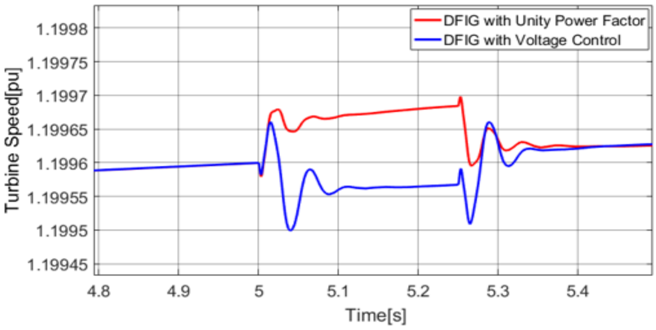

Fig. 15. Wind Turbine Speed

5. Conclusion

It is observed, in this paper, a comparative analysis of two DFIG control strategies provided by Matlab/Simulink. In this way, a voltage sag Type A was applied to the distributed system, and the voltage profile response was observed in front of voltage and reactive power control (with null reactive reference).

By operating the wind generators with voltage control, an improvement of the PCC voltage was observed, which leads to the safe operation of sensitive devices to voltage sags. In addition, it was shown that this control strategy contributes to keeping the transient stability. Since it causes an increase in the voltage at PCC, this control strategy contributes to the reduction of the power angle excursion. On the other hand, subsequently the contingency event, it was identified a high voltage at PCC caused by the operation of such control, which can damage the DC link converter. Furthermore, the active power oscillation may result in the actuation of the power protection relay by the active power peak observed after the applied contingency.

It is noted that further studies should be developed in order to obtain an optimum control to be applied to on-grid systems since the best control strategy for a specific contingency may not be suitable for another one.

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