MAINTENANCE ENGINEERING METHODOLOGY IN PHOTOVOLTAIC GENERATION PLANTS

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Abstract

This research consider two issues within the context of maintenance engineering and aims to correlate them in the photovoltaic generation scenario. The first theme concerns the understanding of the maintenance engineering function (translated here as a set of strategies, actions and personal and automation capacities), as an area extremely linked to the final product to which it relates. In a macro vision, everything spin around intangible points that must become tangible points, translated by Key Performance Indicators (KPI). Maintenance engineering, when treated by top management as "value" rather than just "source of costs", can produce substantial gains. On the other hand, it has the responsibility to seek to understand the real needs of the productive process and to convert its work into tangible points. The best practices in maintenance engineering are understood as those that fit the designated budget and the level of complexity of the process. In this way the KPI must be agreed between the parts of the organization (production and maintenance managements) and transformed into short, medium and long-term actions. That´s why, they must be aligned with the business strategy (remembering that strategies tend to change over time).

Assuming as one of the maintenance definitions, "to ensure the reliability and availability of the assets, in order to meet a production program with safety, environmental preservation and adequate costs," we can enumerate some KPI that will aid in the diagnosis the health of a business or enterprise: cost of maintenance versus revenues, availability of process assets, reliability, cost of materials and subcontracting, for example. The second theme deals with concepts of asset management proper, highlighting the acquisition and treatment of data of these assets (equipment) and from the process, in order to allow a diagnosis that leads to better technical and financial decision making and therefore satisfies the management of the enterprise. Once we only have the possibility to control or improve something when it is measured, several electrical and process variables, from field equipment and instrumentation, may be responsible for generate the mass of data for one management. Each equipment or system into a solar plant can provide alarm, fault and status information and more process variables (current, power, temperature, e.g.) what will produce a trend line naturally and consequently possibilities to avoid or mitigate one shutdown or performance decreasing. Remote access technologies, online monitoring and statistical decision-making software will take the place of periodic overhaul techniques simply.

Images

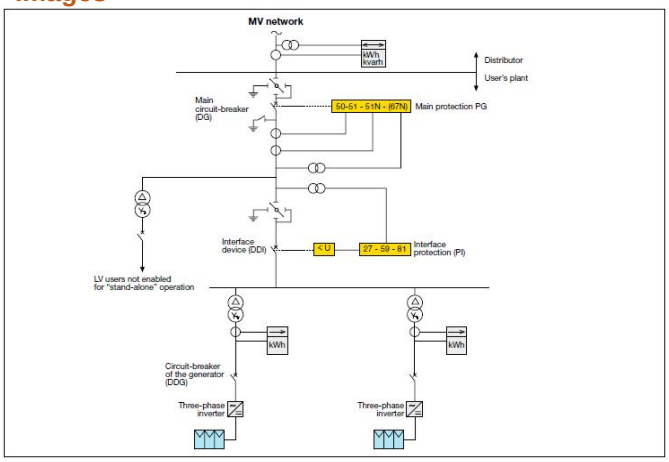


Fig.1 Single line diagram



Fig.2 Maintenance engineering contributions

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