

LTEMP Resource Goal 4. Hydropower and Energy

“Maintain or increase Glen Canyon Dam electric energy generation, load following capability, and ramp rate capability, and minimize emissions and costs to the greatest extent practicable, consistent with improvement and long-term sustainability of downstream resources” (U.S. Department of the Interior [DOI], 2016).

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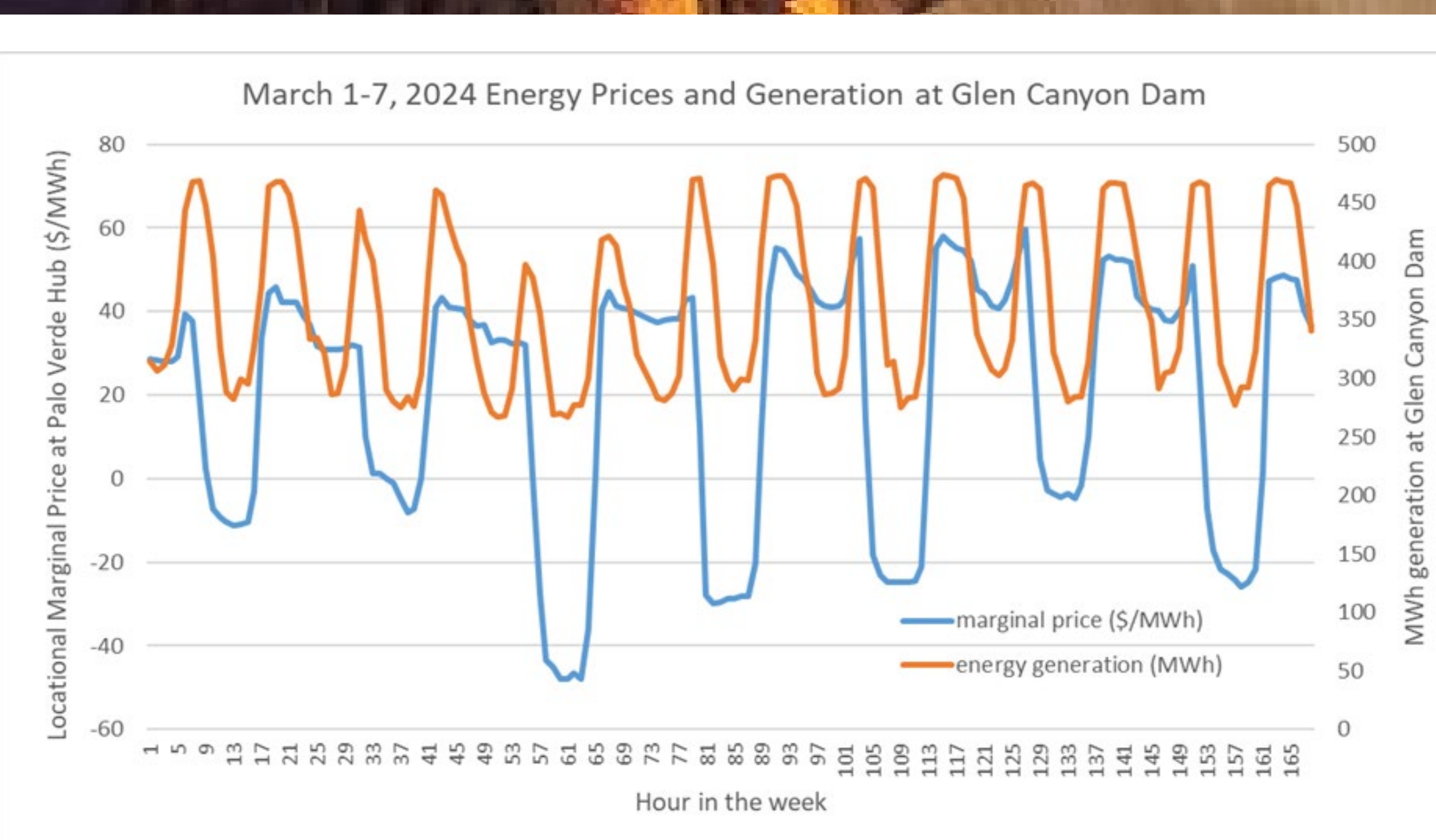


Figure 4.2. Hourly energy generation at Glen Canyon Dam (USBR, 2025) and the locational marginal price (CISO, 2025) of energy at the Palo Verde Hub for March 1–7, 2024. Energy prices exhibit a bimodal pattern over the 24-hour cycle, highlighting the significant influence of renewable energy, in this example solar energy, on hourly locational marginal prices during this time of year. Energy generation at Glen Canyon Dam closely follows the fluctuations in locational marginal prices. Provisional data, subject to change.

