

1.0 LOAD FLOW STUDIES

Modeling of the electrical system from which the following electrical parameters can be obtained and / or verified under different theoretical operating conditions or from real energy measurements:

- Operating voltage on buses and system switchboards.
- Power transmitted through feeder cables and transformers.
- KW, KVAR, KVA y Power factor in the system loads and electrical utility supply point.

- Flows of KW, KVAR in feeder cables and transformers.
- Voltages on buses and plant switchboards.
- Power and power factor in power supply point and loads.
- Effect on load flows due to closing and opening of switches in principal circuit breakers and connections circuit breakers.
- Cable and transformer overload level alarms.
- Effect on the voltage of buses and boards of the position of the taps of the supply transformers and of the indoor substations.

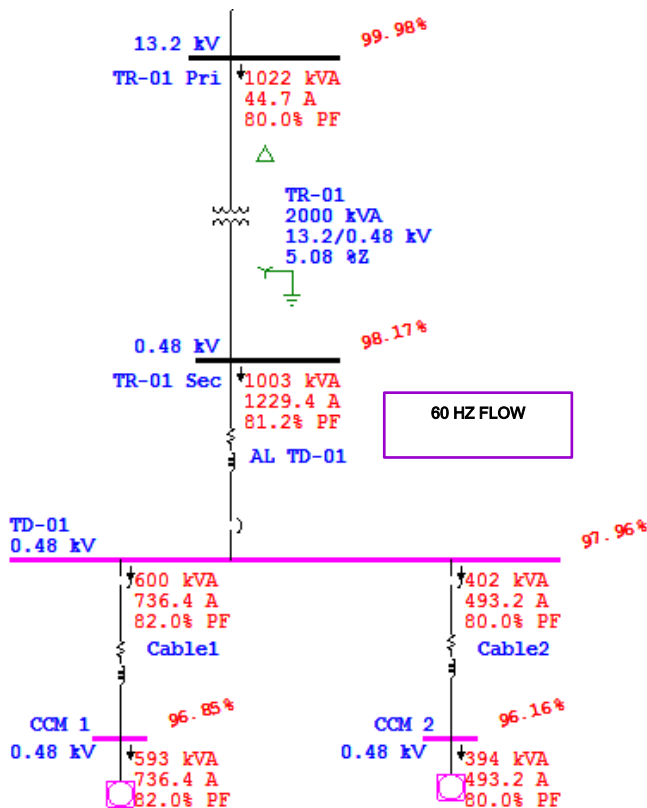


Fig.1 Graphical results of a load flow study.

1.1 REGULATION

Regulatory calculation results allow anticipation of voltage drop across feeder cables, overhead lines, and transformers for new or existing installations.

1.2 LOAD FLOWS

This study determines how power is distributed in the plant for different levels of workload and switch status. Graphic results are generated on a one-line diagram in which they can be displayed:

1.3 POWER FACTOR CORRECTION

This study makes it possible to determine the size of the capacitor banks required for the correction of the power factor to the desired value and their optimal location in the electrical distribution system. Among the most important results are the release of capacity in KVA in the transformers and feeder cables due to the optimal location of the capacitor banks.

1.4 MOTOR STARTING STUDIES

It makes it possible to anticipate the effect of starting of low or medium voltage large capacity motor on the voltage at its terminals and on the buses and distribution system switchboards, for the decision of the starting method to be used; conditions of full voltage start, reduced voltage starts, soft starters and variable frequency drivers can be modeled.

2.0 ANALYSIS SOFTWARE

- **ETAP Ver 19.5.**

RADTHINK is recognized as an **ETAP Solution Provider**. It is awarded by the ETAP brand to engineering firms that have staff with the skills, knowledge and resources to offer electrical engineering solutions using ETAP analysis software.

3.0 REFERENCE STANDARDS

- **IEEE Brown Book -IEEE STD 399-1997-** Recommended Practice for Industrial and Commercial Power Systems Analysis.