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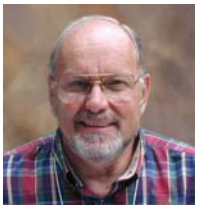
The Energy Policy Act of 2005 - How Siemens PTI Can Help You Manage it's Impacts



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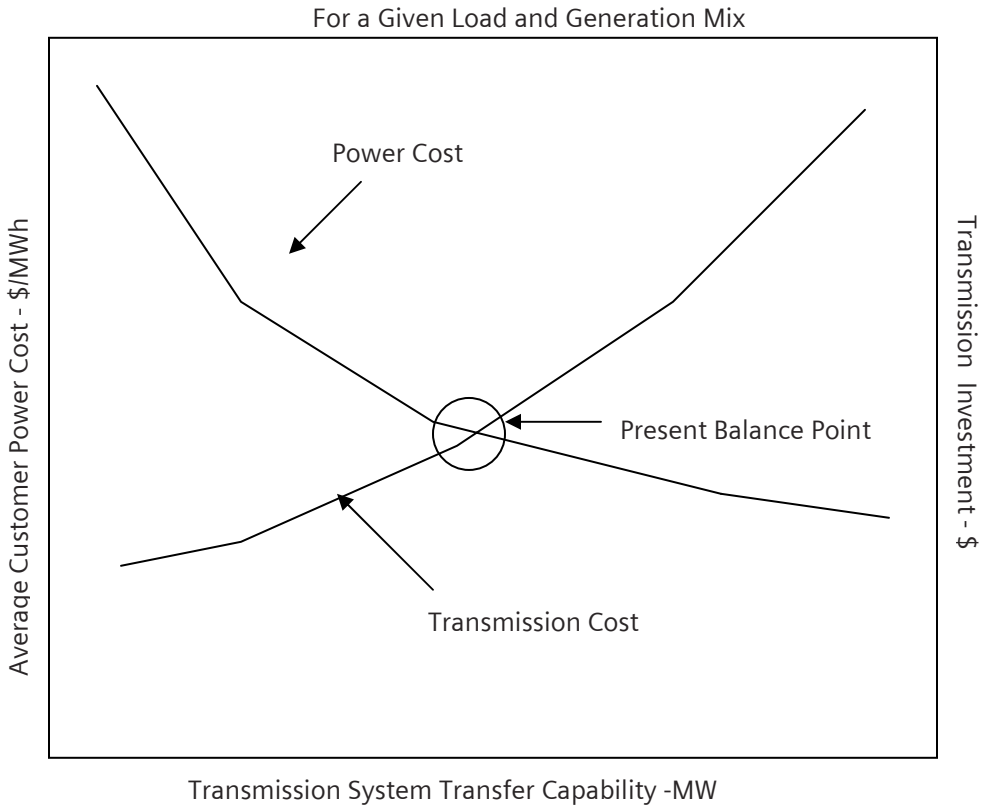
The Energy Policy Act of 2005 takes aim at the future development of the entire nation's electrical power system. While the Act itself uses the tools of tax policy and regulation to achieve its results, the way the legislation is crafted can also be seen through a different set of lenses: a push for new technologies and relief of transmission system stress. With the major Northeast blackout still fresh in legislators' minds, the need to respond to emissions reduction expectations not settled, and the high cost of fossil fuels causing economic angst, the Act seeks to move the country toward a new view of the supply and use of electricity, and its reliable delivery.

Taking a business school axiom and applying it to the electric transmission system, "You can't manage what you don't measure". This is where the need for excellent, rock-solid tools to gather, interpret and use system operations data is important. Using Siemens PTI's PSS/ODMS® software, with its CIM (Common Information Management)-compliant data standards, allows the system dispatch computer to gather the information from the SCADA (System Control and Data Acquisition) system. From that point it is possible for the operations engineer to use it in several directions to improve reliability. First it can be used to supply information for the local system's operations monitoring using Siemens PTI's PSS product line to detect trouble spots before they become disasters. Second, the ability to send and receive useful information from other area systems or the power pool using a common data format makes integrated wide-area system reliability analysis better. Also, the ability to obtain snapshots of system conditions, extracted from the system data using Siemens PTI's Model-on-Demand© software, makes operations engineering more exact before the fact. Outage planning becomes more of a controlled process and less guesswork.

In addition to having the right tools to gather and use operational information, Siemens PTI can offer a level of expertise that is its own excellence. As the adage goes, "Nothing causes one to learn as having to teach". A parallel for Siemens PTI is that in having done the homework to develop the tools it has gathered a staff of experts who can assist its clients with the use of those tools in solving real-world problems. Whether it's the nuances of model development or the right use of state estimation, Siemens PTI's consultants can help get it right the first time.

Stepping back from operations and looking at the planning implications of the Act, the thought of managing system development to the Act's mandated reliability standards brings out the usefulness of several Siemens PTI software applications. The new graphical approach of PSS/E™ for power flow, and soon for dynamics, gives the engineer using this very technically assured software a new ability to envision the system. New insights for new integration mean more reliable performance at lower cost. But further, to see how best to maintain the reliability standards will require use of such tools as OPF (Optimal Power Flow) within the PSS/E package, Locational Marginal Pricing analysis, using Siemens PTI's PSS/LMP™ software, and PSS/TPLAN™, Siemens PTI's probabilistic transmission planning tool.

The classical supply and demand curve shown below provides some food for thought.



The shapes of both curves in this supply/demand curve are flexible. For the one extreme of transmission investment, with no investment in transmission the cost of power to the customer would be whatever the local, small, high-cost generator produced. There would be no economies of scale, and reduced reliability. At the other extreme, with infinite transmission capability (and commensurate cost) the cost of power (ignoring transmission costs) would be the lowest marginal cost of the generation anywhere on the system. And of course, the system would be perfectly reliable. The task is to find the minimum balance point cost for these two curves together. This is where the combination of the cost of power, reliability and transmission investment must be balanced.

With regard to the Energy Policy Act of 2005, it is necessary to change the shape of these curves in a way that assures the balance point meets the Act's reliability standards and minimizes costs to customers. It will also be necessary to test the value of such policy issues as "Power Corridors", increased use of FACTS devices, and the impact of third-party paid-upgrades. And thus, the value of the Siemens PTI planning tool package comes to the fore in complex analysis of how best to reshape the cost/benefit curves. And Siemens PTI's consultants can assist in analysis, whether it's in direct analytics or in sharing experience on how to view complex, perhaps even conflicting issues.

The Energy Policy Act of 2005 puts a strong focus on both renewable energy production and distributed generation. Since most of the renewable options are "non-dispatchable", and there is some question of the presence of distributed resources, the uncertainty of their output and the need to provide backup and possible energy storage raise new issues of the transmission system's reliable capability. So, the challenge is before us. And the tools, the consulting help, and the training are ready at Siemens PTI.