References Cited

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FROM Glen Canyon Dam Adaptive Management Program, 2025, Status report on the Long-term Experimental and Management Plan metrics for the Glen Canyon Dam Adaptive Management Program—December 11, 2025: Flagstaff, Ariz., U.S. Geological Survey, Southwest Biological Science Center, Grand Canyon Monitoring and Research Center, 114 p., <https://www.usbr.gov/uc/progact/amp/twg/2025-12-11-twg-meeting/uc-gcdamp-twg-ltempmetrics-statusreport-508-20251211.pdf>

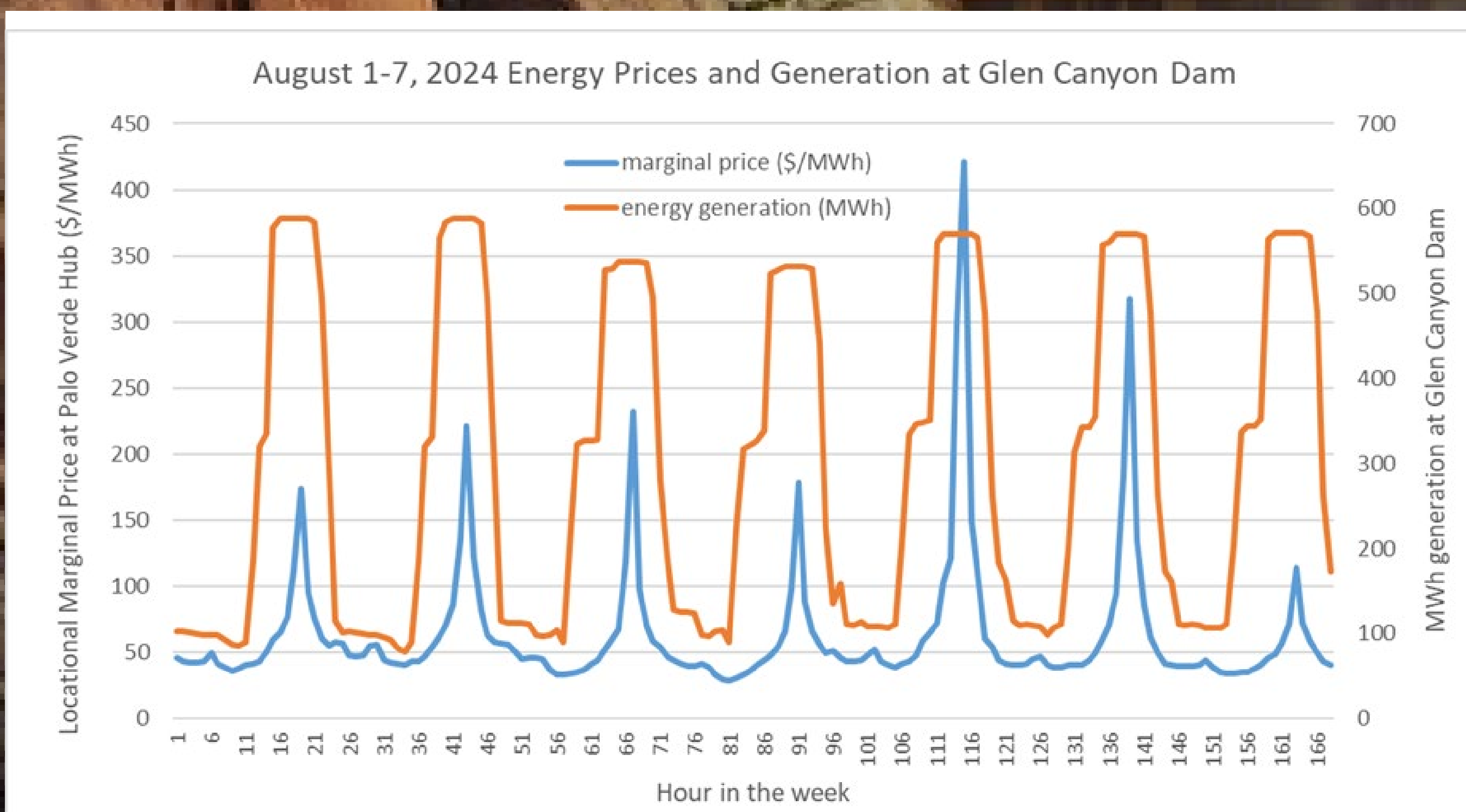


Figure 4.3. Hourly energy generation at Glen Canyon Dam (USBR, 2025) and locational marginal price of energy (CISO, 2025) at the Palo Verde Hub for