Supplementary Material: Assessing local costs and impacts of distributed solar PV using high resolution data from across Great Britain

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Figure S1 shows the distribution of key parameters across ruralities in GB alongside those for the region of SW England considered in this paper. A more urban context "major urban conurbation" is also included, accounts for 45% of LSOAs across GB (with cities, towns, and villages accounting for 33%, 9%, and 7% of LSOAs, respectively). Distributions across cities, towns, and villages are broadly similar for SW England and GB as a whole, although PV deployment levels are somewhat higher across ruralities in SW England.

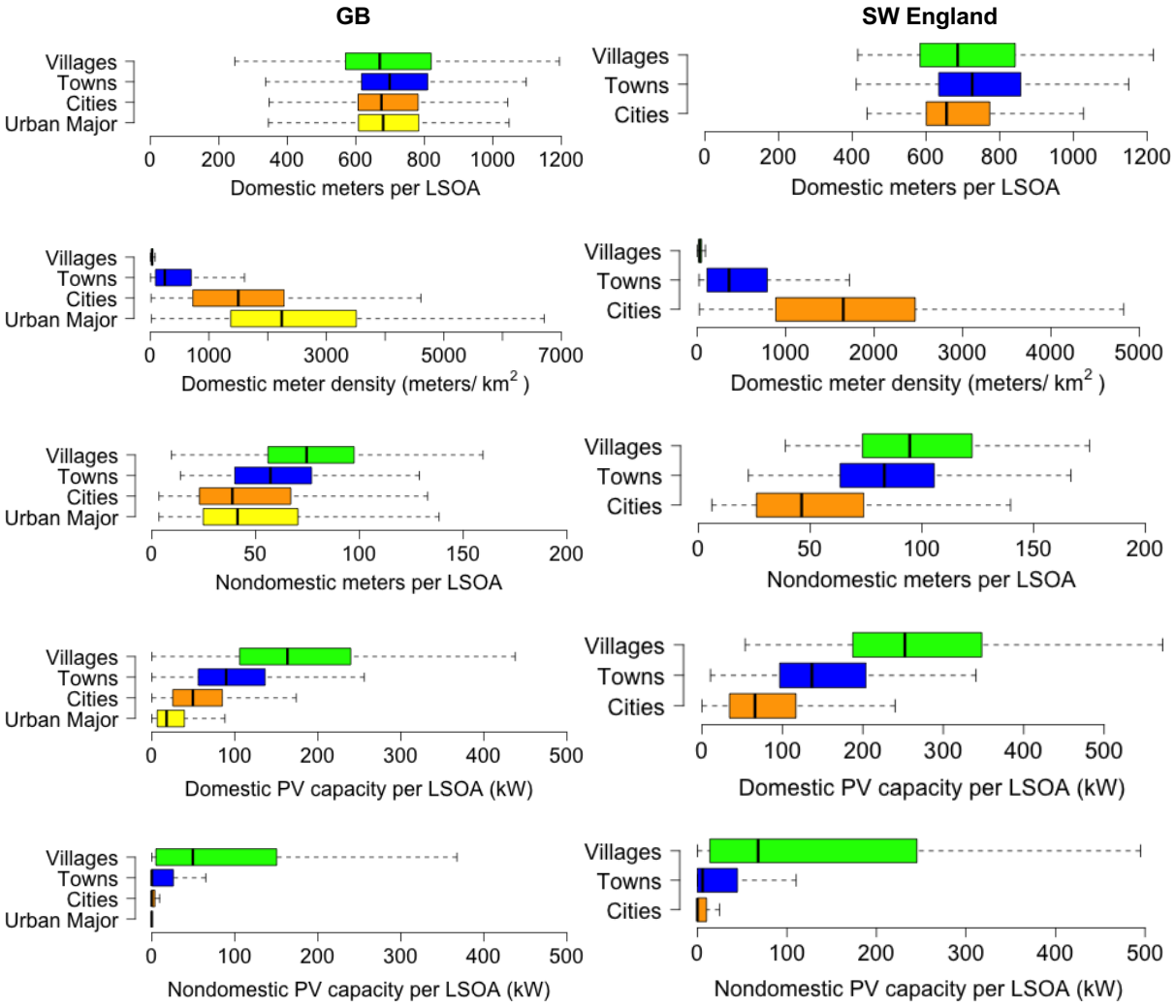


Figure S1 Box and whisker plots showing median, standard distribution, and extreme values of key parameters across LSOAs representing cities, towns, and villages in (left) Great Britain and (right) the region of SW England considered in this study. The additional rurality category "major urban conurbation" is included for GB, for which there are no LSOAs in SW England.

Figure S2 shows the proportion of transformers experiencing some level of reverse power flow across ruralities in Hi-PV and Mid-PV scenarios. Since we are only considering distribution transformers in this study, these should be able to handle similar levels of power flow in the reverse to the forward direction, and this reverse power flow should not be problematic. However, if many of these transformers simultaneously exhibit high levels of reverse power flow, this could become problematic for primary transformers operating at higher voltage levels, which are likely to have lower capacities in the reverse direction.

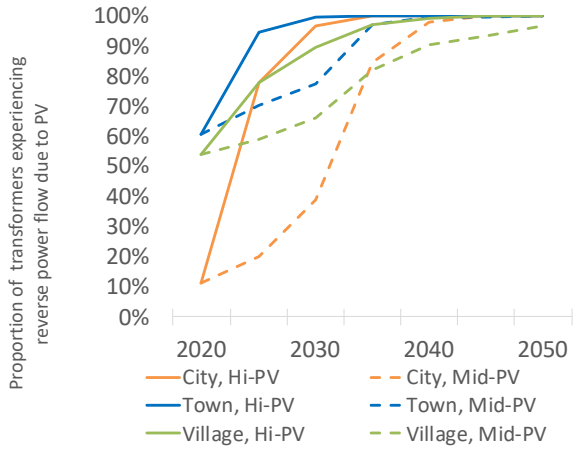


Figure S2 Proportion of transformers exhibiting reverse power flow at times of peak PV generation and minimum demand across simulated cities, towns, and villages in Hi-PV and Mid-PV scenarios with no storage or DSM.