

# One in 5 residents overuses electricity at neighbors' expense

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Credit: Wikipedia

Household electricity use falls by more than 30% when residents are

obliged to pay for their own personal consumption. This is shown in a new study by researchers at Uppsala University's and the Research Institute of Industrial Economics (IFN), published in the *Proceedings of the National Academy of Sciences*.

The study, based on a 'natural experiment' comprising some 1,800 apartments, was performed by a Swedish private housing company in 2011 and 2012. In one of the company's residential areas, [electricity meters](#) were installed in every unit (2011) and the tenants paid for their own use. In another but similar area, the rent included unlimited electricity use but there, instead, the tenants had to pay higher rents to enable the landlord to cover [electricity costs](#). By comparing the trends of electricity consumption in the two areas from 2006 to 2015, the researchers arrived at four interesting results.

1. Electricity consumption for the whole of the former housing area fell by approximately 25% as a consequence of the tenants being obliged to pay for their own use of electricity. But this calculation includes electricity for stairwells, laundry rooms and outdoor lighting, i.e. the kind that the residents cannot themselves influence. In terms of the portion of electricity used in the apartments, electricity use fell by 36%.
2. Electricity consumption began declining as soon as the meters were installed. Shortly after the residents themselves began to pay for electricity, its use in the whole area had fallen by 22%. In the following three years, no signs of electricity use beginning to rise again were discernible. Rather, it seems to have continued to fall.
3. It is in the winter months, above all, that electricity use decreases. This may be seen as especially positive since it is then that electricity use peaks and the cost of generating electricity is highest.
4. Twenty per cent of the tenants proved to account for as much as

two-thirds of the reduction in [electricity consumption](#). This 20% used considerably more electricity than the other tenants when they did not need to pay for their own use. When they were obliged to pay for it personally, their electricity use fell to the same level that as of the other residents. Thus, the costs of electricity use became more fairly distributed once each household had to pay for the electricity it used.

This study shows that [domestic electricity](#) use can be reduced substantially by a switch from including unlimited electricity in the rent to making individual residents pay for their own individual use. The researchers have also established that it is often economically profitable to install electricity meters in apartments so that tenants can be charged directly for their electricity use. For the individual landlord, however, making this investment does not always pay, and public subsidies may therefore be justified. Compared with other measures to reduce emissions of greenhouse gases, individual metering and charging of [electricity](#) are highly cost-effective.

**More information:** Consequences of a price incentive on free riding and electric energy consumption. Mikael Elinder, Sebastian Escobar, Ingel Petré Uppsala University. *PNAS* [DOI: 10.1073/pnas.1615290114](https://doi.org/10.1073/pnas.1615290114)

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