



# **BENEFIT OF THE MARKET**

## WESTERN ENERGY IMBALANCE SERVICE (WEIS)

By SPP Markets

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# OVERVIEW: SPP'S WEIS VALUE

## What does SPP do for its WEIS Participants?

SPP oversees the bulk electric system as a Regional Transmission Organization in the Eastern Interconnection and as a Reliability Coordinator (RC) in the Western Interconnection. SPP also balances generation and load regionally, in real-time in the Rocky Mountain region on behalf of 12 participating utilities.<sup>1</sup> As the RC and Market Operator of the Western Energy Imbalance Service (WEIS), SPP is mandated by the Federal Energy Regulatory Commission (FERC) to ensure reliable operation and competitive wholesale prices of electricity.

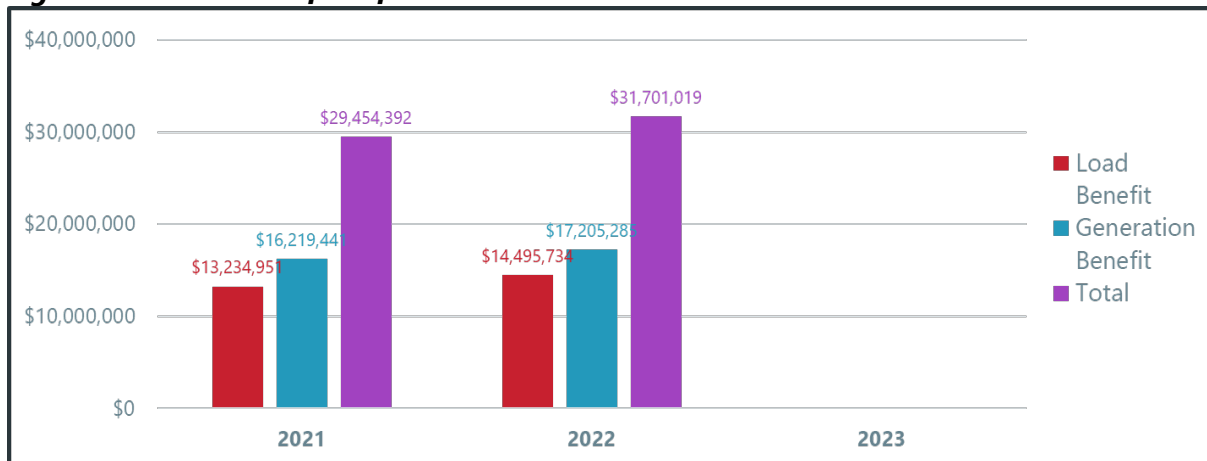
SPP does not own the assets that comprise the power grid. SPP works with market participants to serve load most reliably and economically providing sub-hourly dispatch beyond what has traditionally been available in the bilateral market. Transmission operations are also improved as the WEIS market engine makes adjustments to manage transmission loading and constraints.

## What would the world look like without SPP's WEIS?

If, as market operator, SPP did not provide centralized economic dispatch, SPP WEIS participants would individually serve load utilizing their generation fleets or hourly energy interchange that is not co-optimized in a single economic dispatch solution. The WEIS's economic dispatch of participants' diverse generation provided an **estimated \$31.7 million in net benefits in 2022**.

Using the same methodology outlined in this report, SPP estimates that WEIS participants have received a **cumulative net benefit of \$61.2 million** since the WEIS's inception in 2021.

