Rethinking Festival Power

Diesel vs. Battery Systems: A Cost, Impact, and Experience Comparison

Presented by REVERB

How We Power Events Matters

Energy is one of the biggest behind-the-scenes expenses for live music, and one of the largest sources of emissions. Festivals are increasingly interested in lower-carbon power that align with their values.

REVERB's **Music Decarbonization Project** was launched in 2023 in partnership with Billie Eilish. We have worked to pilot clean mobile power solutions for live music throughout the US. With power partner support, we are helping festivals transition to battery and hybrid systems that cut emissions, reduce noise, and elevate the concert experience without compromising performance.

Clean, Silent and Emissions-Free Battery Power is Feasible

Most festivals still default to diesel because it's familiar, fast, and already in the inventory for power providers. But more producers are asking: *Can I use battery systems to power my festivals needs?*

The answer is yes. Festivals like Lollapalooza, Portola, Luck Reunion, Healing Appalachia, Coachella, Camp Flog Gnaw, and Austin City Limits, and even Glastonbury and Massive Attack abroad, have already made the switch on major stages and festival services.

Batteries are replacing diesel generators by matching the specified requirements backuped/charged by grid power, solar, or high-efficiency diesel generators. And they're more than capable of handling even the biggest stage demands.

Right Size Your Power - Measure with Battery-Systems

Battery systems also track the data we need to "right-size" power sources, leading to even more cost-savings down the line. We see that production teams are often asking for too much power both because of industry norm but also due to the unique environment of each show.

In 2024, across festival stages ranging from small (stageline SL 260) to large (SL 575 with IMAG), we saw less than 20% of available power being used. Artist production teams often ask

for 3x more than they use, and generator companies will add another 2x on top of this for redundancy

This excess capacity becomes an issue with diesel generators because they are much less efficient at low loads. Battery systems are far more efficient than generators when underutilized. By using batteries or a combination of diesel and battery systems (hybrid power) production teams can still have highly redundant power without the excess fuel costs and carbon emissions.

Luck Main Stage Battery

Is Battery Power Right for Your Festival?

Use this worksheet to assess your power plan, ask questions of your power team, and bring us in to explore options. We may be able to help cover the cost difference for battery systems - or connect you with other potential sponsors.

1. **Understand your power needs (based on diesel fuel specs)**
    - Identify what sized generators have been used in the past and for which areas.
    - Compare this to production power requests to understand redundancy needs.
    - Flag equipment with special requirements (e.g. HVAC, heavy lighting, LED walls).
2. **Know the production schedule**
    - What items need uninterrupted power?
    - What hours do loads that get powered down operate?
    - When do uninterrupted power needs begin and end?
3. **Review site layout**
    - Where are potential grid connections located and what are their specifications?
    - Is there space for solar - typically unshaded south-facing with a clear view of the sky?
    - Is there space for off-site or back of house solar fields for battery charging?
    - Are power locations easily accessible by forklift for battery swapping?
4. **Regulatory/permitting requirements**
    - What permitting is required by the municipality?
    - What is required by fire marshalls?
    - What kind of inspections should you expect?
5. **Understand your power vendor options**
    - What types/sizes of battery units do they have?
    - Where are they geographically located?
    - What experience do they have in live event production?
    - Can they collaborate with a REVERB-vetted clean power provider?
6. **Consult with REVERB**
    - We'll help review your needs, recommend the best-fit clean power setup, and connect you with providers.
    - Our partners offer pre-event site visits, hybrid system design, and full setup/support during your festival.
7. **Get a Side-by-Side Estimate**
    - We'll help you compare diesel vs. battery/hybrid in terms of total cost, labor and logistics, noise and emissions, brand/sponsor alignment, permitting and risk
8. **Make the Switch–Even Just for One Stage**
    - Start small if needed: a side stage, the VIP lounge, or the artist village are great candidates for clean power pilots.

Is Battery Power More Expensive?

