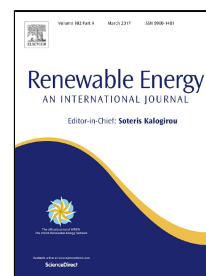


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Low-frequency oscillations of wind power systems caused by doubly-fed induction generators

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Highlights:

- (i) Linearized state equations of the DFIGs with the stator voltage transient are newly proposed.
- (ii) The participation ratios are newly defined by the mechanical parameters of DFIGs to find the low-frequency oscillation caused by the DFIGs.
- (iii) The multi-step derivatives are proposed to derive the sensitivity of the oscillation caused by the DFIGs to the parameters of the DFIGs and the SGs.
- (iv) The sensitivity-based damping scheme to the low-frequency oscillation caused by the DFIGs is proposed and validated by changing the controllers' parameters.

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