August 1–7, 2024. Prices exhibit single daily peaks, in one instance reaching upwards of \$400/MWh, driven by high energy demand during this time of year. Energy generation at Glen Canyon Dam aligns with the fluctuations in locational marginal prices. Provisional data, subject to change.

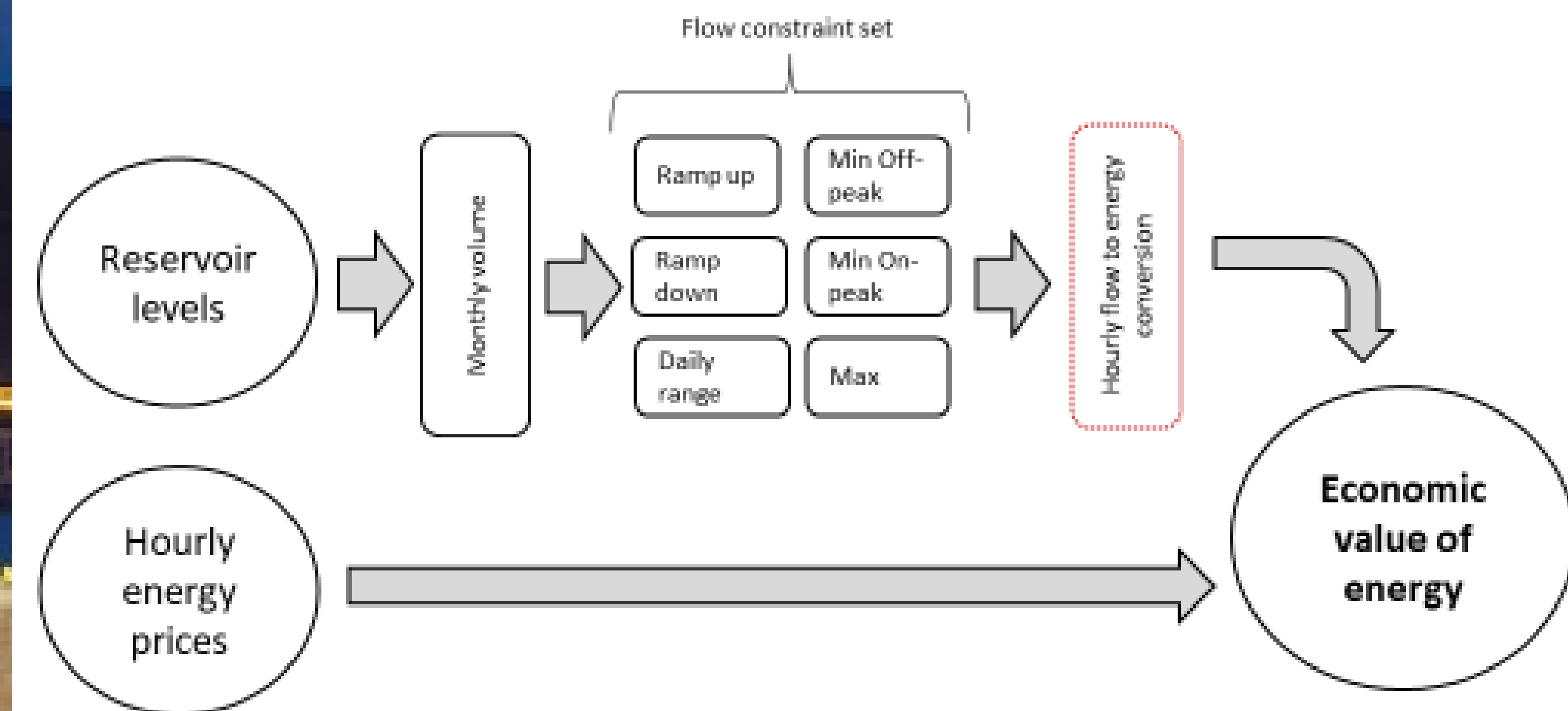


Figure 4.1. Conceptual model of drivers affecting the economic value of energy generation at Glen Canyon Dam. The economic value of energy generated at Glen Canyon Dam is constrained by drivers that are independent of within-year dam operations (reservoir levels, hourly prices, monthly releases) and drivers that are dependent on within-year dam operations (daily flow constraints).

