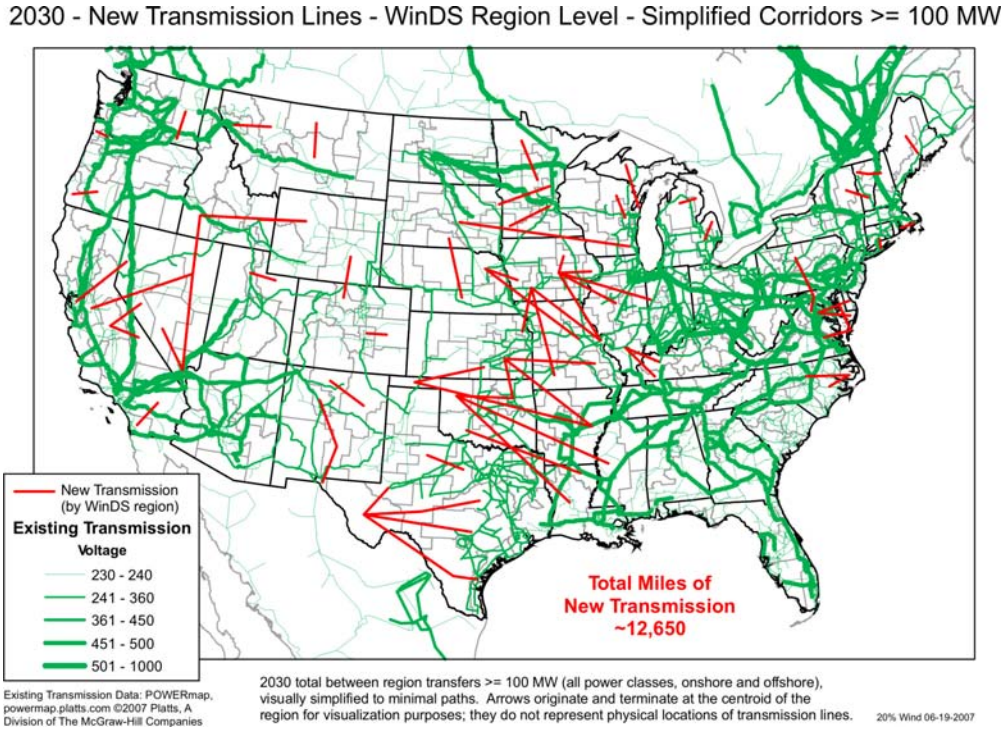
Figure 4-10. Conceptual new transmission line scenario by WinDS region



- The Midwest ISO compared the benefits and costs of bringing 8,640 MW of new wind energy online. Using a natural gas price of $5 per million British thermal units (MMBtu; well below 2007 prices), the annual benefits of reduced natural gas costs from new transmission and development of wind generation were between $444 and $478 million (Midwest ISO 2003). The Midwest ISO recently studied the costs of developing 16,000 MW of wind within its system, along with 5,000 miles of new 765 kV transmission lines to deliver the wind from the Dakotas to the New York City area. Although the overall generation and transmission costs reached an estimated investment of $13 billion, the project produced annual savings of $600 million over its costs. These savings are in the form of lower wholesale power costs and prices in the eastern part of the Midwest ISO footprint—such as Ohio and Indiana—resulting from greater access to lower-cost generation in western states such as Iowa and the Dakotas.
- AEP, a large utility and transmission owner/operator, produced a conceptual transmission plan to integrate 20% electricity from wind. The conceptual plan provides for 19,000 miles of new 765 kV transmission line at a discounted or net present value cost of $26 billion. This estimate is close to the WinDS model estimate (AEP 2007).
- ERCOT, the independent transmission operator for most of Texas, evaluated 12 options to build transmission for additions of 1,000 MW to 4,600 MW of wind energy. ERCOT found that the transmission addition would cost between $15 million and $1.5 billion, depending on the distance required. The transmission cost averages $180/kW of wind energy, or about 10% of the $1,800/kW

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