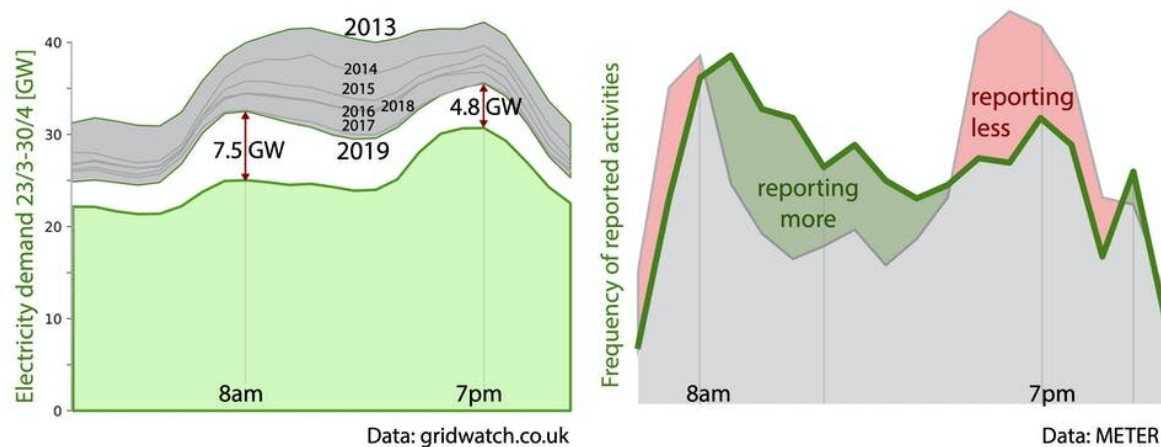


Four energy-saving lessons from the first lockdown which may help us through the winter

November 5 2020, by Philipp Grünewald



Left: Electricity demand fell in 2020 (green), especially in the morning peak. Electricity demand in the UK has been falling for years due to improved energy efficiency and high carbon industries moving overseas. Right: activity reporting frequency in lockdown (green) and at all other times (grey). Credit: Phil Grunewald, Author provided

The gold standard of research in science is the randomized controlled trial. The COVID-19 restrictions may at times seem random and most certainly feel like a trial. But are they controlled enough to learn from?

For scientists like me who are interested in [our energy use](#), the lockdown

is a social science experiment of unprecedented scale and opportunity. No ethics committee would ever have approved it. Never before has an entire society been told to abandon its normal routines from one day to the next.

With the help of detailed activity and energy records, we can learn a lot about ourselves and our [energy use](#) habits. It turns out that changing some of our routines due to the pandemic really can have significant benefits for ourselves and the planet.

Here are four lessons from the first lockdown which may help us through the winter.

1. Getting the timing right saves money and carbon

Before the first lockdown in March, life followed well-established rhythms and routines. Energy system operators could rely on the British public to come home between 5pm and 6pm, start cooking, put on a wash and perhaps watch a bit of TV with a cup of tea. This pattern was so well established that [power stations](#) are routinely put on standby to meet peak demand between 5pm and 7pm.

Unfortunately, these "[peaking plants](#)" are among the most expensive and polluting ones we have. So much so that utilities, economists and engineers have long wondered if and how some of this peak demand could be reduced or shifted to another [time](#) with cleaner, cheaper electricity.

Then came the first lockdown. With almost [immediate effect](#), the pattern that had seemed so stable was upturned. Many people allowed themselves an extra hour in the morning, saving time from the usual commute and the peak evening period got redistributed. Chores such as laundry could now be performed in the middle of the day. The result,

less electricity use at most expensive and polluting times of the day.

Working from home resulted in time shifts that reduced emissions and costs. We may not have seen those reductions in our bills yet, but smart meters and time-of-use tariffs can make that happen, too.

2. The 'old normal' is not our natural rhythm

Activity patterns have changed, quite fundamentally in some cases. Our data on self-reported levels of enjoyment suggest that [many people prefer the new routine](#). The early evening rush, which leads to peak [electricity demand](#), was in fact a very stressful period. Moving some of the jobs and chores to earlier in the day results in higher levels of enjoyment overall. Just because everybody followed a certain rhythm, doesn't mean that this is the best rhythm for us—nor for the environment.

3. We all need flexibility—even power systems

There are more than 240 gigawatts-worth of [household appliances in the UK](#), but the combined electricity generated by the country's power stations covers merely a quarter of this. The lights stay on so long as we can be trusted not to turn all appliances on at the same time.

Even a well-synchronized moment of turning on kettles, such as during the ad break of Coronation Street, can put a strain on the system. Luckily, on-demand television has [helped to diffuse](#) these moments of social synchronization somewhat.

There is a certain irony that the lockdown gave some people more flexibility over their day. Without any further prodding, activity patterns became less synchronized and less peaky. The overall demand reduction

meant that no coal needed to be burned, while the shift in timing allowed more electricity from renewable sources to be used.

4. Now is the time to improve our homes

It may not have felt it at the time, but the timing of the first lockdown was fortunate. Last time when everyone was asked to stay at home, the heating season had just come to an end. Better still, the UK experienced a period of warm and pleasant weather. This winter will be different. Homes which need to be heated throughout the day will see significant increases in their bills.

Much of this could be avoided with better insulated and refurbished housing. Any government that wants to support the economy and citizens would do well to invest in the efficiency of our housing stock now.

This winter will be challenging for many. You can help my colleagues and I observe the effects of current restrictions by joining the study at JoyMeter.uk.

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