Utility communications
References for in-plant communications

General requirements
The operating environment in the electrical and heavy industries is very demanding on electronics and thus the design must take such conditions into account. In addition to the naturally hostile process environment, where interference and related aspects are common phenomena, the equipment is subject to extreme temperatures as well as other critical conditions.

The total integration of communication systems is increasingly evident, and is necessary in order to cope with the operational requirements in this field. The need for reliable communication systems is not only a requirement for normal operation but, also increasingly during and after special situations concerning security or recovery to the normal operating state.

ABB understands customer’s need for superior quality, local support and total system responsibility, and is able to provide solutions and services meeting these requirements. It is no surprise that ABB has the largest installed base of communication equipment in the electrical utility environment. The equipment has a proven record of operating with a high level of reliability in this harsh environment. Tens of thousands of ABB communication systems operate since decades all over the Middle East, Latin America, Africa, Asia and Europe. A brief summary of some projects related to in-plant applications is given here:

Vietnam - Phu My Ho Chi Minh City
This project included the supply of a complete communications system for 5 substations, 3 at the 500 kV level and the other 2 at 220 kV. The project specialty is the complete integration of the transmission system (based on our ETL power line carrier and FOX fiber-optic terminals) and the in-plant system, which includes a fully digital telephone exchange and a public address system.

The telephone exchange not only supports internal voice communication but also the external connection to the telephone network of the electrical utility. The public address system, which is an integral part of the telephone exchange, covers the control building and the outside area. It supports a general announcement function and individual paging. It also includes a priority feature for the inputs (operator or telephone sets) as well as an MP3 facility for different tones and sounds.
**Ethiopia - Power Plant Gilbel Gibe**

ABB has been active in Ethiopia for many years, supplying almost all the optical multiplexers for the communication networks of the electrical utility in Ethiopia.

For the Gilbel Gibe power plant, ABB not only supplied the optical equipment but also the infrastructure for the in-plant communication, including paging systems based on VHF radio, telephone exchange and public address systems. These systems covered the power station, substations and the dam.

![Diagram of communication systems](image)

**United Arab Emirates (UAE)**

Over the past years, ABB has supplied complete communication systems for different substations in the UAE. In all projects, ABB supplied the transmission communication terminals based on our FOX family of optical multiplexers, and, in many cases, the in-plant communication systems were also included in our scope of supply.

For these projects, ABB was responsible for the design, supply and integration of the out and in-plant applications. A complete video surveillance system, including digital recording and remote access from the load dispatch center was supplied. The system also included local, remotely operated, cameras with a remote control option, and a public address system, integrated in the video system, with bi-directional voice features.

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