



Heat Wave Energy Cost Analysis

September 2022 heat wave impact

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September Heat Wave

- The September 2022 heat wave lasted from September 5th through September 8th and the CAISO was very close to intentionally blacking out parts of the grid (“load shedding”)
- To estimate the cost impact Gridwell estimated wholesale energy market cost to serve load during a representative period in summer 2022 and compared the costs between a “representative 4-day period and the heat wave period in September
- Total wholesale costs included both “in-market” and “out-of-market” costs based on publicly available CAISO data at that time
- Costs in this study do not reflect the transmission access charge (TAC) as that is a fixed \$/MWh fee and would be the same under both cases, thus would not contribute to any change in cost to serve load during heat wave
 - Therefore, our estimate should be considered a *lower bound* on the costs of not having sufficient capacity



Heat wave impact on costs to CAISO load

- Total CAISO costs and total demand increased during the heat wave, which increased costs to ratepayers **by over \$1 billion dollars**
- Overall, costs to serve load increased from an expected **\$75/MWh to \$354/MWh**
- These costs would have been avoided if there were additional capacity online to meet the increased demand

Cost Category	Impact of Heat Wave
Total In-Market Costs (Energy, Reserves)	\$1,129,012,262
Out-of-Market Costs	\$8,125,273
Total Cost Increase	\$1,137,137,535
Total Load (4 days)	1,141,735 MWh
<i>Total Increase in Cost per MWh</i>	<i>\$279</i>



Final thoughts

- California is just now starting to ask the right question of “*what level of reliability standard should we be planning to?*”
- When one heat wave can directly increase costs to ratepayers over \$1 billion dollars for four days, there are tangible and significant monetary savings of supporting a consistent reliability standard



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More Questions? Contact us!

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Appendix

Additional Slides

Comparison of Heat Wave impact estimates

- CAISO issued its [September Heat Wave 2022](#) report on November 2, 2022
- Gridwell and CAISO estimates are within reasonable ranges
- Based on information in the report, the estimated cost to serve load reached a maximum of approximately \$425/MWh on Sept 6, compared to Gridwell's estimate of \$354/MWh from Sept 5-8
- CAISO's heat wave report indicated the Sept 5-8 heat wave increased average cost to serve load by approximately \$300/MWh, compared to Gridwell's estimate of \$280/MWh
- Difference between Gridwell and CAISO's estimate is likely driven by the CAISO including costs not publicly available and thus not included in Gridwell's estimate

