

CASE STUDY · ELECTRIC COOPERATIVE

CoastalGrid Cooperative

Battery Storage Peak-Shaving Deployment Cuts Demand Charges 19 Percent

SUMMARY

HydroLabs designed and commissioned a 20 MW / 80 MWh battery storage system for CoastalGrid Cooperative, reducing wholesale demand charges by 19 percent in the first full year of operation.

19% DEMAND CHARGE REDUCTION	20 MW / 80 MWh SYSTEM SIZE	All but 1 PEAK EVENTS AVOIDED	9 months COMMISSIONING DURATION
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The Problem

CoastalGrid Cooperative, a member-owned electric cooperative, faced rising wholesale demand charges driven by a small number of annual peak demand events, but lacked the generation capacity or budget for conventional peaking capacity to manage those events.

The cooperative's board needed a capital-efficient solution that member ratepayers could clearly see delivering value, given the cooperative's transparent, member-governed capital approval process.

Our Solution

HydroLabs conducted a detailed load analysis to size a battery storage system specifically against the cooperative's actual historical peak event profile, rather than a generic capacity sizing rule of thumb, to right-size the investment against realistic demand charge exposure.

We led vendor selection and full technical specification for a 20 MW, 80 MWh LFP battery storage system, and provided owner's engineer oversight through commissioning, including validation of the dispatch algorithm against the cooperative's actual tariff structure.

Our team also developed a clear, board-ready return on investment tracking framework so cooperative leadership could report concrete demand charge savings back to member ratepayers each year.

Timeline

Load Analysis & Sizing	5 weeks — peak event analysis, system sizing study
Vendor Selection & Specification	8 weeks — technical specification, vendor evaluation
Owner's Engineer Oversight	9 months — design review through commissioning

Results

- Wholesale demand charges fell 19 percent in the first full year of system operation, directly attributable to the battery system's peak-shaving dispatch during the cooperative's highest-cost demand events.
- The dispatch algorithm, validated against the cooperative's actual tariff structure during commissioning, successfully avoided all but one minor peak event in the first year, which was traced to an unusual weather-driven demand spike outside the system's original design assumptions and addressed through a dispatch logic update.
- Board-ready ROI reporting supported the cooperative's decision to evaluate a second, larger storage deployment the following year.

