The United States targets to supply 20% of its electricity generation using wind energy by 2030. The expansion of renewable resources, especially weather-based resources such as wind, creates more uncertainty and variability in the operation of the power grid. New methods and approaches in electricity market operations are needed to efficiently manage the continuing increase in variability and uncertainty caused by expanding intermittent wind. This paper proposes an improved stochastic programming approach for incorporating wind uncertainty into energy markets. The proposed formulation improves the two-stage stochastic unit commitment problem by introducing a dynamic decision making approach similar to a multi-stage formulation in the presence of wind power scenarios which are not well represented by a scenario tree. The numerical results present up to 1%-2% decrease in operational costs compared to the two-stage stochastic unit commitment formulation.