What to Check When Choosing a Generator for Temporary or Standby Power

When the grid goes down or a job site has no utility power yet, a generator becomes the backbone of the operation. The question is not just whether to buy one, but which machine will actually deliver when it matters. A diesel generator is often the first choice for temporary and standby power because of its fuel efficiency, durability, and long runtime between refuels. Still, picking the right unit requires more than matching the wattage on the spec sheet. Here are the critical points to check before you commit to a purchase.

Match the Rated Output to the Actual Load

Every generator has a rated output, usually given in kilowatts (kW) or kilovolt-amperes (kVA). That number tells you the continuous power the machine can supply under normal conditions. But the load you connect rarely draws a flat, steady amount. Motors, pumps, compressors, and even some lighting circuits pull a surge of current when they start up, sometimes two to three times their running wattage. If your total starting current exceeds the generator's capacity, the unit will trip a breaker, stall, or overheat. The safe approach is to list every device you plan to power, note both its running and starting watts, and then add a margin of at least 20 percent above the highest starting load. That buffer accounts for future additions and for less-than-ideal operating conditions like high altitude or hot ambient temperatures, which reduce engine power output.

Fuel Consumption and Tank Size Determine Runtime

Diesel generators are valued for their low fuel consumption per kilowatt-hour, but exact numbers vary with load. A generator running at 75 percent load burns more fuel per hour than one loafing at 25 percent, yet the efficiency curve is usually best between 60 and 80 percent of rated output. Running a machine far below its sweet spot wastes fuel and can cause wet stacking, a condition where unburned fuel collects in the exhaust system, leading to carbon buildup and eventual engine damage. The tank size matters just as much. For standby duty, a large integral tank can keep you running through a long outage without a refuel. For temporary job sites, you may rely on a separate day tank or a bulk fuel supply. Check the tank capacity in hours at the expected load, and plan for refueling intervals that are practical for your schedule and site access. A generator that needs refueling every four hours may be fine for a daytime event but useless for overnight standby.



Transfer Switch Compatibility for Standby Installations

If the generator is intended for standby power at a fixed location, it must work with a transfer switch. The transfer switch disconnects the building from the utility grid and connects it to the generator, so the two power sources never conflict. Manual transfer switches are simpler and cheaper, but they require someone to be on site to throw the switch and start the generator. Automatic transfer switches detect a utility failure, start the generator, and transfer the load without human intervention. They also run the generator periodically to keep it ready. When selecting a generator, confirm that its output voltage, phase, and frequency match the transfer switch and the building's electrical system. Three-phase generators need three-phase transfer switches. Single-phase units need single-phase switches. Mixing them up can damage

equipment or create a safety hazard. For temporary power on a job site where there is no existing building electrical system, a portable distribution panel or a load bank may replace the transfer switch, but the same principle applies: the generator must be properly connected to whatever distribution equipment you use.

Power Distribution and Load Bank Testing

Getting power from the generator to the equipment is a step many buyers overlook. A generator with a single receptacle or a hardwired output needs a distribution panel or a set of feeder cables to reach multiple loads. For job sites, a power distribution box with several breakered outlets lets you connect tools and lights safely. For standby installations, the generator output goes through the transfer switch to a subpanel or directly to the main panel. A load bank is a useful tool for testing a generator under a controlled load without connecting your actual equipment. It lets you verify that the generator can handle its rated output, that the voltage stays stable, and that the cooling system works properly. Load bank testing is especially important for standby generators that may sit idle for months, because a unit that starts cleanly under no load can still fail when a real load hits it. If you plan to commission a new generator or bring an older unit back into service, consider renting or buying a load bank for the initial test run.

When you are evaluating options, a marketplace like ePowerhouse LLC can help you compare machines from multiple manufacturers side by side. That kind of access lets you focus on the specifications that matter rather than on brand loyalty or a single dealer's inventory. The key is to go in with your load list, your runtime requirements, and your site conditions already written down.



Starting System and Cold-Weather Readiness

Diesel engines rely on compression heat to ignite fuel, so they can be harder to start in cold weather than gasoline engines. A generator intended for standby service in a cold climate should have a reliable starting system. Battery-based electric start is standard on most mid-sized and large units, but the battery must be kept charged. Some generators include a battery charger that runs off the utility power or from the generator itself once it is running. In very cold conditions, a block heater that warms the engine coolant before starting can make the difference between a unit that fires up immediately and one that cranks slowly for minutes. For portable generators used on temporary sites, a recoil starter is common on smaller units, but electric start is more convenient for larger machines. Also check the oil viscosity

recommended for the ambient temperature range. Multigrade oils like 15W-40 work well across moderate climates, but arctic-grade oils may be needed for sustained operation below freezing.

Noise Level and Emissions Compliance

Noise is not just a nuisance; it can violate local ordinances and cause friction with neighbors or site managers. Diesel generators are inherently louder than inverter-style gas units, but modern enclosures and muffler systems reduce the sound significantly. Look for a generator that lists its sound level in decibels at a standard distance, usually 7 meters or 23 feet. A unit rated at 75 dBA at that distance is typical for open-frame industrial sets, while sound-attenuated enclosures can drop that to 65 dBA or lower. For standby installations near residences or in commercial districts, a sound-attenuated enclosure is often required by code. Emissions compliance is another regulatory layer. The Environmental Protection Agency (EPA) and state authorities set limits on nitrogen oxides, particulate matter, and carbon monoxide from diesel engines. Tier 4 final engines, which use exhaust after-treatment like selective catalytic reduction or diesel particulate filters, are the current standard for new equipment in many jurisdictions. Older Tier 2 or Tier 3 engines may still be legal for rental or temporary use in some areas, but they can face restrictions in non-attainment zones. Check the engine certification label and confirm it meets the requirements of the site and the local air quality district.

Serviceability and Parts Availability

A generator that is hard to service will cost you downtime and frustration. Look for a model with easy access to the oil drain, fuel filter, air filter, and coolant drain. A drain valve or a hose extension for the oil sump makes routine oil changes much cleaner and faster. The control panel should be intuitive, with clear labels and a digital display that shows voltage, frequency, hours run, and fault codes. For field repairs, parts availability matters more than the brand name. Engines from major manufacturers like Cummins, John Deere, or Yanmar tend to have wide dealer networks and stocked spare parts. Obscure engines may require long lead times for even a simple fuel filter. If you are buying a used generator, ask for service records and check the hour meter. A machine with a few hundred hours is still young, while one with over ten thousand hours may be nearing a major overhaul. The availability of a local service technician who is familiar with that specific engine and controller is a practical advantage that no spec sheet captures.



Generators from ePowerhouse LLC often come with detailed spec sheets and manufacturer support, which simplifies the research process. The marketplace model gives you a broad view of what is available, but the final decision still rests on matching the machine to your actual working conditions. Take the time to verify each of these points before you sign the order, and the generator will serve you well through outages and job after job.