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For immediate release:

GE Power Management's Universal Relay helps to protect power supply to Northern Brazil

Brazil's largest utility using latest technology to upgrade protection and transmission capabilities

August 21, 2001, Recife, Brazil – Brazil, South America's largest economy, is grappling with a severe electricity shortage that is jeopardizing its productivity. As a direct result of this, there has been increased demand on utilities, such as Brazil's CHESF (Companhia Hidro Elétrica do São Francisco), to deliver more electrical power, on a more reliable basis. To satisfy current and future electricity demand, CHESF has chosen the Universal Relay family from GE Power Management to protect their energy transmission grid.

CHESF has been a leading player in this market for over 50 years, generating and transmitting nearly 20% of Brazil's power. It generates 10.7 GW of energy per year, with 10 distribution companies and 11 industrial business customers. When faced with the increase in demand for power, they created a three-phase plan to satisfy long-term electricity demand.

Phase one, to be completed by October 2001, involves four 500kV substations in Northern Brazil, at Cauípe, Teresina, Sobral and Jardim. These substations are being updated with 150 **Universal Relays** (URs) from GE Power Management, and include the **B30** Digital Bus Protection relay and the **R30** Digital Fault Recorder. These devices meet the ONS (Operador Nacional do Sistema Elétrico) requirements for Brazil. These substations have dual Local Area Network (LAN) Internet communications architecture, and use UCA GOOSE peer-to-peer communications protocol for communicating with the control center. The control center is operated by CEPEL (Centro de Pesquisas de Energia Elétrica), a branch of the Brazilian government. GE Power Management's products have been certified with the IEC 870-5 T101 protocol by CEPEL.



Phase two, started in July 2001, involves the retrofit of four 500kV terminals in Angelim with GE Power Management digital relays. This project replaces their 20 year old existing system, with an

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advanced, high-speed, digital relay system. The four line protection terminals are also being upgraded with the implementation of a GE Power Management monitoring and metering system, based on the communications capability of the relays.



Phase three, to be completed by September 2001, involves increasing the regional power supply for the area south of Bahia, which includes Bom Jesus da Lapa, Irecê and Nosso Senhor do Bonfim. This area's demand will be met by automating three substations with products from the [Universal Relay](#) family, and adding a series capacitor to existing transmission lines, effectively doubling their transmission capacity of 230kV per line, for a cost effective long term solution. The UR products being used in the automation include the [F60](#) Feeder Management Relay, [T60](#)

Transformer Management Relay and [C60](#) Breaker Management Relay. GE Industrial Systems is involved with local companies Eltman, Fascitec and Orteng Engineering in this project.

Licínio Miranda and Antonio Derani, from GE Power Management, have been acting as the Key Customer Manager and Project Leader, respectively, for all CHESF's project orders. During the last three years, they have been working closely with Gioto Tribuzi and José Lopes of CHESF, managers of the DEEC (Engineering of Protection, Processes and Control Division). Miranda commented that, "We both experienced the UR's performance both as a standalone product, as



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well as part of a complex system where protection, control, metering, data acquisition and communication functionalities were simultaneously required in order to guarantee 99.9% system availability.”

Miranda went on to discuss the benefits of the UR that attracted CHESF, which included, “ One common software based platform for the whole UR family available on the Web, reduction of spare parts due to common relay modules, enormous variety of protection, metering and monitoring functionalities including local and dedicated oscillography, and redundant communication port and direct Ethernet connections.” Additionally, much less time is required for training and system operation. The project is to be completed by October 2001.

About CHESF

CHESF is Brazil's largest utility, with its head office in Recife on the North Eastern coast of Brazil. The company was founded in 1948, with it's first power plant commissioning, the Paulo Afonso, in 1955. For more information, visit CHESF's Web site: <http://www.chesf.gov.br/ctudo-abertura.html>

About the UCA and GOOSE protocol

The Utility Communications Architecture (UCA) was developed under the sponsorship of the Electric Power Research Institute through broad industry involvement. Its objective was to allow seamless integration across the utility enterprise, using off-the-shelf international standards to reduce costs. Generic Object Oriented Substation Event (GOOSE) is a high-speed binary tool that allows the creation of advanced protection schemes more easily with no additional wiring.

About the UR family of relays

GE Power Management [UR](#) products are PC-based solutions that support the open standard EPRI UCA™ MMS/Ethernet protocol. All UR products combine peer-to-peer high-speed communication capabilities with modularity, flexibility and field-programmable FlexLogic™ control for simplified substation automation.

About GE Power Management

GE Power Management, based in Markham, Ontario, Canada, specializes in the design, manufacture, sales and service of protection, metering and control equipment as well as



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automation systems for generation, transmission, distribution and for industrial plants around the world. For more information, visit the Web site at <http://www.GEindustrial.com/pm>.

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