B. TRANSMISSION PLANNING

Introduction

The *NYS Bulk Power System* must be planned with sufficient transmission capability to withstand the loss of specified, representative and reasonably foreseeable design criteria contingencies at projected customer *demand* and anticipated transfer levels. Application of the *NYSRC* Transmission Planning Reliability Rules provides for a *NYS Bulk Power System* level of *reliability* that avoids design criteria violations, instability, voltage collapse, widespread cascading outages, the loss of a major portion of the system, or unintentional separation of a major portion of the system in the event of any of the design criteria contingencies listed in Table B-2. Analysis of these contingencies include thermal, voltage, and *stability* assessments as defined by the Reliability Rules. Loss of small portions of the *NYS Power System* (such as radial portions) may be tolerated provided they do not jeopardize the *reliability* of the overall *NYS Bulk Power System.*

~~The Reliability Rules also apply after any critical generator, transmission circuit, transformer, series or shunt compensating device, or high voltage direct current (HVDC) pole has already been lost, and after *generation* and power flows have been adjusted between outages by the use of *ten (10) minute operating reserve* and, where available, phase angle regulator control and HVDC control.~~

Assessment of extreme contingencies recognizes that the *NYS Bulk Power System* may be subjected to events which exceed in severity the representative contingencies in Table B-2. These assessments measure the robustness of the transmission system, and should be evaluated for risks and consequences. One of the objectives of extreme *contingency* assessment is to determine, through planning studies, the effects of extreme contingencies on system performance. Extreme *contingency* assessments provide an indication of system strength, and determine the extent of a widespread system *disturbance*, even though extreme contingencies have low probabilities of occurrence. Extreme *contingency* assessments examine several specific contingencies which are listed in Table B-4. They are intended to serve as a means of identifying some of the particular situations that may result in a widespread *NYS Bulk Power System* shutdown.

Transmission Owners may take actions to reduce the frequency of occurrence of extreme contingencies, or to mitigate the consequences that are indicated as the result of testing for such contingencies.

The ability of the *NYS Bulk Power System* to withstand representative and extreme contingencies must be determined by simulation testing of the system as prescribed by the Reliability Rules and all applicable *NYISO* policies, procedures and guidelines.

NYSRC transmission planning rules shall include an assessment of Extreme System Conditions.

The Reliability Rules also sets forth a Requirement that *fault* duty levels be within appropriate equipment *rating*s.

While transfer limits across the transmission *interface*s defined by the *NYISO* are not, by themselves, measures of *reliability*, there is potential for adverse *reliability* impacts to occur if transfer limits are degraded from their existing levels as the result of the addition of a new generator or transmission facility. The *NYSRC* Reliability Rules do not require that transfer limits be maintained at specific levels. However, in its processes to review the impacts of any proposed transmission or *generation* project, the *NYISO* should give due consideration to the possible *reliability* impacts that may result if the proposed project results in diminished *transfer capability*, per NPCC criteria.

A *Special Protection System (SPS)* may be employed to provide *protection* for infrequent contingencies or for temporary conditions that may exist such as project delays, unusual combinations of system *demand* and equipment outages or unavailability, or specific equipment maintenance outages. An *SPS* may be applied to preserve system integrity in the event of severe facility outages and extreme contingencies. The decision to employ an *SPS* should take into account the complexity of the scheme and the consequence of correct or incorrect operation as well as benefits. An *SPS* should be used judiciously and when employed, should be installed consistent with good system design and operating policy. Although there are no specific *NYSRC* Reliability Rules that cover *SPS* requirements, NPCC maintains criteria providing *SPS* requirements that must be observed.

This Reliability Rule section also specifies requirements for establishing and maintaining a list of *NYS Bulk Power System* facilities.