

## **S01-12 “Experience and Challenges in the Nation-wide Interconnection of Power Grids in China”**

**Prof. Xuehao Hu    Mr. Xiaoxin Zhou    Mr. Jianbo Guo**  
(China EPRI, PR China)

### Abstract

“Sending power from west to east” is one of the main tasks of power sectors in China in the coming years, for meeting the need of national economy and developing the west parts of China. Thus, it provides the favorable opportunity for developing power systems in China. The power systems in China have entered into an era of large power grid, large unit size, large power plant, extra high voltage and highly automatic control. Seven regional power grids have been formed and some of them have been interconnected with AC or DC links. The nation-wide interconnection of power grids in China is an inevitable trend in the coming 5 to 10 years.

In this paper, first of all, the present status and future expansion trends of power grids, necessity of nation-wide interconnection of power grids, the schemes and the modes of interconnection and its implementing steps are described. Then, a series of problems occurred in the interconnection and the methods of resolution are introduced, such as, the decreasing of transient stability transmitting limits of trunk transmission lines and low frequency oscillation within regional power grids caused by AC links, the mutual impacts of multiple two-terminal DC links terminating at the same receiving area, the application of series capacitor and shunt reactor compensation for long distance transmission lines and higher voltage level selection above 500kV etc. Some problems to be solved are also discussed in the paper. Finally, prospects for future network technologies influencing the nation-wide interconnection of power grids are give.