**Figure 1: Annual benefits of the WEIS market.**

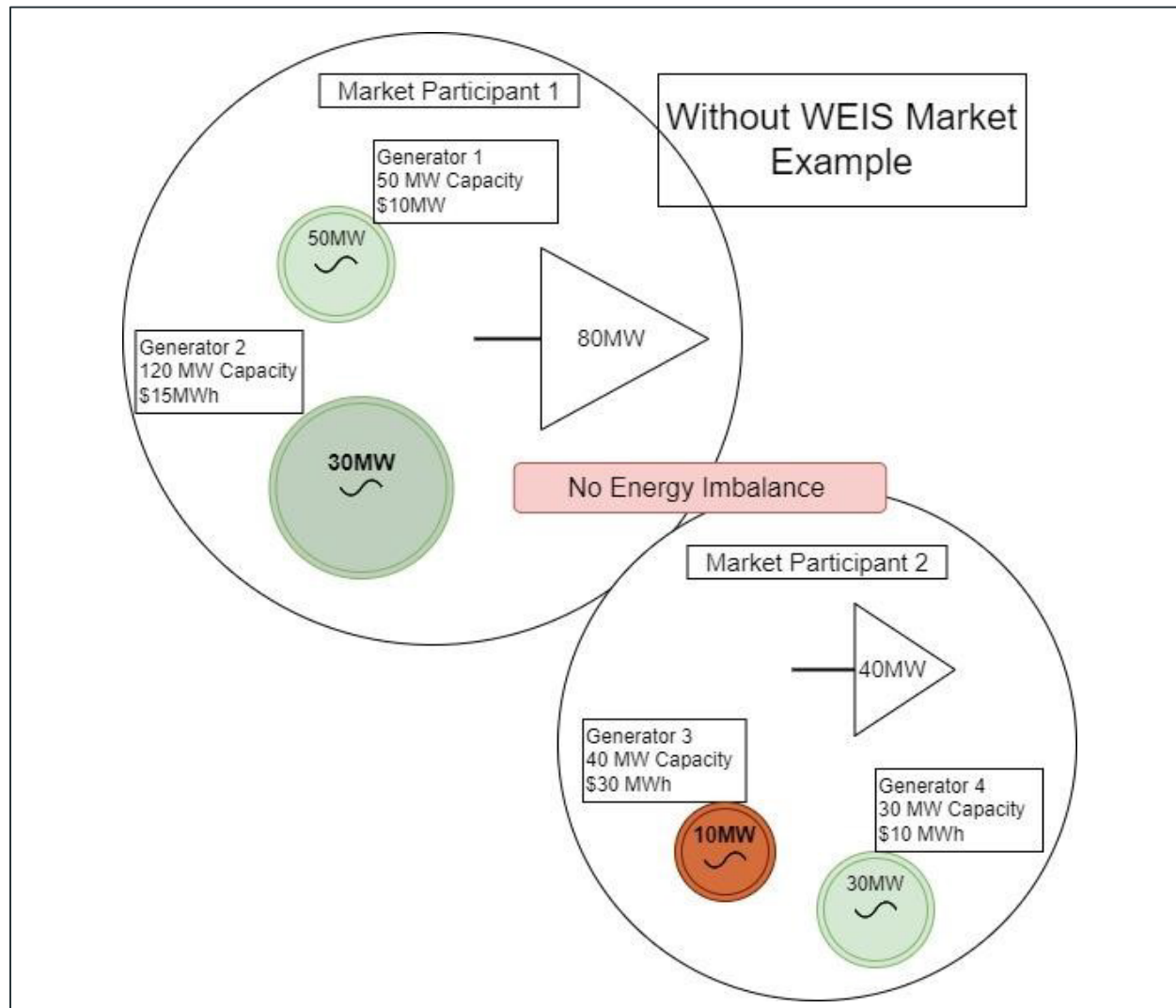


<sup>1</sup> The WEIS served 10 participant organizations in 2022 and will add three more participants in April 2023.

# METHODOLOGY

To quantify the benefits of the WEIS, SPP estimates the cost to serve a market participant's load without a central, optimized economic dispatch across the WEIS-participating generation fleet. SPP evaluated various methods to establish the cost at which load would have procured energy and chose a method in which the average price of each participant's online generation is used to serve the incremental load for that market participant. Variable Energy Resources (VERs) (e.g., Wind and solar generation) are excluded from being marginal resources for any participant.

