

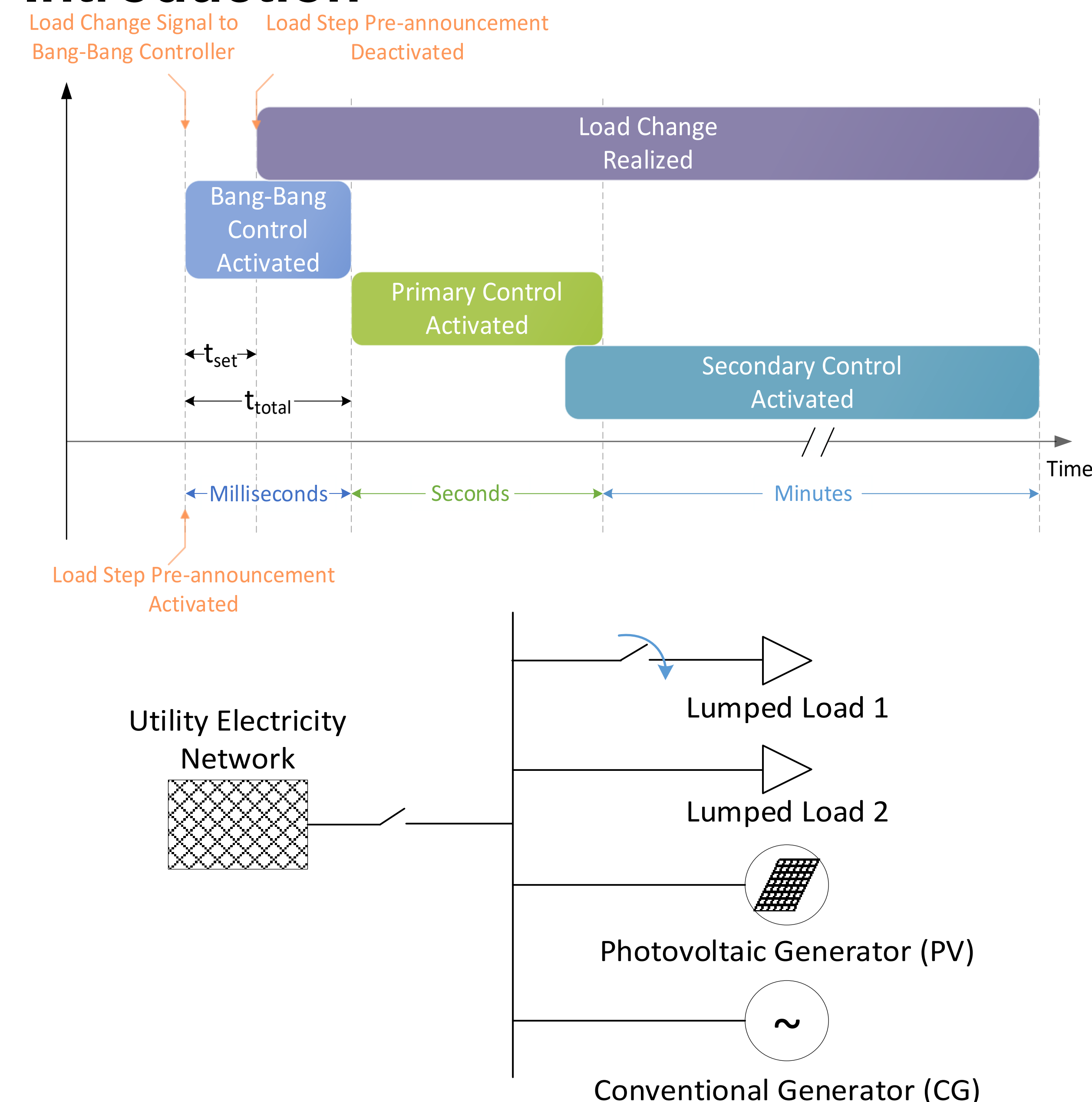
0379 - Optimizing load step pre-announcement and bang-bang controller for enhanced islanded microgrid frequency stability

