Knowing that in this system there is no presence of even harmonics, the filter can be installed safely in the observed busbar.

6. Conclusion

In view of the results of this work, it was possible to analyze through computer simulations, using the ATPDraw software, the power factor correction, and the mitigation of harmonic distortion, of a nonlinear load, through the use of a tuned filter. However, it was verified also the importance of the present harmonic distortion analysis for the design of a more efficient filter. Thus, the use of a power theory that best represents the physical phenomena and provides reliable parameters becomes crucial for the design of filters. It can be said that the efficiency of the filter was relevant to remove the harmonic order to which it was tuned, reaching its main objective.

Thus, although with the aim of a unified approach to power theories, which can be designed in energy metering and charging as well in energy compensation, an error-free theory has not yet been found. Therefore, knowledge of harmonic disturbances and their forms of mitigation require special attention to ensure safe and precise designs, thus avoiding the risk of the filter malfunction or the occurrence of undesirable situations such as its destruction, causing risks to the system electric equipment.

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