

OMET

This project will test, design, install and turn-up an Operational Multi-Gigabit Ethernet Transport (OMET) system. OMET is an acronym for BPA's proposed network. The industry recognized name for this technology is *packet-based communications*.

This communications upgrade and replacement project is intended to ensure adequate capacity and compatibility for emerging monitoring and control equipment required to operate the grid. The existing Synchronous Optical Networking (SONET) system will eventually neither be able to meet the ever-increasing bandwidth requirements, nor support the packet-based technology of new, sophisticated monitoring and control equipment. Further, SONET technology is destined for obsolescence with replacement parts and expertise becoming increasingly difficult to obtain.

OMET will use the existing fiber optic and digital microwave infrastructure, but it will not immediately replace the SONET system as it will be a phased implementation. OMET will relieve traffic capacity issues on that system and provide the ability to utilize next-generation packet-based communications technologies. OMET shares bandwidth between applications by utilizing packets of information that are sorted and channeled into their respective applications at the receiving end. Unlike serial-circuit based equipment such as SONET, which reserve bandwidth capacity for each information channel, OMET dynamically adjusts each channel's bandwidth based on its requirements. This increases the effective use of the available bandwidth and provides a native transport for switched packet-based Ethernet traffic. Traffic flow is managed through software and directly impacts the apparent network speed and latency for each user.

The OMET project work will be phased to first build a stable foundation and then expand the implementation to other areas. The foundation will consist of core equipment installed on separate fibers in existing fiber cables that already carry SONET traffic. It will also include upgrades to the control center and administrative functions, while facilitating operations of field sites and the core network. Following the backbone work, the project will shift to a design and installation process that will progress through 117 sites.