Examples from Music Decarbonization Project

Battery powering a festival shouldn't be more expensive, but it does depend on where your located and what service providers are available. But as more festival production teams request battery-systems for their festivals, availability of the technology will increase and costs will come down. Below we outline rental and fuel costs from a few festivals we worked on in 2024-25 of various sizes.

These case studies reflect REVERB and Overdrive Energy Solutions' real-world experience. All cost estimates only include equipment rental and fuel. Diesel and battery setups were sized comparably - savings come largely from reduced fuel use in hybrid systems, where generators run more efficiently at optimal loads.

Distribution equipment costs (like transformers and feeders) are generally similar. Early planning can lower these costs–*Luck Reunion* is one example where optimized placement reduced overall power budget spend. Permitting and inspections for temporary battery systems are typically no more complex than for diesel. Fire marshals usually treat them the same; stricter rules only typically apply to permanent installations.

Labor and setup costs are assumed to be similar. Shipping costs vary too much by site to include here. This is often where you see the costs of battery systems become greater than generators due to lack of availability and bringing in non-local experts.

Batteries Deployed at Portola

Note: The following are real-world examples, but actual costs may vary based on vendor rates, region, fuel prices, and site logistics. Many festivals see higher baseline costs. Our goal is to show where savings are possible with better planning and right-sized systems. As teams gain experience with right-sizing and hybrid setups, we've seen consistent year-over-year cost improvements.

Case Study A: Luck Reunion 2025

Scenario Comparison of Diesel Generator Costs v. Grid Hybridized Battery Costs

Luck Reunion 2025 powered all stages and services with hybridized grid/battery power. The below chart shows a cost comparison for the main stage if we had used diesel generators versus the grid hybridized battery system. This festival had 5,000 attendees/day and the main stage was powered for 24 hours/day over 4 days with grid hybridized battery systems with a 240V 100A grid connection available.

Power Source	Auxiliary Equipment	Labor & Setup	Fuel	Estimated Total Cost*
2 x 140A 3-phase Diesel Generators	Transformer and feeder long enough to remotely position generator	Batteries have more equipment flexibility + no transformers = significantly fewer labor hours	900 gallons of diesel	**$5,800**
360A (peak) Redundant, Grid Hybridized Battery System	No transformer needed, much less feeder required		None required, batteries boost existing house power	**$2,800**

**Costs include generator/battery rentals for 7 days, fuel costs, labor and distribution equipment, and assumes diesel fuel cost of $4.00/ gallon. They do not include freight costs.*

The battery system was quiet, emissions-free, and required just one setup–improving backstage conditions for artists and crew. A previously unusable grid connection was boosted and backed up by batteries to power the entire festival, costing less than diesel would have. We can expect even lower costs next year due to the efficiency learnings from the data measurements performed in 2025.

Case Study B: Camp Flog Gnaw Flog Stage

Scenario Comparison of Diesel Generator Costs v. Hybridized Battery Costs

The power set up deployed was a redundant battery/diesel system that powered one stage. Another stage was hybridized by CES, but that data is not reflected here. This event hosts 25,000 attendees/day, and this stage was powered for 24 hours/day over 4 days.

Power Source	Equipment	Labor & Setup	Refueling	Estimated Generator Cost with Fuel*
480kW Diesel Twin-Pack	Transformer and feeder long enough to remotely position generator	Batteries placed directly next to the stage with no spill containment required	Estimated 2100 gallons of diesel	**$20,000**
490kW Redundant Battery/Diesel Hybrid	Transformer still required, but less feeder as batteries can move closer		228 gallons used	**$11,100**

**Costs include generator/battery rentals for 7 days, fuel costs, and assumes a diesel fuel cost of $6.00/ gallon. We exclude labor and distribution costs as they were roughly equal in each scenario.*

This was the first major US Hip Hop festival with hybrid battery-powered stages. Music Decarbonization Project also supported the hybridization of a second stage with CES, although that data is not reflected here. The battery systems were quiet, reduced emissions, and required just one setup–improving backstage conditions for artists and crew. The diesel generator was run at peak-efficiency by charging batteries while providing 100% redundant power, resulting in significant fuel and cost saving at the stage powered by Overdrive Energy Solutions.

