

A Comparative Study of Global Power Grids and Global Fossil Energy Pipelines Using GIS Technology

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Abstract : This paper comprehensively investigates current development status of global power grids and fossil energy pipelines (oil and natural gas), proposes a standard visual platform of global power and fossil energy based on Geographic Information System (GIS) technology. In this visual platform, a series of systematic visual models is proposed with global spatial data, systematic energy and power parameters. Under this visual platform, the current Global Power Grids Map and Global Fossil Energy Pipelines Map are plotted within more than 140 countries and regions across the world. Using the multi-scale fusion data processing and modeling methods, the world's global fossil energy pipelines and power grids information system basic database is established, which provides important data supporting global fossil energy and electricity research. Finally, through the systematic and comparative study of global fossil energy pipelines and global power grids, the general status of global fossil energy and electricity development are reviewed, and energy transition in key areas are evaluated and analyzed. Through the comparison analysis of fossil energy and clean energy, the direction of relevant research is pointed out for clean development and energy transition.

Keywords : energy transition, geographic information system, fossil energy, power systems

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