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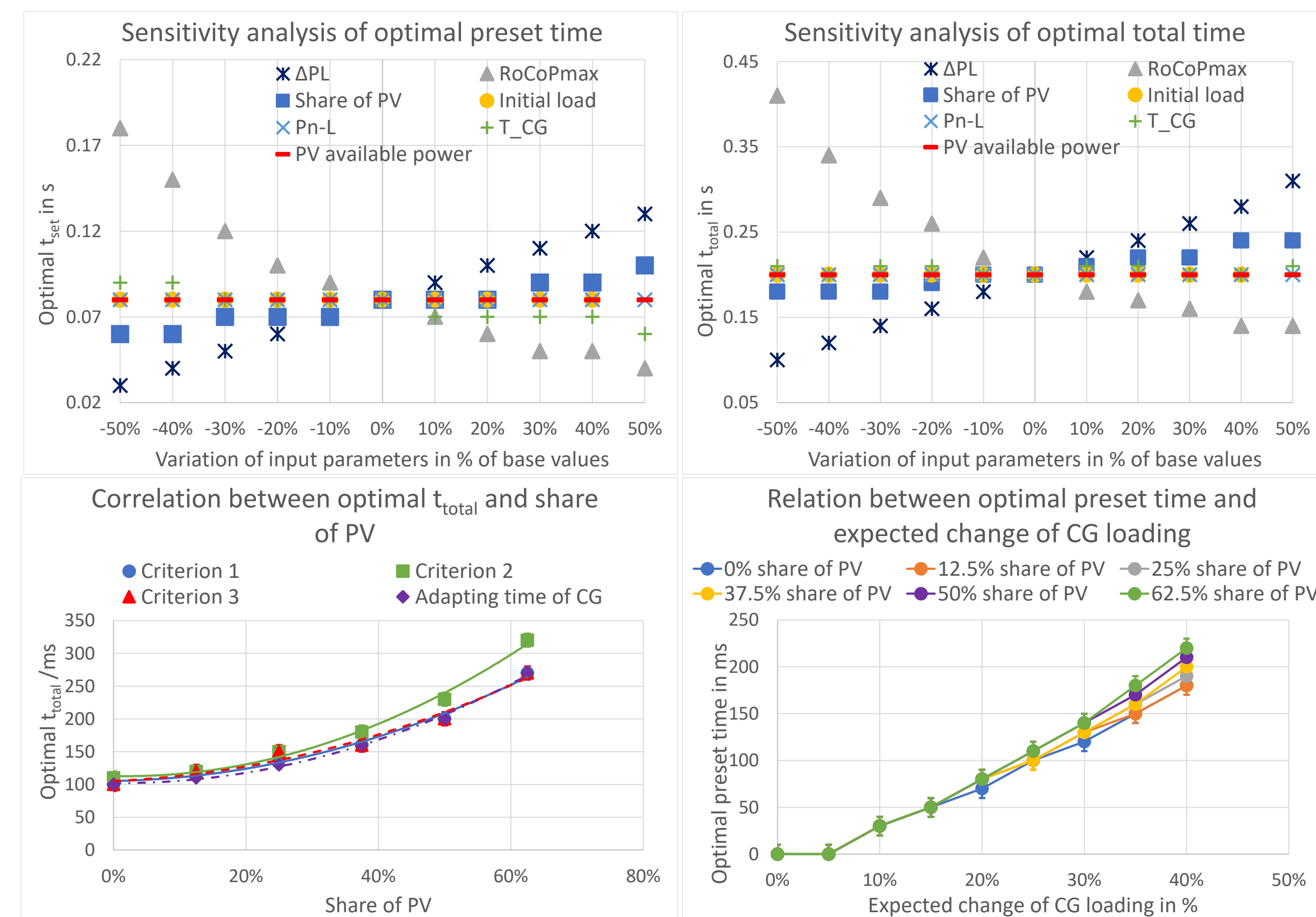
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Introduction