Case Study C: Portola Ship Stage

Scenario Comparison of Diesel Generator Costs v. Hybridized Battery Costs

Overdrive Energy Solutions provided hybridized battery and diesel systems on the Ship Stage and other service areas. The data below reflects the Ship Stage. This festival hosted 45,000 attendees/day, and the Ship Stage was powered for 24 hours/day over 7 days. This was the first major festival stage in California powered by hybrid battery systems. Across the festival, the battery systems reduced emissions by 99% and allowed the stage power to be silent during the shows.

Power Source	Equipment	Labor & Setup	Refueling	Estimated Generator Cost with Fuel*
1000kW Diesel Twin-Pack	Transformer and feeder long enough to remotely position generator	No need for spill containment despite generators being on a natural body or water.	Estimated 3000 gallons of diesel	**$23,700**
990kW Redundant Battery/Diesel Hybrid	transformer and feeder long enough to remotely position generator		260 gallons of diesel used	**$20,600**

**Costs include generator/battery rentals for 7 days, fuel costs, and assumes a diesel fuel cost of $6.00/ gallon. We exclude labor and distribution costs as they were roughly equal in each scenario.*

Learnings

- Battery systems may cost more upfront, but a reduction in fuel, fuel logistics, and maintenance lead to a net cost savings for many shows
- Battery and hybrid systems reduce generator noise and fumes, improving artist performance spaces and the fan experience.
- Clean power is a visible, verifiable climate action, and a compelling story for artists, partners, and press.

Partner Spotlight: Overdrive Energy Solutions

One of REVERB's most trusted partners in clean event power is **Overdrive Energy Solutions**. Overdrive is leading the charge in modernizing power delivery for live music events through innovative, sustainable, and high-performance battery and hybrid systems.

Why Overdrive Stands Out:

- **Field-Tested Expertise**: Overdrive has powered everything from intimate artist lounges to full-scale festival stages, ensuring performance without compromise.
- **Turnkey Support**: From planning and logistics to onsite setup and operation, Overdrive makes clean power seamless.
- **Smart Hybrid Integration**: Their systems intelligently manage battery, solar, and backup generators for peak efficiency and reliability.
- **Data Transparency**: Overdrive provides emissions reporting and power usage insights to help events track and tell their sustainability story.
- **Artist-First Design**: Silent operation and lower local emissions make Overdrive's power set ups a favorite for artists, crews, and fans alike.

REVERB and Overdrive have collaborated on multiple successful clean power pilots, and we're ready to help your event become the next.

REVERB Support

We're happy to support your vision for a lower-emissions festival. Depending on the size, location, and our own capacity, we can support you in connecting you with power provider partners. We can also introduce you to partners who can measure your power use and help you optimize that use. If you successfully plan and execute a low-carbon festival, let us know - we're happy to promote your work!

About the Music Decarbonization Project

Launched in 2023, REVERB's Music Decarbonization Project fast tracks innovative climate solutions to directly eliminate carbon emissions produced by the music industry. We have powered 230+ artist sets across 19 major stages, avoiding 160 metric tons of CO_2e and saving 18,000+ gallons of diesel. With support from our power provider and industry partners, we have deployed clean power solutions at Lollapalooza, Luck Reunion, Camp Flog Gnaw, Austin City Limits, Portola, Healing Appalachia, SXSW Community Concerts, and Higher Ground's Summer Concert Series.

About REVERB

REVERB is the music industry's leading sustainability partner. With over two decades of experience, the environmental nonprofit has worked with artists across all genres to green tours, reduce carbon emissions, engage fans, and drive funding for climate and social action initiatives. REVERB's 360 degree model—from backstage to front-of-house—makes it easy for artists and the industry to have a meaningful, measurable impact on protecting people and the planet.

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