



Clockwork Solutions Announces the Release of Its Latest SPAR-Based Product, ENRiCO™, for the Electricity Transmission and Distribution Markets

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Substation availability defines consumer access to the power supply. The probability of supplying electric power to consumers and the outage frequency are mainly determined by substation availability. For electricity companies, the cost of non-supply time to consumers, customer minutes lost (CML), is good reason to invest to improve the performance of substations.

Failures in substations often propagate along the network and may cause severe damage both to customer machinery and to substation equipment. In some circumstances, failures may even cause damage to facilities in generation plants and might expose workers to dangerous situations. Therefore, the design of substations is of extreme importance for economic and safety reasons.

The structure of substations is complicated and requires a balance between two conflicting requirements. On one hand, in order to guarantee the supply of electricity, redundancy can be added resulting in more paths between inlet lines (sources) and loads thus lessening the reliance of the network on any single path. On the other hand, more redundancy necessitates more components and thus more potential for failures with the cascading effects of these failures on other components, consumer equipment, and sources.

The design of substations and distribution networks is complex. Accurate computer modeling of substations and their participation in distribution networks is exceedingly so. Furthermore, creating a computer model that can analyze substation performance is an extremely difficult, time-consuming, and recurring chore that requires highly trained personnel. For example, due to the complex switching actions with disconnected switches and normally-open circuit-breakers that can take place in regular operations, analyzing outages resulting from failures in substations for practical substation configurations is difficult. Accurate analysis must also consider the complex reconfiguration procedures employed to recover energy supply following component failures and protection relay responses. There is strong interest and need for a complete and accurate, performance modeling solution. However, until now, the range of existing tools and applications has provided partial solutions at best.

ENRiCO greatly simplifies the modeling task and provides the user with the necessary objects and facilities to simulate the complex interactions of the substation and distribution network. It provides the objects and embedded logic necessary for modeling any type of substation and network configuration from simple to very complex. Employing a Windows-style GUI and familiar-looking icons-standard IEC symbols-ENRiCO enables the user to build a complete computer model of the distribution system on a single computer screen. Each icon is loaded with industry component-specific characteristics and logic thus simplifying the creation of the model, the inputting of the necessary data, the running of the simulation, and the outputting of results.

DOW Chemical, which maintains many power stations for feeding power to its numerous chemical plants, was instrumental in the development of ENRiCO including the beta testing of the nascent product.

ENRiCO is available from Clockwork. Its easy-to-learn approach renders it useful to the electrical engineer almost right out of the box!