Backup Power Sizing and Operating Risk

> Backup generation should protect the loads whose outage cost exceeds the cost of capacity and fuel.

Backup power is a risk decision. Identify the loads that must continue, then size the system for their real starting and running demand.

Define the decision before comparing options

Start with the operating constraint and the outcome that matters. Put volume, time, cost, and service assumptions in one place so the comparison answers a real decision rather than a vague preference.

Worked example from the live calculator

For 200 kW critical load and a 50 kW motor with a 3x starting surge, the live generator calculator requires 300 kW, not the 200 kW running load. Eight hours of operation costs $672 at the stated fuel inputs.

Use the linked engines as a decision chain

These engines address different parts of the same choice: generator-sizing, peak-demand-charge-planner. Run them in sequence, carrying the measured constraint and stated assumptions forward instead of re-entering convenient defaults.

Turn the result into an operating action

Use the recommended option as a trigger for a manager review. Confirm the input data, identify the condition that would flip the result, assign an owner, and revisit the choice when demand, cost, or capacity changes.

Key takeaway. A trustworthy operating decision is a chain of measured constraints and explicit tradeoffs, not a single isolated calculation.

Assumptions

- Use current local costs, capacities, and operating constraints before acting on a planning result.

Sources

- Platform calculation models and stated operating assumptions

Frequently asked questions

Does this replace local operating judgment?

No. It organizes the tradeoffs and shows which input can change the recommendation.

What inputs deserve the closest review?

The inputs with the largest cost, service, or capacity effect in your actual operation.

How often should this be revisited?

Whenever demand, labor cost, lead time, utilization, or the operating constraint changes materially.

Operations Decisions is a set of transparent decision engines for physical operations, not a guarantee of any outcome. This guide is educational.