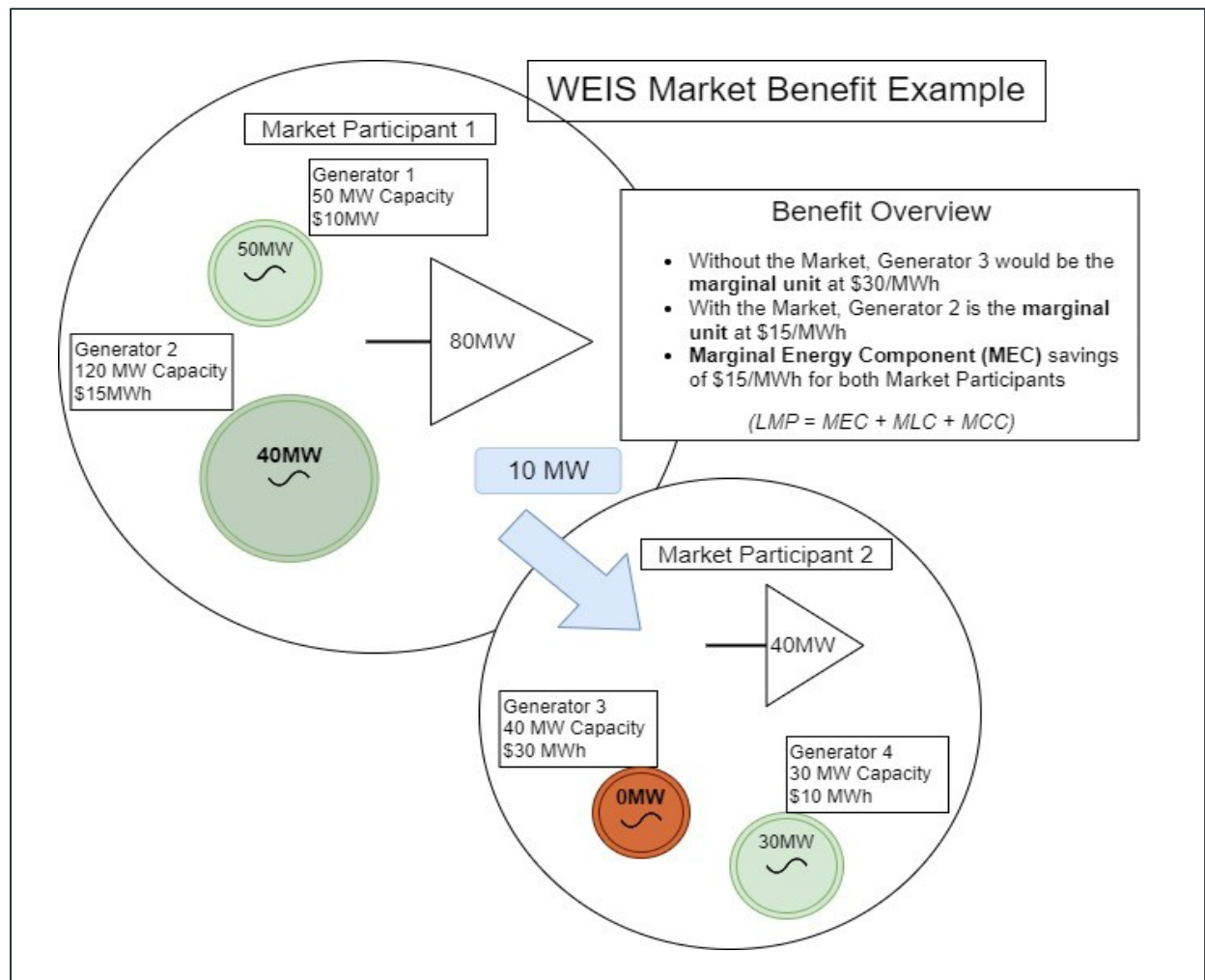
**Figure 2: Market participants' interactions without WEIS.**



