

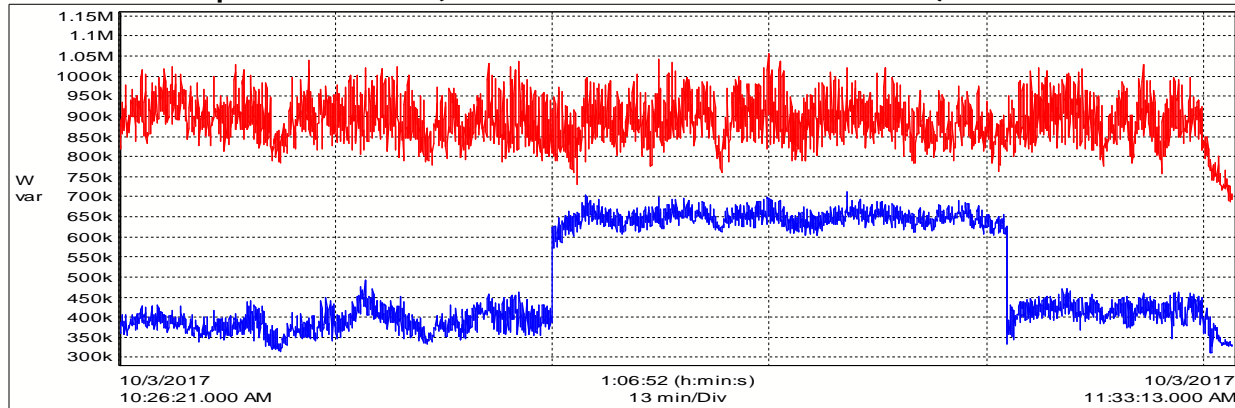
## Advantages of site data collection and ETAP simulation to analyze proposed investments and paybacks.

A study recently conducted in a largescale home appliances manufacturing company near Pune.

Present load: 3500KW on TR 1 and 2

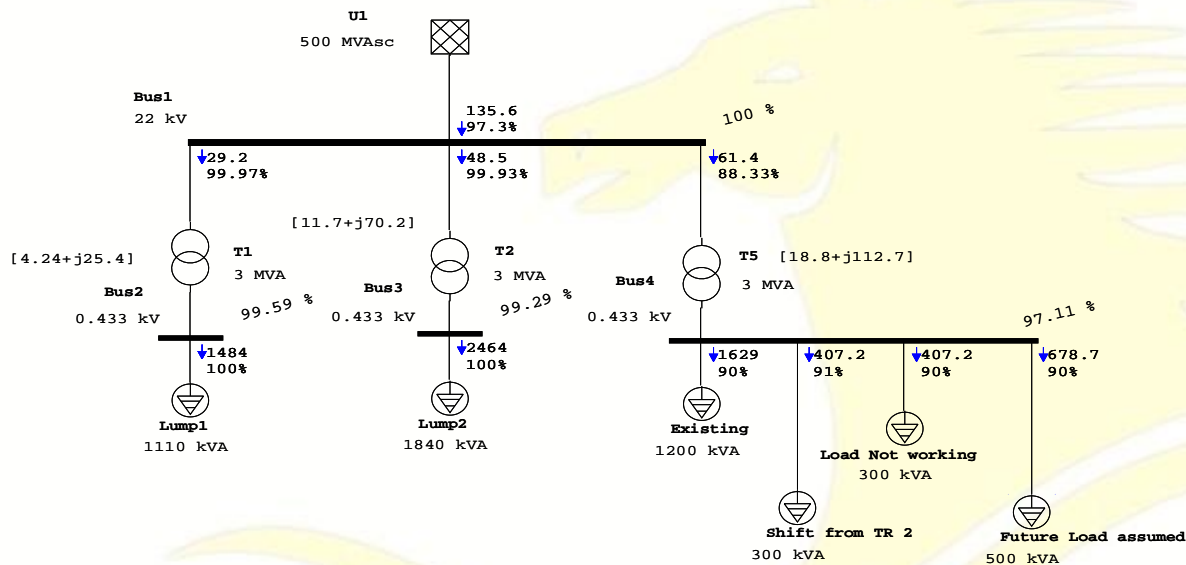
New load added with a new transformer TR 5: about 1700KW.

