

Technical perspective

Kirloskar Green DG sets Paralleling



Introduction

Parallel standby power solutions have always offered significant advantages, applications and large panel board. To achieve the benefits of parallel generation Kirloskar Oil Engines differs a truly integrated solution through its product line.

Benefits of Paralleled Generation

benefits

limited

Key Points :

- Parallel power solutions offer superior compared to single generator configurations.
- Traditional paralleling solutions have application due to cost and complexity.
- Complexity in traditional systems results from the use of four to six micro-controllers per generator.

paralleling

- An integrated approach to generator paralleling can be as simple, and often more cost effective, than single generator configurations.
- Kirloskar Green offers integrated paralleling solutions for diesel, natural gas, and bi-fuel configurations.

Some of the benefits of placing multiple generators in parallel include cost effectiveness, increased reliability, flexibility, expandability and serviceability.

1. Cost effectiveness

The sets operate at optimum load thus giving better fuel efficiency and better life of DG sets. In case of single DG set, the set may operate at lower loads leading to problems of higher fuel and lube oil consumptions.

2. Reliability

The redundancy inherent in parallel power generation provides significantly greater reliability for critical loads. For example, if the reliability of standby generator is defined at 98%, an N+1 configuration has a reliability of 99.96% and an N+2 configuration has a reliability of 99.999%. In a parallel configuration, if one generator fails, the most critical loads are redistributed among the other units in the system. Given typical applications and load factors, the load requiring the highest degree of reliability is often only a fraction of the total generation capacity. Redundancy is achieved without the addition of costly under-utilized generators.

3. Flexibility

Utilizing multiple smaller generators instead of a single large unit offers greater location flexibility. The ability to distribute weight over a wider area makes rooftop installations more feasible. A lower profile makes installation in parking garages and other restricted areas possible. Kirloskar's MPS units do not have to be grouped together, so it's possible to take advantage of multiple smaller spaces.

4. Expandability

When sizing generators, it is often difficult to adequately plan for anticipated load growth. If load projections are too aggressive, initial capital expenditures may be higher than necessary. If load projections are too low, the facility may be left without reliable standby power or may require expensive generator upgrades. Option of paralleling has advantage of adding additional sets depending upon increased loads.

5. **Serviceability**

With multiple generators available, individual units can be taken out of service for repair or maintenance without losing standby power for critical circuits. This feature enhances reliability and reduces the need to bring a backup rental generator to the site.

6. Paralleling with generators of power by different sources. DG sets can be operated in parallel operations with Turbines, Natural gas, bio fuel configurations.

7. Paralleling of multiple sets can be automatically or manual. Auto-parallel operation offers advantage of selection of next DG set based on load requirement thus gives advantage of fuel efficiency.

