

Estimation of voltage dependent load models through power and frequency measurements

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Abstract-

This letter proposes an optimization-free technique to estimate the parameters of voltage dependent loads through the measurements of only the load active and reactive power consumption and frequency deviations at the load bus. The technique is shown to be a relevant consequence of the dependency of power flow equations on the bus voltage phase angles. The WSCC 9-bus and the IEEE 14-bus systems serve to illustrate the proposed technique.

Index Terms- Voltage dependent load, state estimation, frequency measurement, frequency divider, phasor measurement unit (PMU).

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Citation:

Ortega, A.; Milano, F.; "Estimation of voltage dependent load models through power and frequency measurements", IEEE Transactions on Power Systems, vol.35, no.4, pp.3308-3311. July, 2020.