Stabiliser faults in multi-machine power systems are examined in this paper where fault-masking and system reconguration of the nonlinear system is obtained using a virtual actuator approach. Phasor Measurement Units, which can be integrated in wide-area transmission grids to improve the performance of power system stabilisers, are utilised when reconguring remaining stabilisers after one has been inoperable by a local failure. A stability-preserving reconguration is designed using absolute stability results for Lure type systems: The calculation of the virtual actuator that relies on a solution of a linear matrix inequality (LMI) is detailed in the paper. Simulation results of a benchmark transmission system show the ability of the fault-tolerant reconguration strategy to maintain wide-area stability of a power system despite failure in a stabiliser.