

scenario

A certain landlord recently finished constructing a block of 3 houses and consulted an electrician to connect the houses to the electricity grid.

The electrician informed him that the voltage of the electricity needed to be stepped down from 13KV to 240V before connecting the house. This took some time before it could be effected.

The land lord became annoyed as he thought the electrician wanted to cheat him so he decided to hire another person who promised to do the job and appeared to be cheaper.

The houses were connected in a way that a breakdown in one house could affect all the houses.

The tenants complained that the current was so low and some of their appliances could not work. The tenants have threatened to vacate the houses if the land lord does not address the problem.

When all the appliances in the houses are connected, the effective resistance in all the houses are $10\ \Omega$ and $12\ \Omega$

Task

As a learner of physics, use your knowledge of physics to,

- Explain to the landlord why stepping down voltage is required and how it is done.
- Explain why stepping down process could be slow.
- Show with evidence the modifications that could be made to ensure that more current flows in the houses.