



# WESTERN MARKETS EXPLORATORY GROUP STUDY FACT SHEET

JANUARY 2024

GridLab is a national non-profit that provides technical grid expertise to enhance policy decision-making and ensure a rapid transition to a reliable, cost-effective, and low-carbon energy future. This fact sheet looks at the Western Markets Exploratory Group (“WMEG”) study which examines the impacts of utilities participating in one of two proposed day-ahead market options. The study provides system-wide results and, additionally, several utilities have filed WMEG study results specific to the impacts of different market participation options on their operations.<sup>1</sup> In the coming months, as market participation decisions move forward, these study results may be put before state regulators for consideration or as justification for proposed utility participation in one market or another. However, as discussed in more detail below, GridLab urges regulators to thoroughly recognize the limitations of the WMEG study work, which suggest that the **WMEG study should not be relied upon as the sole basis to provide the justification for a utility deciding to join a specific market.**

As observers of Western electricity markets are aware, the California Independent System Operator (CAISO) and Southwest Power Pool (SPP) have both put forward day-ahead market proposals for the West. The CAISO’s Extended Day-Ahead Market (EDAM) and SPP’s Markets+ each have their own slight differences, and neither has as many features, nor offers as many likely benefits, as full regional markets (e.g., Regional Transmission Organizations) would offer. The WMEG study, which was sponsored by a large group of non-California utilities in the West, primarily compares the economic impacts of Western utilities participating in one of the two day-ahead markets under several scenarios and hypothetical footprints of market participation. The cases evaluated include a business-as-usual (BAU) case where the Western Energy Imbalance Markets (WEIM) continues to operate across a broad Western footprint; a West-wide EDAM Bookend case, where EDAM

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<sup>1</sup> This includes filings of utility specific results by Arizona Public Service Company and Tucson Electric Power in Arizona Corporation Commission Docket No. E-00000A-21-0271 and publication of NV Energy’s results in a November 2023 presentation to the Nevada Regional Transmission Task Force. Additionally, the Bonneville Power Administration shared its results as part of a series of workshops on day-ahead market participation considerations. And Public Service Company of New Mexico also shared its results in during a Regional Issues Forum meeting in December 2023.

covers the entire WECC excluding Alberta and BC; and a Main Split case, where PacifiCorp and California entities join EDAM and the rest of WECC joins Markets+ (and consequently leaves WEIM).<sup>2</sup> The study concludes that (depending on the assumptions and categories included in the calculations) some utilities may benefit more from joining a split market (e.g., where these utilities belong to Markets+) than a bookend case where virtually all of the West participates in EDAM. But, this study, as with all studies of this nature, has several limitations and caveats. And the limitations of the WMEG study are such that it should not be used as the primary basis for determining which market an individual utility participant should join, as discussed more below. Therefore, we would advise regulators not to take the WMEG results as a definitive ruling on the “best” market for a regulated utility to participate in and to insist on additional analysis and considerations to justify participation in one market or another.

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As you consider the WMEG study results and how they might be used in supporting market participation decisions, we urge you to keep the following limitations to the study approach and results front of mind:

- 1. The WMEG study does not consider the varying costs of *joining and participating in a day-ahead market*.** While the study is characterized as a “Cost Benefit Study”, in actuality, it is primarily focused on the quantification of one category of benefits and is not a complete cost benefit analysis. Critically, the study fails to account for a key category of market participation costs: the expenses utilities must pay for day-ahead market implementation and operation. While definitive cost estimates for both Markets+ and EDAM may not be available, there is reason to believe EDAM will have lower overall implementation and participation costs because it builds on an already existing day-ahead market platform, where Markets+ will require a more bespoke solution that is likely to have higher implementation and ongoing costs. But any differences in market implementation and operation costs are not considered in the context of the WMEG work. Thus, the WMEG study on its own offers an incomplete picture of the costs and benefits of participation in each day-ahead market and provides just one component of the overall equation that should be considered in making a market participation decision. Regulators should ask utilities to quantify the costs to join the different markets and include those costs in any cost/benefit comparison of the two markets.
- 2. The study considers a small subset of *potential market benefits* and doesn’t contemplate many other categories of benefits, which could be much larger.** The WMEG study focused, primarily, on “net variable costs” (or net variable cost savings) associated with market participation. The calculation of net variable costs in the WMEG focuses primarily on operational costs (or cost savings) of market participation. But the study acknowledges that it does not analyze various other, potentially larger, categories

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<sup>2</sup> There are also several other potential footprint splits that were studied as part of the effort. See maps of these alternative splits on slide 75 of APS, “WMEG Production Cost Study Results Summary,” September 2023.

of benefits.<sup>3</sup> Some benefits not contemplated as part of the WMEG study include: 1) reliability benefits, 2) indirect capacity benefits achieved through broad market footprints, and 3) the benefits of resource diversity that can be unlocked with larger market footprints. Notably, a broader market footprint across the West can provide reliability benefits in coordinated resource sharing and transmission optimization, especially in times of system stress. But such reliability benefits were not addressed as part of the WMEG study. Additionally, market footprints that are coordinated with an underlying resource adequacy program can provide the potential for investment savings (or capacity savings) which was not quantified as part of the WMEG study work. The study also did not fully capture the benefits of a large market footprint in reducing renewable energy curtailments, nor does it quantify how large market footprint can better facilitate utility access to a diverse set of resources. Fragmented markets tend to result in more renewable energy curtailment and to reduce the availability of remote and diverse resources and these impacts, along with others, are not captured in the WMEG study results.

