

Project Title:

Power Distribution Software Development for Network Planning and Analysis Purposes

Department: Power System Study

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Contractor: Niroo Research Institute

Project Code: PSYPN10

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Summary:

Mechanization and distribution networks is the use of software tools in the design and analysis of the network, from the serious needs of engineering design and utilization of distribution networks. According to this objective, it must be the right software tool for doing this has prepared studies and to the network analysis. Based on earlier units as prerequisites for other units of computation are implemented in software SABA covering symmetric and asymmetric load flow analysis, calculated constants lines and cables distribution network, and placement of shunt capacitors are optimal capacity.



In this project, three-phase units of study in analysis, design and implementation were carried out:

Phase I :

- 1 - Phase studies calculation software distribution system of units software distribution systems, including the development of computational algorithms:
 - Developing basic software distribution network information includes the long-term load forecasting and geographical data bank network

- Developing network software, including software development and placement and routing software to determine the optimal capacity distribution substations and feeders to determine the optimal capacity of medium and low voltage
 - Developing complementary software for distribution system studies including studies on reliability, protective equipment, and network protection studies are necessary to determine the proper settings and network with optimum and appropriate parts of the maneuver in the network.
- 2- Implementation units, distribution network algorithms tested in the MATLAB environment.

Phase II : Software implementation of the results of phase one in C #

- Identification, analysis, modeling and design units, distribution systems.
- Implementation units, distribution network algorithms tested in the C # Language
- Create test procedures and test results obtained from the implementation of computational unit in C #

Phase III

- Creation of graphics required in the software distribution network units Saba
- Creating interactive forms for all units and units in this new environment graphics and integrated graphics

Results:

- Development of indigenous software in order to perform studies on the design of distribution networks.
- Create technical design and development of algorithms for distributed systems.
- Low price in comparison with all similar foreign software in the same form being computational and software capabilities.
- Having Source Code, with ability to edit distribution network and computing studies, distribution networks, platform suitable for different projects.

Documentation:

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 - Determine the location and capacity of distribution substations and distribution, Electric Power System Research Center, NRI, July. 2011.
 - Computational unit Routing and capacity of low voltage feeder, Electric Power System Research Center, NRI, Sep. 2011.
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 - Report ID: PCOSY02/T08- Second Edition, Electric Power System Research Center, NRI, Feb. 2011.

- Analysis and design of distribution system protection coordination, Electric Power System Research Center, NRI, Nov. 2011.
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- A study on the needs of the specific connection software toanir software recommended to SABA GIS strategy and the exchange of information between these two software, Electric Power System Research Center, NRI, Nov. 2011.