2024 Monthly Economic Value of Hydropwer at Glen Canyon Dam

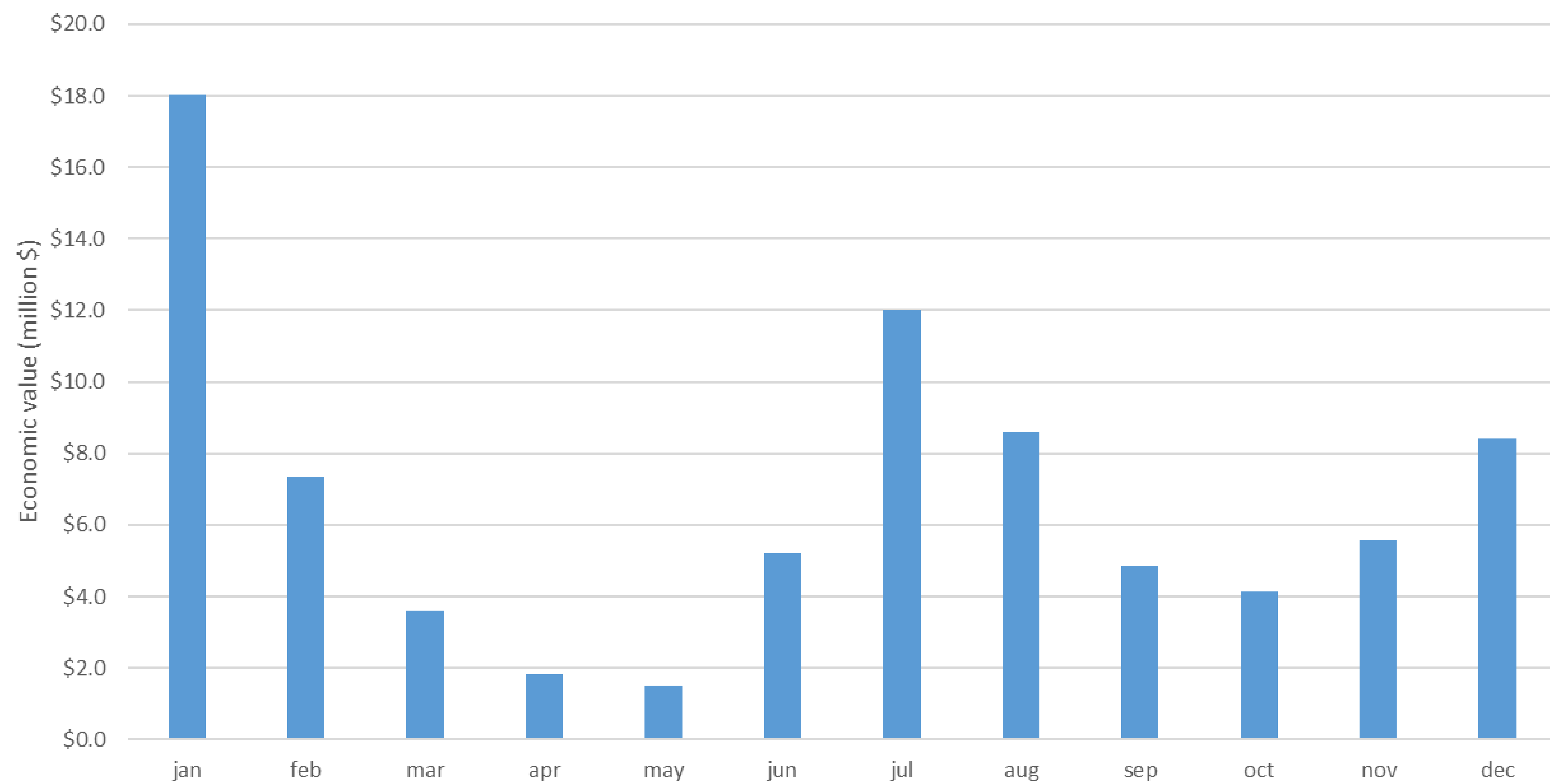


Figure 4.4. Monthly economic value of energy generated at Glen Canyon Dam in 2024 (data from USBR, 2025 and CISO, 2025). Provisional data, subject to change.