

### 3.6 Sensitivity Analysis

In addition to running a base case using the input assumptions described in Section 3.5, sensitivity studies are run to determine reserve margin requirement outcomes if using different assumptions than in the base case. Sensitivity studies provide a mechanism for illustrating “cause and effect” of how some performance and/or operating parameters and study assumptions can impact reliability. Certain sensitivity studies also serve to inform the NYSRC Executive Committee of how the IRM may be affected by deviations from selected base case assumptions (see Section 4). Generally, Tan 45 analyses (see Section 3.4.2) are not required for sensitivity studies. ICS shall determine when a Tan 45 analysis would be appropriate for a particular sensitivity case application. Various types of sensitivity studies are grouped as follows:

*MARS Parameter Impacts* – This type of sensitivity study illustrates how MARS evaluations and IRM requirements are impacted by not representing certain modeling parameters within MARS. Examples of these sensitivity studies that could be considered are: NYS transmission system capability not represented, i.e., transmission constraints not represented within NYCA; interconnections to external Control Areas not represented, i.e., no emergency assistance to NYCA; and load forecast uncertainty not represented.

*Assumption Uncertainty Impacts* – This type of sensitivity study illustrates the IRM impacts of recognizing the uncertainty of certain base case assumptions described in Section 3.5. These sensitivity studies are normally represented in pairs of high and low assumption ranges related to selected base case assumptions. Occasionally, sensitivity studies in this group are run when alternatives or disagreement may have existed during preparation of base case input assumptions. Examples of these sensitivity studies that could be considered are: higher and lower external Control Area reserves than represented in the base case, higher and lower generating unit EFORds than represented in the base case, and wheel through transactions. Each sensitivity case is defined by representing a reasonable range of assumptions higher and/or lower than the base case value.

*Impacts of Future System Changes* – This type of sensitivity study is sometimes considered to illustrate the impact of possible system changes that could be expected beyond the next capability period. An example of this type of sensitivity would be to examine the IRM impacts of future environmental initiatives.

*Special Sensitivity Case* – All substantive assumption changes following approval of the final base assumptions in early October are combined into a single Special Sensitivity Case (see Table 2-1 and Section 3.5). All Special Sensitivity Cases are conducted using Tan 45 analyses for determining an IRM. If appropriate, a decision shall be made as late as mid-November (without delaying the final IRM study report – see Table 2-1) to transform a Special Sensitivity Case IRM, if approved by the Executive Committee, to the final base case IRM.

An IRM study's preliminary base case is used to run sensitivity studies (See Section 3.4).