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IMPACT OF OP4 ACTION 12 DEMAND RESPONSE RESOURCES

Scope

Identify the frequency of needing to implement Operating Procedure No. 4, Action During a Capacity Deficiency (OP 4) by using demand response resources that are callable during Action 12 of OP 4 to meet the New England resource adequacy planning reliability criterion of disconnecting firm customers no more often than once in 10 years LOLE. The study covers the 2007/08 through the 2015/16 power years.

Study Assumptions

This study uses the data used for the Risk Profile Analysis conducted for the 2006 Regional System Plan "at criterion" scenario assuming 2,000 MW of tie reliability benefits in the system expansion. Except that demand response resources are modeled in 200 MW blocks totaling 1,000 MW in Action 12 of OP 4 to meet the once in 10 years LOLE.

Study Results

Figures 1 through 3 depict the study results showing the number of times various OP 4 Actions could be implemented during the study period with Action 12 demand response resources at 200 MW intervals. The following describes these figures:

- Figure 1 shows the expected number of times OP 4 Actions might be needed.
- Figure 2 shows the expected number of times tie benefits (emergency power purchase from neighboring control areas) might be needed.
- Figure 3 shows the number of times demand response programs callable at Action 12 of OP 4 might be needed.

Observation

Results of the study show that New England would need to implement OP 4 Actions, approximately 2 to 4 times per year during the study period, to meet load and operating reserve requirements based on the range of assumed amounts of load relief used to meet the resource planning reliability criterion. These results are consistent with the results shown in Figure 2-4 (see below) of the 2006 Regional System Plan (RSP06). The total amount of load relief assumed in this study is very close but lower than the total amount assumed in the 3,000 MW of tie benefits case in RSP06. Therefore, the resulting expected days per year of needing to implement OP 4 Actions of this study track closely with (but lower than) the values associated with the results of the RSP06 3,000 MW tie benefits case.

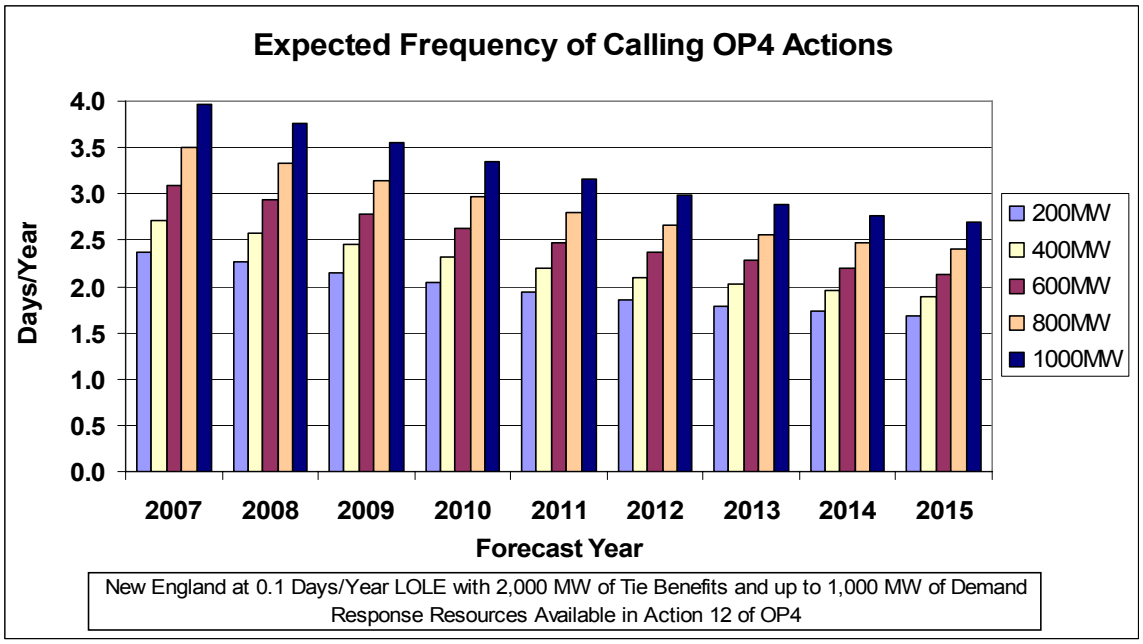

Figure 1: Expected days per year of needing to implement OP 4 Actions under various assumed amount of demand response resources in Action 12 of OP 4

