

Return of DISCO

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Fear not, this is not predicting the return of the John Travolta dance craze and leisure suits. The deregulation has sparked the break-up of the traditional organizational structure of investor-owned electric utilities into generators, transcos and discos. The transmission and distribution companies are also known as the wire companies. The increase in electricity generation capacity has not been keeping up with the growing steady state and escalating peak demand in many parts of the world. Construction of new large MW generators is a lengthy development process, both in getting the necessary approvals and the construction, itself. The Not-In-My-Backyard (NIMBY) sentiment of many communities will further lengthen or derail the construction. Hence, it is not likely to provide a timely solution.

Another aspect of deregulation is allowing for the connection of generators from non-utilities throughout the distribution system, referred to as distributed generation. Distributed generation has gained significant attention in the past few years as one of more viable and cost effective solutions. It is specifically expected to play a role in the following: supporting available capacity to meet peak power demands; provide critical customer loads with emergency standby power; grid support (in areas such as voltage and frequency support to enhance reliability, reduction of line losses and reactive power control); improved user power quality; and, to provide low-cost total energy. Yet, connecting in additional generation capacity can have a serious effect on the system reliability and power quality if not properly interfaced, controlled, monitored, and maintained. Careful monitoring and control is needed to ensure that "more" is not "less".

Backup generators, found in many of the health care, data processing, and other facilities that cannot tolerate sustained interruptions, comprise 6-10% of the US annual load today, and is expected to significantly grow. These generators are a vastly underutilized resource, affording a market opportunity to aggregate these resources to sell back to the grid. A large number of generators were also purchased as a hedge against the unwarranted Y2K fears of grid collapse. Properly maintaining these underutilized generators can provide a significant financial and performance advantage to the facility. The NPFA70 Electrical Equipment Maintenance standard is a valuable tool to help establish and maintain a preventative maintenance program for these and other electrical equipment.

In addition, be sure to monitor the performance of the generators during various load level conditions to ensure that the quality of the supply remains compatible with loads in the facilities. Step changes in loads can have adverse effects on frequency stability. Lightly loaded generators may exhibit higher distortion levels. The start-up time must be short enough to provide regulated voltage within the time constraints of the loads.

Then, if next summer shows a repeat of the tremendous increase in the kilowatt hour costs coupled with some of the highly visible system failures such as with Commonwealth Edison in Chicago and the resulting sustained interruptions of service to millions of customers, there will be some facilities that will keep running smoothly and cheaper. Your facility can be one of those.