PERFORMANCE STANDARD FOR

PEAK SHAVING CONTROLS

EGSA 100P, 1995a

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EGSA 100P 1995-A
ENGINE DRIVEN GENERATOR SETS
PERFORMANCE STANDARD

1.   SCOPE

This standard is set forth to define methods of control necessary for the utilization of on-site generator sets for peak shaving (utility peak demand reduction).

2.   REFERENCE STANDARDS

EGSA-101S	Standard Specifications for Standby Engine Driven Generator Sets
EGSA-100M	Standards for Multiple Generator Sets
EGSA-100S	Performance Standards for Transfer Switches for Use with Engine Generator Sets
EGSA-100D	Performance Standard for Generator Overcurrent Protection 600 Volts and Below

3.   DEFINITIONS

Demand Charge. This charge is assessed in direct proportion to the peak kilowatt demand in dollars per KW. The billing demand may be a function of any one or more of the following:

(a.)   Maximum average kilowatt demand over a given demand interval (typically 15 minutes).

(b.)   Maximum kilowatt demand for a given demand interval, ratcheted for the next 12 month period. (The ratchet term or "clause" establishes a new peak demand for 12 months each time the previous peak is exceeded).

(c.)   Maximum kilowatt demand for a given demand interval established during certain peak months (usually the summer months in warm climates).

(d.)   Combination of (a.) or a percentage of (b.) or (c.), which ever is greatest.

(e.)   Either the maximum demand during the daily on-peak period (typically 8:00 AM to 8:00 PM) or a percentage of the maximum demand during the off-peak periods, whichever is greater.

Energy Charge. This charge is assessed in cents per kilowatt hour of electrical energy consumed.

Fuel Adjustment Charge. This charge is based on the difference in the cost of fuel to generate KWH consumed between the cost at issuance of the applied rate schedule and the present cost of fuel. This cost is divided across total utility KWH supplied and applied to all rate classifications.

Interruptible Rate. A favorable rate offered by utility companies to customers with on-site power. Customers are notified to utilize their on-site generators during peak demand periods.

Load Factor. A measure of the efficiency of use of the energy consumed in a billing period. Determined by:

$$\text{Load Factor} = \frac{\text{KWH consumed in billing period}}{\text{Billing KW demand X hours in billing period.}}$$

It is an indication of the shape of the load profile.

Peak Shaving (Peak Demand Reduction). Reducing the maximum electrical demand in an attempt to reduce electrical charges. For purposes of this standard the method of peak shaving shall be restricted to the use of on-site generation. Since the economic feasibility of peak saving is dependent on the applicable utility rate schedule as well as the load profile, it is important to have an understanding of the various factors which relate to these rates:

Service Charge. This charge is assessed as a flat rate for connection to the utility grid. It is intended to cover cost of metering, facilities charges and consumables such as magnetic recording tape, etc. This charge will range from a few dollars to hundreds of dollars depending upon the utility company and the rate schedule applied.

4. RATINGS

Ratings of the peak shaving system generally refer to the capacity of the total system. For example, the rating may refer to the KW or amperage of the load to be shaved or the standby or continuous duty rating of the generator set.

5. CLASSIFICATION

5.1 **Load Transfer.** This method involves the transfer of specific building loads from utility source to the generator set(s). In this type of system, the generator sets are always kept isolated from the utility source.

5.2 **Parallel Operation.** This method involves operation of the on-site generator set or sets in parallel with the utility grid. The amount of power is regulated by the system controls.

6. APPLICATION DATA

For the Load Transfer mode of operation, standard generator set designs may be applied with the addition of a start/stop control to manually or automatically start up or shut down the generator. Automatic control equipment may be selected to start or stop based on load demand, time of day (for load peaks that occur regularly), or other indications.

For Parallel Mode refer to EGSA Standard 100D.

7.   MINIMUM PERFORMANCE SPECIFICATIONS

The required control equipment will be a function of the method utilized as well as system design. In general, minimum performance specifications will be the same as when specifying equipment for use in standby or emergency systems. Refer to Paragraph 2.

8.   OPTIONAL PERFORMANCE SPECIFICATIONS

8.1   **Automatic Transfer Switches.** The Automatic Transfer Switch to be utilized for peak shaving may or may not be used for emergency transfer as well. In case of a normal source outage when in the peak shaving mode, any non-emergency loads, which might result in generator overloading, must be shed immediately, allowing the emergency load to be transferred and connected. In the case of a multiple generator set installation, the shed loads may be reconnected when sufficient generating capacity is available.

8.2   **Parallel Operation.** Systems which operate in parallel with the utility require special considerations. Refer to EGSA Standard 100D.

9.   INSTALLATION

Installation of the system shall be in accordance with all applicable codes, standards, and practices for the equipment involved.

10.   MAINTENANCE

A regularly scheduled maintenance and testing program should be established and followed to reduce or eliminate unscheduled downtime. The program should include periodic tightening of connections, dust and dirt removal, and thorough inspection.

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