Li Sun, Robin Smith, Including Driver Selection into Utility System Design, ICheaP12 2015, 19-22 May, Milan, Italy

Utility system design deals with steam and power generation, distribution and utilization, and mechanical driver selection. Process machines such as compressors and pumps would be driven by electricity, steam turbines, and gas turbines, etc. Driver selection allocates a driving option to each shaft demand, along with the driver size and load.

System availability is an important issue in the system design. System availability can be improved by the equipment choice and its connection into the most appropriate configuration. However, higher system availability normally is achieved with high system costs.

Including driver selection into utility system design with availability estimation is a complex integration problem. This work has presented a methodology for the utility system design. A four-step decomposition methodology is proposed to achieve an optimized system configuration, equipment sizes, driver selection, and system availability assessment at the design stage.