In the WEIS, generators are paid the imbalance at a Locational Marginal Price (LMP) formulated

by SPP's market clearing engine. A market participant is considered to be exporting if its total generation energy dispatch exceeds its obligation (load and bilateral schedule interchange). Because the load pays the imbalance cost in the WEIS based at the LMP, SPP captures a **load side benefit** where the energy imbalance into a market participant is replaced by the marginal generator available within the same market participant. In addition, SPP estimates a **generation side benefit** that is not included in the load side benefit. This benefit is the profitability of the generation serving energy imbalance across market participants who are compensated for the energy supply at LMP while the operating cost of the generation is often below the LMP.

**Figure 3: Market participants' interactions with WEIS-EI through co-optimization.**

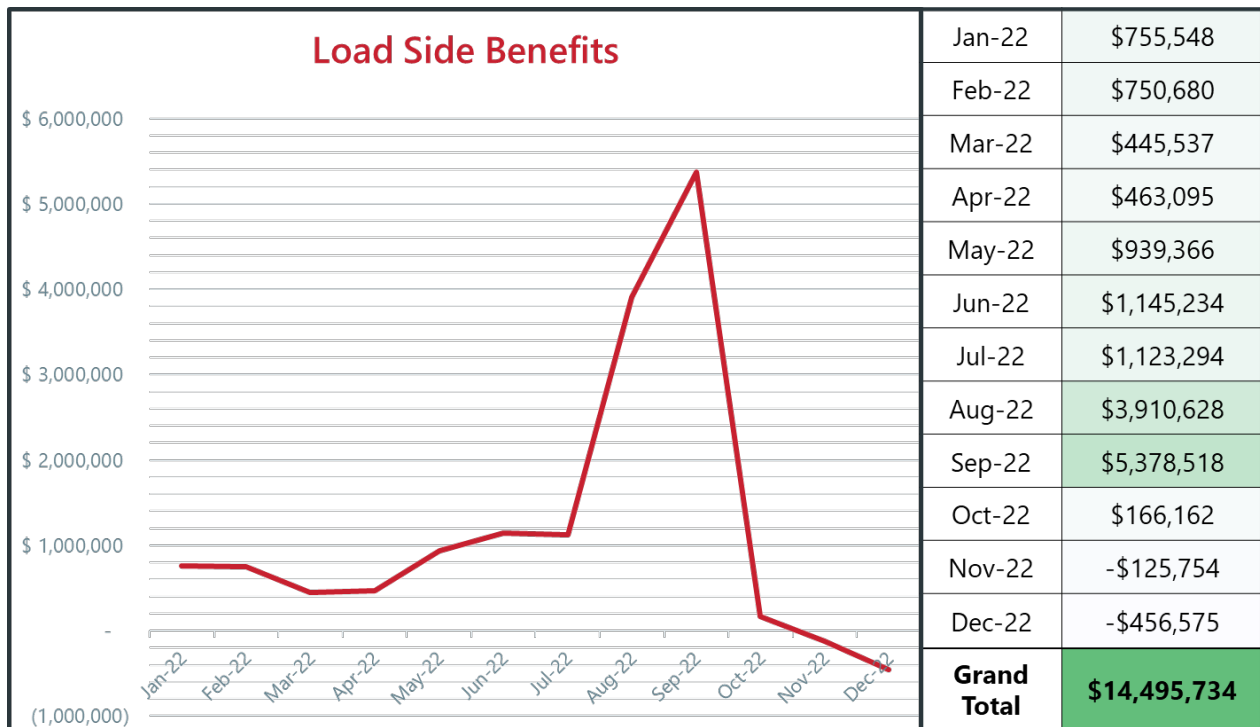


# RESULTS

## LOAD SIDE BENEFITS

Using a load marginal cost method, SPP analyzed and calculated the incremental energy cost for each market participant in 2022 for each market interval. Based on the resources' capacity available and the submitted offers, SPP estimates the cost to replace the WEIS's Energy Imbalance (EI) to serve the load and interchange for each participant. This is captured as cost reduction on the load side.