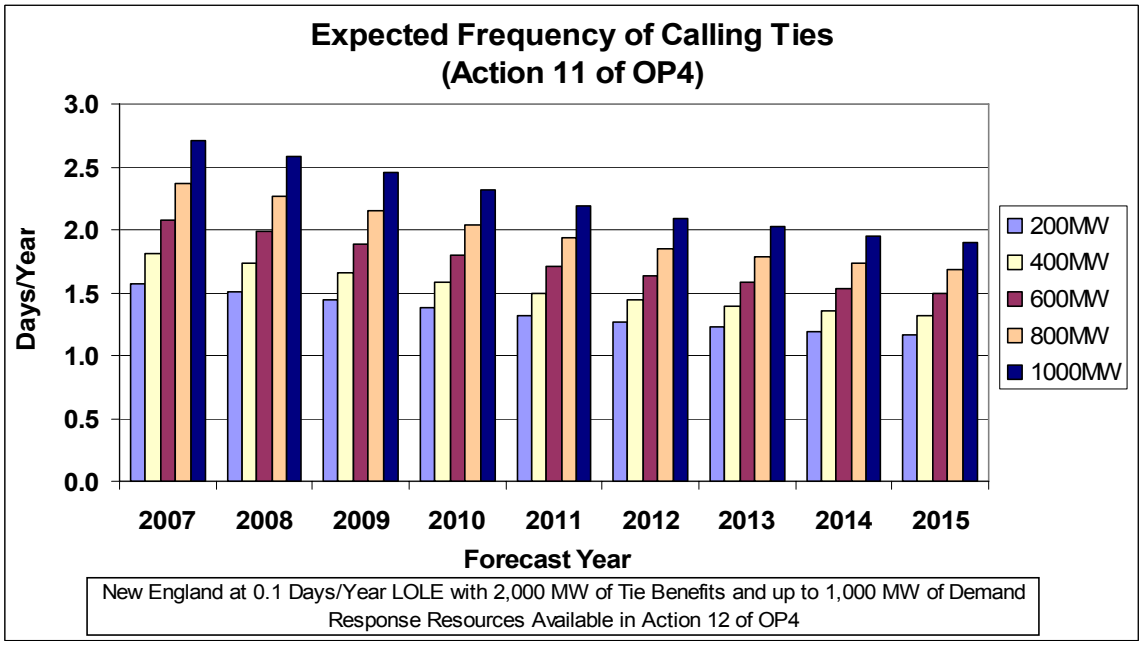

Figure 2: Expected days per year of needing to call on ties benefits under various assumed amount of demand response resources in Action 12 of OP 4

