechanics that select which external resources are attributed to serve GHG pricing zone load. In this area, Markets+ includes several important distinguishing design features:

- ***Markets+ presents expanded opportunities for clean resources.***

Markets+ provides multiple frameworks for external clean and renewable resources to serve a GHG pricing zone by (1) enabling delivery of forward contracted clean supply to load serving entities in the pricing zone (referred to as “Type 1A” or “Type 1B” imports), and (2) supporting additional economic imports of surplus clean energy to a GHG pricing zone scheduled through market optimization (referred to as “Type 2” imports). The Markets+ approach is designed to maximize the clean supply available to the pricing zone, thereby reducing costs, while also addressing issues of emissions leakage,³ which can compromise the intent of a state GHG pricing program.

² One such methodology is allocating internal congestion revenues to load and exports on a pro-rata basis, as PacifiCorp has proposed in its draft tariff changes to implement EDAM.

³ In the context of GHG pricing programs, “leakage” refers to an occurrence of clean resources being attributed to the GHG pricing zone when higher-emitting resources are actually increasing their output to support imports into the GHG pricing zone. Markets+ and EDAM both include mechanisms to mitigate leakage.

- ***Markets+ enables utilities to claim clean energy paid for by customers to meet state clean energy mandates and goals.***

Markets+ provides a framework for utilities, whether or not they are in a GHG pricing zone, to claim clean resources paid for by their customers, consistent with utility recovery of those investments in rates and consistent with utility planning practices, while enabling tracking and reporting of emissions across the market footprint.

The “Type 1A” option in Markets+ provides assurance that external supply that is contracted to serve load in a GHG pricing zone will be attributed to that GHG pricing zone if it is dispatched. This provides load-serving entities with an increased ability to hedge their exposure to GHG costs through advanced contracting of clean supply.

It is our understanding that the same functionality is not currently available in EDAM. While EDAM allows forward contracted resources to be included in the pool of resources *eligible* for potential attribution, the actual selection of external⁴ resources attributed to the GHG pricing zone ultimately depends on the EDAM GHG algorithm. This approach does not *ensure* that purchasers subject to a GHG pricing program will be attributed the dispatched resources they have already contracted and paid for, potentially increasing their risk of exposure to GHG costs in the market.

- ***Markets+ enables flexibility for external market participants to manage attribution of their resources – whether to serve their own load or to be eligible to serve the GHG pricing zone.***

The Markets+ “Type 2” framework allows a market participant located outside of a GHG pricing zone to economically offer energy that is surplus to its own load obligations to be attributed to a GHG pricing zone. This helps ensure a market participant can retain the clean supply needed to serve its load obligations while providing an opportunity to be compensated for its surplus clean energy.

Markets+ enables greater autonomy for market participants to manage their own resources and thus provides greater ability to accommodate multiple state programs across a diverse footprint. In order to determine eligibility for a resource to be attributed to a GHG pricing zone, EDAM relies on a preliminary counterfactual dispatch known as the “GHG reference pass” that prevents imports into the GHG zone. Supply that is dispatched in the GHG reference pass is assumed to be meeting load outside of the GHG pricing zone, and only supply incremental to the GHG reference pass is eligible to be attributed to the GHG pricing zone. This footprint-wide counterfactual may produce results that are inconsistent with individual market participants’ actual commitments and surplus supply.⁵

The EDAM framework pre-determines the criteria for, and ultimately the amount of, eligible clean supply available for load in the pricing zone. Because the EDAM is an outgrowth of the WEIM which was originally designed solely based on California’s cap-and-trade program, it is less able to flexibly accommodate other states’ policies and/or unique elements. The Markets+ design enables individual

⁴ Note that resources pseudo-tied into a GHG pricing zone are treated similarly to resources internal to that zone.

