

To Design Automatic Power Factor Correction Panel (APFC) for CNG outlet

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Abstract: In modern days the power demand is increasing as the industrial load is increasing. There are various types of electrical and power electronic loads. These loads are fluctuating without manual interventions. These fluctuating loads can be stable with the use of a suitable capacitor. Majority of load are inductive in nature in industries. This inductive load consumes reactive power which affect the generation of the plant. Basically inductive load means lagging of power factor. To increase power factor there is a need of APFC Panel. Many industries use a lot of power from the grid but failed to utilize in an effective way. In many cases, consumer draws access to power than their sanctioned load. Therefore, the consumer has to pay a penalty. So, this penalty can be reduced by APFC Panel. A strategy for optimizing the operation of a Compressed Natural Gas (CNG) station in order to minimize the energy cost is presented in this paper. The study seeks to schedule the activity of the station CNG compressor so as to achieve minimum cost of electricity purchased under a Time-of-Use (TOU) tariff. A linear control approach is employed to restrict damage to the compressor by minimizing the switching frequency. The proposed approach shows great potential to deliver lower operating costs through shifting of the station compressor load to lower electricity price time bands while also minimizing wear and tear effects on the compressor.

Keywords: Power Factor, APFC Panel, Power factor correction, Inductive, Fixed capacitors, Penalty

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