### Present KVAR requirement of TR 5 (with downstream correction On and OFF)



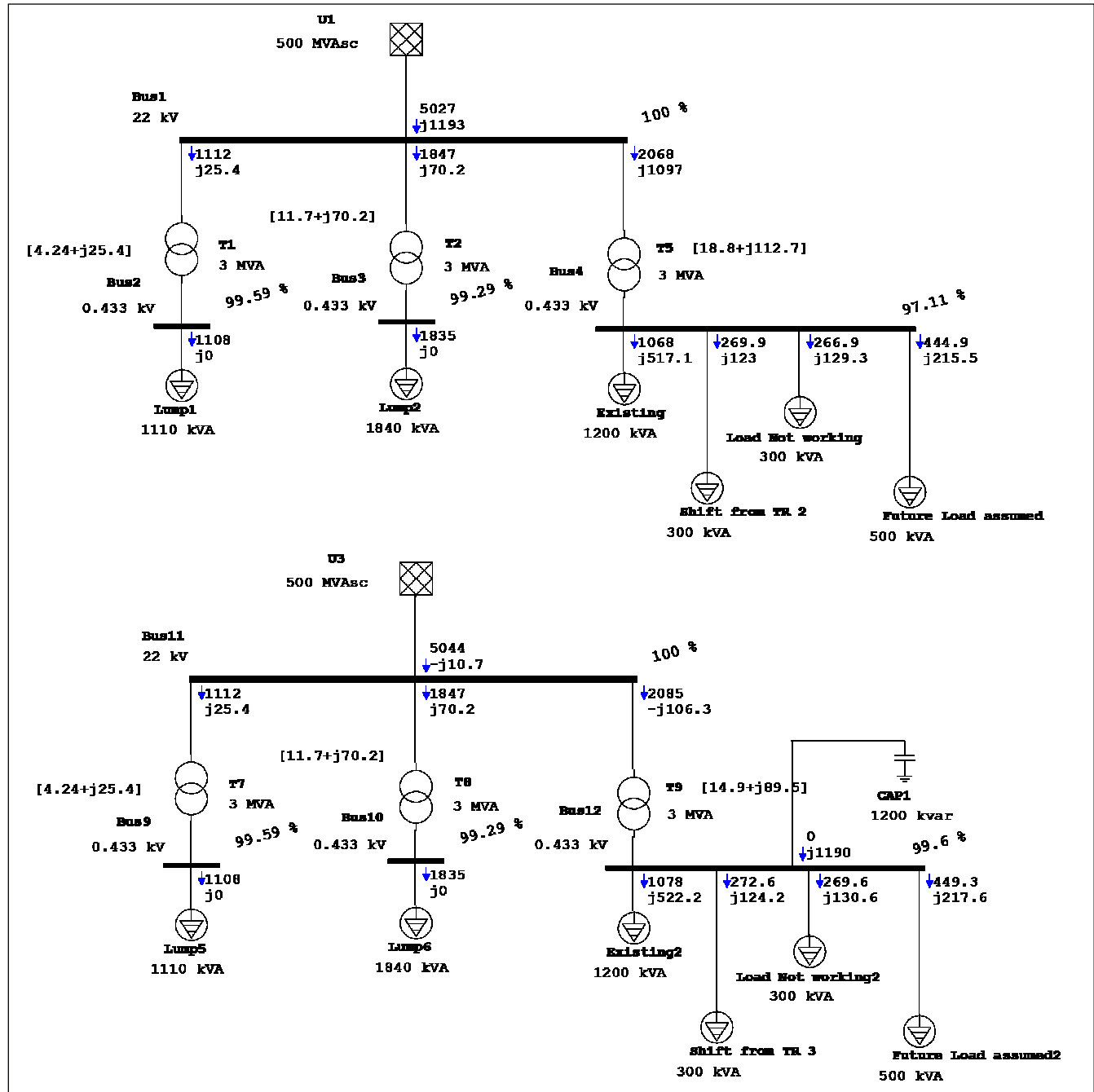
It was told to us during audit that 2 lines on TR 5 were not working on the day of audit. Further maintenance team has decided to shift compressor load (280KW) from TR 2 to TR 5 and additional load of about 500KW will be commissioned during November 2017. The electrical distribution and expected upstream power factor with this loading will be as follows.

### ETAP System analysis without additional reactive power correction to transformer TR 5.



Above ETAP analysis shows projected power factor without additional reactive power correction. It is clear that upstream power factor will drop to 0.97 and plant will loose power factor incentive up to around 3% or around Rs. 3 Lacs per month.

# Distribution loss with and without individual PF correction for TR 5 based on ETAP study conducted



Branch losses with and without correction in exact numbers will be as shown above. Loss in TR 5 will reduce from 18.8KW to 14.9KW if power factor is corrected. TR5 secondary bus voltage will improve from 97.11% to 99.6%. These accurate calculations help in assessing the payback period.