

Load Shedding Sequences

Background

Mills continue to optimize all aspects of their operations with the goal to minimize the costs of production. A significant component of these costs is electrical power. At times, Mills may need to curtail power usage to avoid stiff penalties for over usage or to avoid high market prices for power. Power usage is typically determined by the Utility from within 10 to 15 minute periods. It is in this time frame that power must be shed in order to avoid billing penalties or the purchase of overly expensive power. Deregulation of the Power Industry, with the perceived potential for power cost swings, has made Load Shedding systems an even more important element of a Mill's power control systems.

KMH has successfully designed and implemented load shedding systems on Paper Machines and in Pulp Mills. Equipment is shut down in an orderly and safe manner, and is left in a state to ensure a smooth startup.

Design Approach

A thorough understanding of the process to be shed is required to ensure an orderly and safe shutdown. KMH will meet with senior operations personnel in the area and discuss, in detail, all of the required steps that a seasoned operator would take in shutting the system down, including any control loops that may be effected. From this information a Functional Specification Document for the shutdown will be developed for review and approval. Once final approval has been given automation design for the shutdown can begin.

Scope of Supply

- Functional specifications detailing the schedule of equipment to be shut down automatically and manually, and equipment to be left running
- Instrumentation loop drawings
- DCS control and graphics configuration
- Detailed Logic Drawings
- PLC programming
- DCS/PLC Gateway documentation
- Detailed Electrical Engineering for any required electrical and controls equipment including field annunciation, PLC/DCS additions, wiring etc
- Commissioning and startup services

Summary

The addition of automatic sequences for stopping equipment in the event of a load shed request will enhance the chances of success of the program. Operations confidence in a consistent, orderly and safe shutdown of equipment and processes will ensure its use resulting in on time shedding. KMH has successfully shut a newsprint machine down from stock approach to reel with the stock run out within 5 minutes.

References

- Dave Young, Electrical and Control Systems Specialist, Paper Machines, 807-475-2356

