

DTE ENERGY

Developing A Framework for Non-Wires Alternatives Benefit-Cost Analysis

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DTE Energy (DTE) is a diversified energy company that provides electricity and natural gas utility services in Michigan and a wide range of other energy-related services throughout the United States. The corporate strategy group works to address a variety of complex issues facing the energy industry. Working with corporate strategy, the Tauber team built a benefit-cost analysis framework and model to analyze the impacts of non-wires alternatives (NWAs), an increasingly salient topic within the electric utility industry.

NWAs are technologies that delay or eliminate the need for traditional distribution or transmission investments by reducing the peak load on existing infrastructure. NWAs either reduce energy demand or provide local energy generation during times when peak load would otherwise exceed existing equipment capacity ratings. Currently, different NWAs are being piloted by DTE to determine their feasibility as a cost-effective alternative to traditional substation capacity investments. DTE's objective for this project was to create a standard method of quantifying the relevant benefits and costs of implementing NWAs beyond the deferral of capital expenditures to better evaluate potential NWA opportunities.

To create a model capable of quantifying the benefits and costs of all the NWA technologies relevant to DTE, the Tauber team benchmarked existing benefit-cost frameworks as well as NWA cost and capabilities characteristics. Further interviews with DTE subject matter experts enabled the creation of a benefit-cost analysis model specific to DTE's technology implementations. The model was used to analyze two existing substations being considered as potential NWA pilot sites. After conducting sensitivity analyses related to future NWA cost decreases and the cost of traditional capacity investments it was found that NWAs would be 70% to 350% more expensive than traditional capacity investments in all but the most favorable scenarios. Going forward, this model will lay the foundation for the benefit-cost test used in the NWA suitability analysis process.