**Introduction**

the smart inverters became essential elements of the PV system because they play the main role to control active and reactive power. Also, the SI settings have a strong relationship with the voltage control performance. In this paper "we propose a new approach that uniquely determines the parameter settings for volt-VAR-watt control based on the active and reactive power-voltage sensitivity matrix of SIs". We can conclude from the impedance of the distribution system the voltage sensitivity matrix, which doesn't vary with the number of smart inverters or with time.

The special thing about this proposed method is that we don’t need optimization problem formulation, power flow calculation, or communication between the Sis, to determine the individual SI parameter settings. otherwise, we can directly determine the individual SI parameter settings theoretically and efficiently. We use the default parameters and optimized parameters to compare the voltage control performance in a real distribution system model with a large number of PV installations and volt VAR-watt control in case the load demand and PV generation are given in advance.

In the results, we see that the proposed method reaches the best performance compared to other conventional methods on the subject of all the valuation indices; and it's effective in mitigating voltage rise in distribution systems. Moreover, the proposed method can reach the same level of voltage control performance as the optimization results.[1]

Reference

[1] S. Yoshizawa *et al.*, “Voltage-Sensitivity-Based Volt-VAR-Watt Settings of Smart Inverters for Mitigating Voltage Rise in Distribution Systems,” *IEEE Open Access Journal of Power and Energy*, vol. 8, pp. 584–595, 2021, doi: 10.1109/OAJPE.2021.3125013.