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Feasibility studies of a power interconnection system for central american countries: SIEPAC Project

T. Gómez, J.C. Enamorado, Á. Vela

Abstract— The electrical systems of the Central American countries are linked by 230 kV ac weak border interconnections forming two separated subsystems. The first one includes Guatemala and El Salvador, and the other one comprises the systems of Honduras, Nicaragua, Costa Rica and Panamá. As a consequence, unrestricted energy exchanges among all countries are not possible.

Since 1987, the following utilities have been promoting the SIEPAC project: INDE from Guatemala, CEL from EL Salvador, ENEE from Honduras, INE from Nicaragua, ICE from Costa Rica, IRHE from Panamá, together with the ENDESA Group from Spain.

The SIEPAC project consists of a 1678 km long ac power transmission line that would link the six electrical systems of the region through several power substations installed close to the highest demand national centers and six control centers of energy (one for each country) to allow coordinated operation of the interconnection. This project also consideres a set of complementary assets into some countries and the border transmission line between El Salvador and Honduras, and various other equipment.

The power transmission line will greately reinforce the actual border interconnections, which hace a reduced capacity of exchange and technical problems associated with the stability of a weak longitudinal system. On the other hand, economic savings for the region would be achieved, coming from a higher coordination level in the operation and planning of their systems.

Index Terms— Planning, feasibility, international interconnections

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