⁵ For example, if a utility located outside of the GHG pricing zone has surplus clean energy relative to its own load, that utility may expect to be able to offer its surplus supply to be attributed to the GHG pricing zone. But if the surplus is economically dispatched to serve the area outside of the GHG pricing zone in the GHG reference pass, it will be ineligible to be attributed to the GHG pricing zone during the actual dispatch. In this example, the non-GHG pricing zone has priority access to the market participant’s clean supply due to the GHG reference pass.

states to define what qualifies as eligible import supply. Specifically, market participants wishing to participate in a state program by offering resources for attribution to that state will be subject to that state's applicable GHG rules and regulations. This approach emphasizes state autonomy by leaving it to the states to determine and enforce key issues of state policy, including parameters around import eligibility and emissions leakage. Issues around leakage directly implicate a state policy tradeoff between highly restrictive rules that minimize leakage (potentially capturing activity that does not actually result in leakage) and the higher costs that accompany the more restrictive approaches. Where possible, the Markets+ market design attempts to leave key state policy decisions to individual states, and avoids embedding key issues of individual state policy into the market design.

- ***Markets+ applies validation to support transparent prices in the GHG zone, while reducing risk of emissions leakage and cost shifts to utilities not subject to GHG pricing programs.***

Markets+ validates that resources attributed to a GHG zone by the market optimization are reasonably expected to be incrementally dispatched to serve GHG zone demand. This validation helps to reduce the risk that the market optimization results in leakage by preferentially attributing clean resources to the GHG pricing zone when higher-emitting resources are actually being incrementally dispatched to support imports into the GHG pricing zone. Leakage can increase emissions and/or costs in the external area, while also producing an inappropriately low GHG price for clean sales into the GHG zone.

EDAM does not perform a similar resource-specific validation and instead uses a BAA-level approach to limit the total GHG attributions to the quantity of net exports from the BAA. The Markets+ approach provides a more granular, transparent, and effective approach to support GHG price formation and mitigate leakage.

- ***Markets+ enables additional trade through the Unspecified framework.***

Markets+ includes a novel approach to enabling additional market transfers into a GHG pricing area at a default emissions rate set by the GHG pricing program. This allows additional transfers to occur even when all resource-specific offers have been exhausted. EDAM does not include an Unspecified framework and requires all imports to be supported with resource-specific attributions, which could limit the optimization from producing a more cost-effective dispatch solution.⁶

GHG Tracking and Reporting

Markets+ will provide robust tracking and reporting to account for GHG emissions throughout the footprint, including areas outside of a GHG pricing zone. The reporting system will include a centralized source of consistent and granular data that will enable tracking of GHG emissions, including publicly-available GHG reports, across a regional market footprint (inclusive of internal generation and imports/exports between areas). This feature is crucial for utilities subject to non-priced GHG emission reduction programs that need to report on the emissions associated with energy used to serve their load. It also represents a significant improvement for utilities and their customers with voluntary emission reporting or reduction goals.

The reporting and tracking mechanism in Markets+ includes a framework for quantifying emissions associated with “residual energy” - dispatched energy that has not been otherwise claimed by load-serving entities in the market. The design enables participants to determine how energy is attributed to

⁶ To the extent that CAISO addresses this issue by relaxing constraints such as the BAA export limit, this could result in leakage during tight market conditions.

meeting their own load and how unattributed surplus energy is accounted for in residual energy reporting. This methodology provides the flexibility needed by utilities subject to a variety of state requirements or voluntary goals for clean energy procurement, GHG reduction, and reporting.

CAISO also has recently proposed to develop a GHG tracking and reporting framework based on stakeholder requests and the Markets+ approach may serve as a starting point. This development highlights how the existence of two competing organized markets provides greater opportunity for both markets to continuously evolve with improved products, services and market design.

Conclusion

From its inception, Markets+ was designed with the flexibility to incorporate diverse emission reduction programs, including GHG pricing programs, non-priced GHG reduction mandates, and voluntary utility and customer objectives. Through extensive discussion, SPP and stakeholders have developed a GHG accounting framework that encourages the use of clean supply through transparent GHG price signals and compensation for clean resources. This design will respect forward commitments to loads within a GHG pricing zone, reduce leakage, and minimize the impact to utilities not subject to a GHG pricing program. Further, Markets+ will provide GHG reporting and tracking for the entire footprint that will support utilities with emission reduction requirements or voluntary reduction goals. Finally, Markets+ will best support the development and delivery of remote clean resources through appropriate price formation, flow-based dispatch, and reduced transmission congestion costs. A consistent theme in the market design is flexibility for market participants to manage the resources in their portfolios — a necessity in light of the myriad of differently structured clean energy and GHG reduction programs throughout the West.