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Decentralised H$_{\infty}$ Load Frequency Controller Design Based on SSVs

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Abstract: The decentralised load-frequency controller design problem concerned is translated into an equivalent problem of decentralised controller design for a multi-area multi-input multi-output (MIMO) control system. It is shown that subject to a condition based on the structured singular values (SSVs), each local area load-frequency controller can be designed independently. The stability condition for the overall system can be stated as to achieve a sufficient interaction margin. It is demonstrated by computer simulation that within this general framework, local H$_{\infty}$ controllers can be designed to achieve satisfactory performances for a sample two-area power system.