Attachment ‘B’

Second DFW Dynamic Reactive Device Project

Oncor Electric Delivery Company LLC
System Planning

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Introduction

In 2007 Oncor proposed installing up to 600 Mvar of dynamic reactive support for the DFW area at the Parkdale station. The ERCOT Board of Directors approved this project. A subsequent independent study by KEMA confirmed the need for a 600 Mvar SVC at Parkdale station by summer 2009. Oncor recently awarded a contract for the purchase, construction, and commissioning of two +300 Mvar -265 Mvar SVCs at Parkdale station with an expected in-service date of summer 2009.

Subsequent studies by both KEMA and Oncor indicate an additional 300 Mvar of dynamic reactive support will be needed in the DFW area by summer 2010 to avoid NERC Reliability Standard violations and possible voltage collapse.

Note: lead time to purchase certain major equipment associated with this project has recently extended to about 24 months. In order for this project to be completed by summer 2010 to meet peak load, Oncor respectfully requests RPG and ERCOT Staff RPG expedite their review process.

Need for Project

The DFW area constitutes a large load, approximately 30% of the ERCOT load at summer peak. Much of the DFW area real power demand is met by remote generation. Remote generation cannot supply the DFW area load's reactive requirements. Thus reactive support for the load must be provided locally. To that end Oncor has installed large numbers of switched capacitors over the past few years, both at the distribution and transmission levels. The overall steady-state load power factor is .98 or better.

The nature of the problem is not a steady-state reactive supply problem, but a dynamic reactive supply problem. During the heat of summer approximately 75% of the DFW area load is motor load. During system disturbances such as faults, motors can require four to six times' normal reactive power due to depressed voltage. Unfortunately during system upsets where voltage is temporarily depressed, switched capacitors' reactive output is reduced, further increasing the need for additional reactive supply. In order to avoid Reliability Standard violations or voltage collapse, large amounts of reactive power must be injected into the DFW area almost instantaneously during system upsets that result in lower than normal voltages.

In the past local generation has provided the dynamic reactive support for the DFW area. However, in recent years the continued load growth of the area coupled with retirements and mothballing of DFW area generating units has resulted in a deficiency of dynamic reactive support. The amount of additional dynamic reactive support needed in the DFW area is directly affected by the amount of local generation available to supply dynamic reactive support.

Studies have shown that the 600 Mvar Parkdale dynamic reactive project resolves planning violations for all known credible NERC Category A, B, and C contingencies in 2009. However, in 2010 with all local generation likely to be available on-line in 2010, at least one violation occurs for a credible Category C contingency. Due to emissions regulations, the availability of local generation may be limited. Should only one of the local SCR (conventional gas fired generation with advanced pollution control equipment) generating units be unavailable at summer peak, a credible Category C contingency could result in voltage collapse of the DFW area. Simulations indicate the proposed 300 Mvar dynamic reactive project resolves the Reliability Standard violation when all local generation is in service, and prevents voltage collapse should one SCR unit be unavailable.

Proposed Solution

Oncor proposes to add a 300 Mvar capacitive, 265 Mvar inductive dynamic reactive device at Renner station by summer 2010.

Note that the Renner location is tentative. Ongoing site studies could result in the selection of another location for this dynamic reactive device.

Recommendation

Oncor Electric Delivery recommends adding the 300 Mvar capacitive, 265 Mvar inductive dynamic reactive device in the DFW area. The estimated cost for this project is $35,000,000.00. This will resolve the NERC Reliability Standard violation in 2010 and help prevent voltage collapse should a credible Category C contingency occur while one of the local SCR units is unavailable.