World Academy of Science, Engineering and Technology
International Journal of Energy and Power Engineering
Vol:10, No:01, 2016

Adjusted LOLE and EENS Indices for the Consideration of Load Excess Transfer in Power Systems Adequacy Studies

Authors : François Vallée, Jean-François Toubeau, Zacharie De Grève, Jacques Lobry

Abstract : When evaluating the capacity of a generation park to cover the load in transmission systems, traditional Loss of Load Expectation (LOLE) and Expected Energy not Served (EENS) indices can be used. If those indices allow computing the annual duration and severity of load non-covering situations, they do not take into account the fact that the load excess is generally shifted from one penury state (hour or quarter of an hour) to the following one. In this paper, a sequential Monte Carlo framework is introduced in order to compute adjusted LOLE and EENS indices. Practically, those adapted indices permit to consider the effect of load excess transfer on the global adequacy of a generation park, providing thus a more accurate evaluation of this quantity.

Keywords : expected energy not served, loss of load expectation, Monte Carlo simulation, reliability, wind generation
Conference Title : ICEEPE 2016 : International Conference on Electrical, Electronics and Power Engineering
Conference Location : London, United Kingdom
Conference Dates : January 18-19, 2016