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Potential function based on secondary control of the microgrid

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Abstract

The potential function based on secondary control of the microgrid is introduced in this thesis. The potential function is used to control the voltage magnitude of secondary control in the islanded mode only. Such control scheme ensures that the terminal voltage of a distributed generator is equal to the desired voltage. This method was tested in Matlab to determine the minimum voltage magnitude required during normal operations. After obtaining the results from Matlab, a typical microgrid system was simulated in Powerlib to validate the results. The voltage magnitude was assumed to be within a certain range, and the potential function was used to compute the minimum voltage magnitude supplied by distribution generators. Overall, the potential function minimiser is a useful method that can be reliably used for the secondary voltage control of a microgrid in the islanded mode.

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