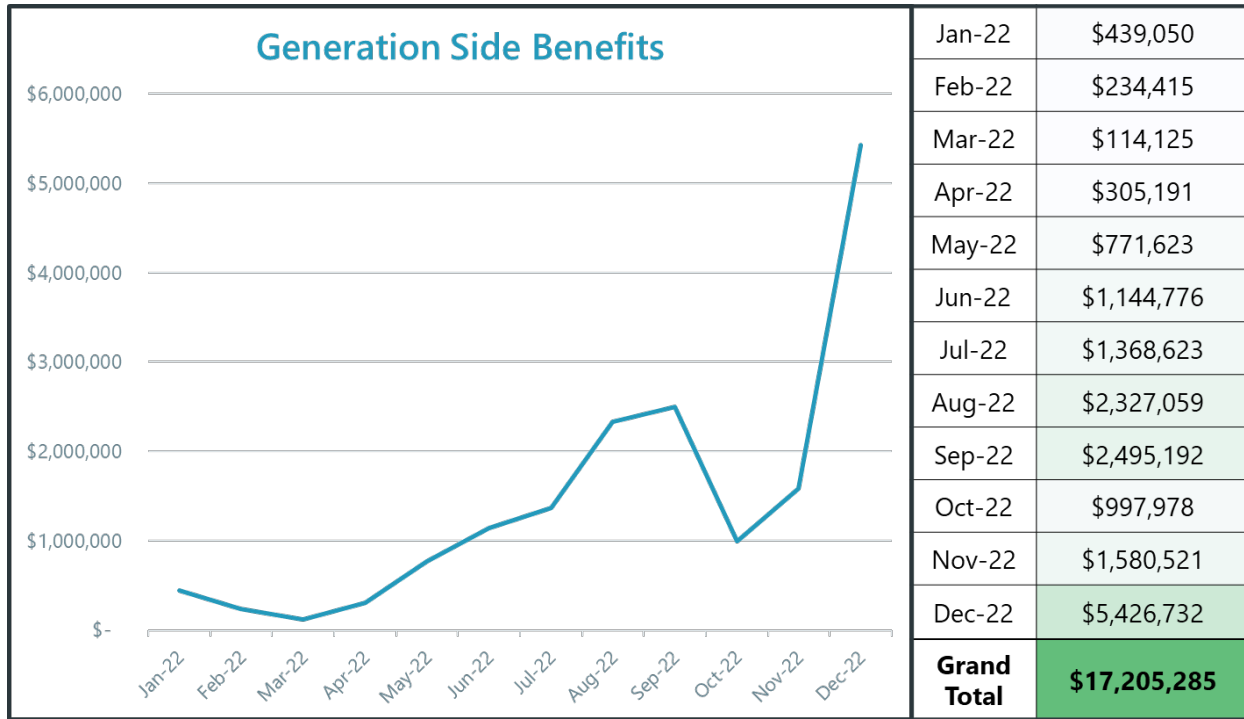
**Figure 4: Load benefit using the marginal cost method.**



## GENERATION SIDE BENEFITS

In addition to the cost reduction for the WEIS participating load, the generators are paid the imbalance revenue based on the LMP multiplied by the imbalance MW quantity. The generators' costs are calculated using the incremental energy offer curve, and the generator's **net benefit** is equal to the revenues minus the costs. This benefit is not captured in the load side benefit because it is estimated to buy at the LMP, often greater than the generator cost.

**Figure 5: Generation benefit.**



# CONCLUSION

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SPP's WEIS provides significant, measureable value to its participants. The analysis of 2022 data found annual **net benefits** to WEIS participants of **\$31.7 million**.

When compared to the cost to participants of \$4.7 million to operate the WEIS, services are provided at a **benefit-to-cost ratio of 7-to-1**.

On average, SPP's WEIS participants realized savings of **\$1.35 per 1,000 kilowatthours**.