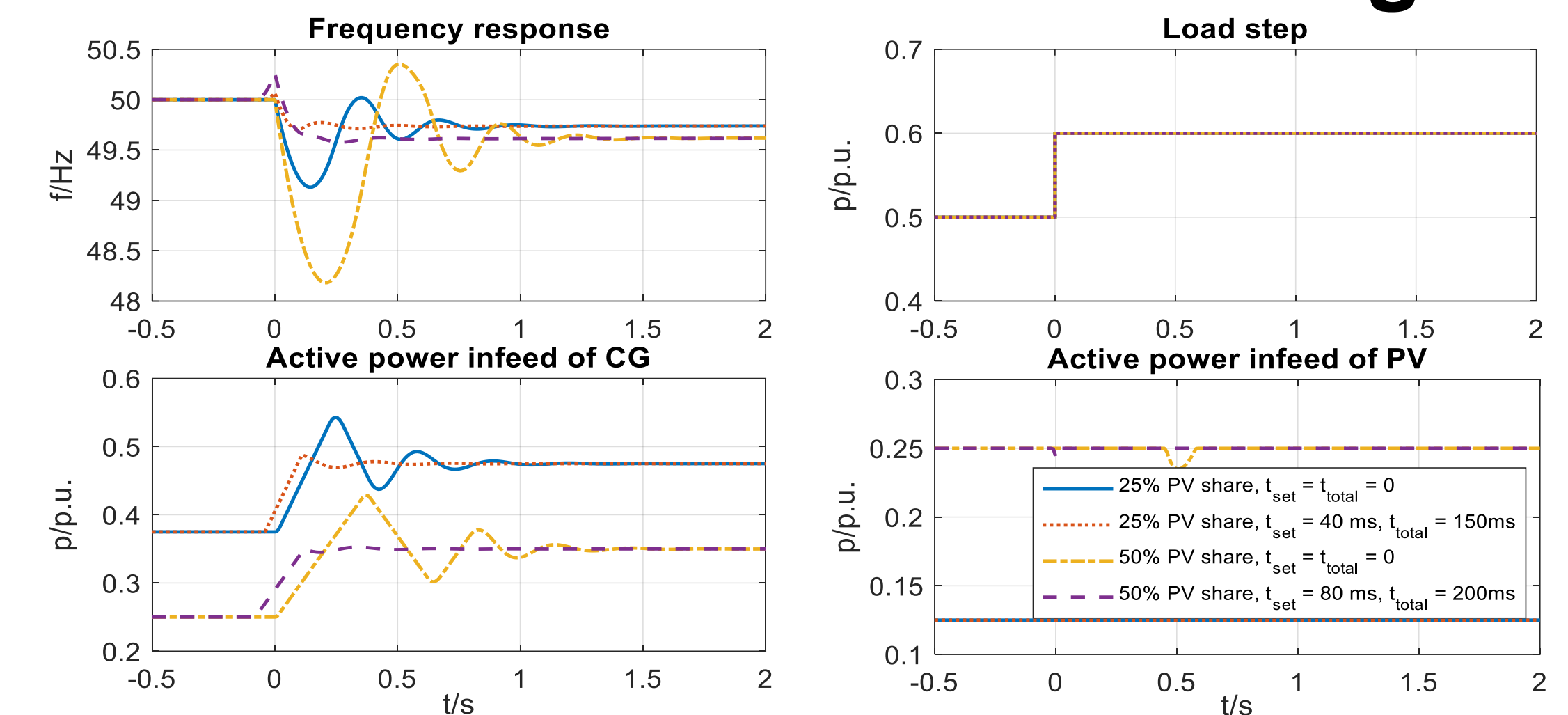


Sensitivity analysis

7 investigated factors: load change (ΔP_L), maximum rate of change of CG's power ($RoCoP_{max}$), share of PV, initial load, total MG size (P_{n-L}), CG's starting time constant (T_{CG}), PV currently available active power.



Simulation results in Test Microgrid



Conclusion

- ΔP_L , $RoCoP_{max}$, T_{CG} , and PV share influence the choices of t_{set} and t_{total} .
- t_{set} shall generally be set shorter than t_{total} .
- Optimal t_{set} has an almost linear relation to the expected change of CG loading.
- Optimal t_{total} shall be as long as the CG requires to change its active power output to match the expected load change.
- With optimal t_{set} and t_{total} , system dynamic behaviour is improved significantly.