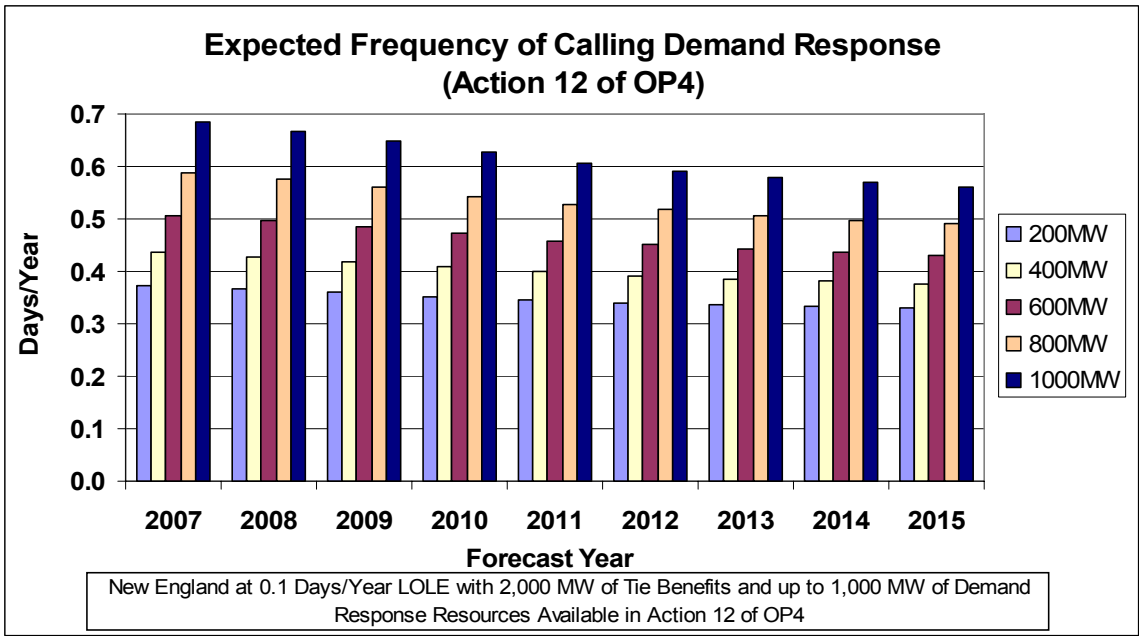

Figure 3: Expected days per year of needing to call on OP 4 demand response resources under various assumed amount of demand response resources in Action 12 of OP 4

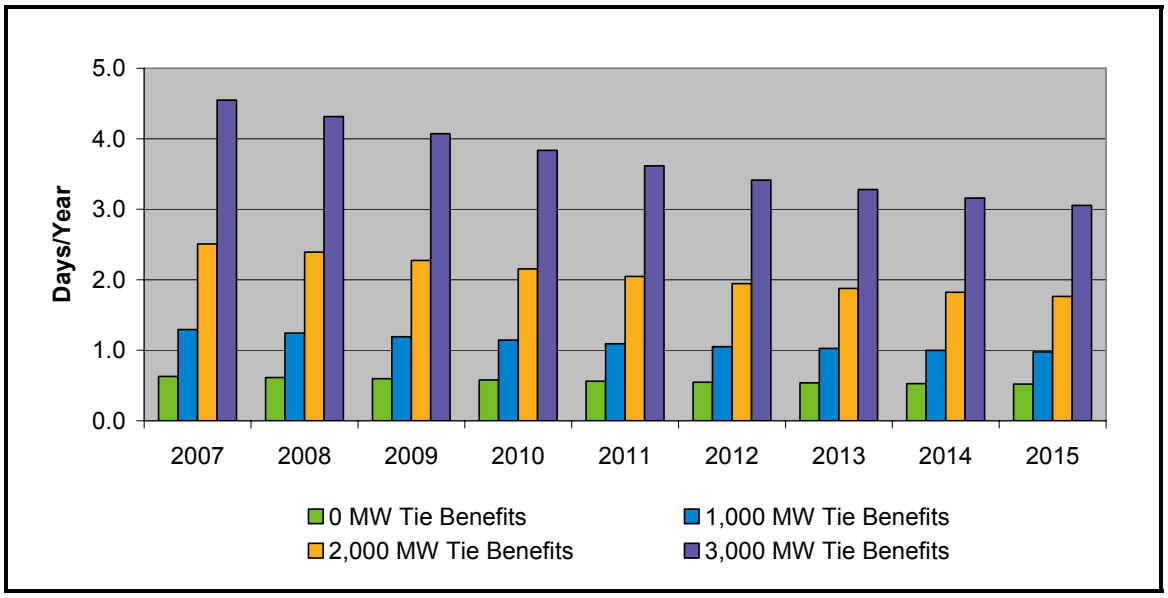

Figure 4-2 of RSP06: Expected days per year of needing to implement OP 4 actions under various assumed tie-line benefits.