- 3. The study primarily finds marginal cost increases and decreases in net variable costs, which are within the margin of error for a study of this nature.** For most of the WMEG members studies, the WMEG study found very small cost savings or cost increases resulting from one day-ahead market scenario or another.<sup>4</sup> These marginal differences in the context of a multi-billion-dollar market are within the margin of error of such a study. And the results could easily swing the other direction with one or more small changes in the assumptions used in the study. For example, a small but highly plausible, increase or decrease to forecasted natural gas prices could cause benefits to swing one way or the other materially. Therefore, it would be inappropriate to rely on these study results as the sole basis for justifying participating in one day-ahead market or another.
  
- 4. The lost “wheeling revenue” category complicates the findings of the study, and its impacts should be removed when considering the implications of the WMEG study work on a utility’s participation in EDAM or Markets+.** “Wheeling revenue” is defined in the WMEG study as the revenue that transmission providers earn selling transmission service. Absent safeguards, participation in organized markets (such as a day-ahead market or RTO) can reduce the amount of wheeling revenue that a transmission provider receives, which can increase costs to the loads paying for transmission service. The WMEG study sought to capture this potential impact, but its approach to calculating lost wheeling revenue is problematic, and its assumptions are inappropriate given the ultimate EDAM and Markets+ designs.<sup>5</sup> Notably, both Markets+ and EDAM have included policy mechanisms that incentivize customers to retain long-term transmission service and compensate transmission providers **for the loss of shorter-**

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<sup>3</sup> See WMEG Study page 13 ([here](#)).

<sup>4</sup> For example, for NVE the net cost of the EDAM Bookend case is almost identical to the Markets+ and Main Split cases (\$455.6M vs. \$455.7M and \$458.5M, respectively) when you exclude wheeling revenues (see slide 34).

<sup>5</sup> EDAM has proposed an EDAM Access Charge that would provide compensation for lost wheeling revenues. And a similar mechanism (the Market Transmission Use rate) is proposed in Markets+. There is some uncertainty about these elements in final market operations, as a recent Order from the Federal Energy Regulatory Commission (FERC) did not approve the initial design for the EDAM Access Charge. However, we believe a similar concept will ultimately be approved once CAISO makes some minor adjustments and provides additional justification in a future filing and will be similarly ultimately be approved for Markets+.

**term transmission service.** Thus, the danger of lost wheeling revenues in either market is minimal or non-existent. Therefore, the wheeling revenue cost impacts should be excluded from individual utility presentations and consideration of the WMEG study results. Without the lost wheeling revenues, the WMEG results appear a lot different. Critically, “[i]f the reduced wheeling revenue were omitted from Net Variable Costs, WMEG members would together see savings of \$369 million in the EDAM Bookend case compared to the BAU.”<sup>6</sup> In reviewing the WMEG study, regulators should insist on assessments that omit the WMEG “wheeling revenue” impacts, as they are no longer appropriate.

**5. The study’s assumptions regarding market-to-market interactions are likely overly optimistic and underestimate the costs of split footprints.** It is difficult, if not impossible, to accurately represent the friction of trading between two organized markets and the associated seams that will present themselves in actual operations. The WMEG study seeks to represent the friction in trading between two separate day-ahead markets, but it fails to represent the current designs which are not expected to allow economic exchange of energy between the two day-ahead markets. At present, there is no guaranteed ability for economic exchanges to take place between EDAM and Markets+ (unless a participating EDAM Entity chooses to enact provision to enable them, something which has not happened in the 10 years the WEIM has been in operation). Thus, the costs of having two market footprints are likely to be far greater than represented in the footprints WMEG analyzed. Additionally, the cost of fracturing key market hubs, like Palo Verde and Mead, into two different markets is unlikely to be properly captured in the modeling of certain two-market scenarios. Operating these hubs efficiently when they sit at the fulcrum of two different markets will be very complex and has the potential to be costly in a manner that is not captured through a modeling exercise of this nature.

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While the economic advantages of joining Markets+ versus EDAM may *appear* significant in the WMEG study, there is a limit to the meaning regulators should derive from the study’s findings. Instead of fixating on the small operational savings Markets+ could bring a handful of utilities in certain instances when certain categories are included in the calculations, regulators would be wise to consider the broader benefits of joining a larger, more diversified footprint and to contemplate the potential lost benefits of dissolution of the current WEIM market. For that reason, we encourage you to take an expansive approach in choosing to join a day-ahead market.

Please reach out if you would like to learn more.

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<sup>6</sup> Energy and Environmental Economics (E3), “Western Markets Exploratory Group: Western Day Ahead Market Production Cost Impact Study,” June 2023, available [here](#).