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Abstract

The objective of this thesis is to investigate and understand the design of distribution power system networks, with the main focus on Hasaheesa distribution system network especially Hasaheesa 11kv feeder which supply power to Hasaheesa city.

The thesis looked into the best design which combines successfully between low cost of equipments, tools, operation and maintenance of the distribution networks.

Also high efficiency where the designers challenge to maximize the output by reducing the losses is considered, the networks should be managed by qualified engineers and trained labors to gain more safety to keep the networks healthy all the time.

The thesis explained the definition of how to design distribution networks. It is then proceeded to discuss the various types of designing distribution power system networks especially the overhead line design.

The thesis explained the operation and safety in power system distribution networks. Finally, the designed network is simulated with load flow program (Newton-Raphson) to know the voltage behavior compared with load connected at different points.

مستخلص

الهدف الأساسي من هذا البحث هو إيضاح وفهم تصميم خطوط وشبكات توزيع القدرة الكهربائية وعكس هذا الهدف وتوضيحه أكثر بتطبيقه على المغذي الرئيسي لمدينة الحصاصيا والذي يغذي هذه المدينة بالطاقة الكهربائية.

البحث استخدم الطرق الحديثة والمثلي في تصميم خطوط التوزيع، والتي تشمل التكلفة

الأقل للمعدات والأدوات مع سهولة التشغيل والصيانة لهذه المعدات.

الكفاءة العالية هدف للمصمم من أجل الحصول على أقصى خرج ممكن وذلك بتقليل الفاقد في الكهرباء، الشبكة يجب أن تدار بالمهندسين ا لخبرة والفنيين المدربين من أجل سلامة أكثر وشبكة صحية لفترة طويلة من الزمن.

البحث شرح معني تصميم خطوط وشبكات التوزيع وناقش الانواع المختلفة للتصميم وخاصة الخطوط الهوائية.

البحث وضح طرق التشغيل والسلامة لنظام توزيع القدرة الكهربائية في الخطوط وتم عمل محاكاة لتشغيل هذه الخطوط ببرنامج انسياب الأحمال (نيوتن رابسون) وذلك بهدف معرفة طبيعة الجهد والعمل علي مقارنة ذلك بالاحمال عند نقاط مختلفة.

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