

## Power cuts – a view from the affected area

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I live in Lancaster. At 22:30 on Saturday, December 5<sup>th</sup>, in the middle of BBC4's latest *Scandi-noir* drama, the lights went out. It was not like the previous times there have been power cuts when, looking out over the city, it was possible to see that only a few roads were affected. This time there were no lights anywhere. We dug out some candles, checked our mobile phones, which showed no signal (evidently O2's local base station doesn't have battery standby) and went to bed.

Next morning, the power was still off. With a wood-burning stove (installed after the last power cuts) we had warmth, despite the wind and the rain. The cooker has a gas hob but, to comply with safety legislation, it has a flame-failure device. Although we have owned it for 5 years, I had no idea whether this used an electrical circuit or some mechanical arrangement: luckily it was the latter so we could cook. Both our neighbours relied on gas-fired central heating (controlled by electricity) and electric cooking – an excuse for a candlelit dinner chez nous.

The local supermarket was heaving – it turned-out to be the only one in the city that had a standby generator, so could stay open. There was no internet (presumably because BT does not back up the power supplies to their routers) so, despite the electronic tills working, all transactions had to be in cash. Eight thousand Lancaster University students live within 2 miles [about 3km] of the supermarket. On campus many use contactless cards to pay for everything, even a coffee. We are told this is the future of retail, but it all falls over when the internet is down. Banks who are pushing for a *cashless society* should have to explain how a *cashless and electricity-less society* can work.

The local garage had a sign “no fuel” – there was actually plenty of petrol and diesel but it was in underground tanks and relied on electric pumps to transfer it to the car. Luckily they sold batteries for our 1970's radio. Normally when we listen to the radio, we use the internet or the Freeview TV decoder. I didn't even know the frequencies of the local radio stations. A neighbour's immediate reaction was to reach for her i-phone – where else, other than the internet, would you find that information?

Many students were in dire straits with the lack of mobile coverage. Going from a situation where some appeared surgically attached to their mobiles to a state of affairs where your phone was no more useful than a music player left them adrift. Student flats don't have land-line phones and there were discussions in the queues outside the few phone boxes in town about how to use them. Is there a case for requiring all mobile operators to have backup supplies to keep their networks going for, say, 48 hours in the event of loss of supply? Even technically-savvy neighbours admitted that they had replaced their wired phones (powered from the exchange) with wireless handsets (powered from the mains) – so much more convenient, until there is a power cut. Although we have a wired phone, numbers are stored in a memory that requires mains power for access. Gone are the days when we had a paper list of numbers next to the phone.

Luckily we didn't want to go anywhere on Sunday 6<sup>th</sup> as there were no trains on the West Coast Main Line north of Preston. By Monday 7<sup>th</sup> some trains were running but only stopping

at Lancaster station during daylight hours as there was no platform lighting. A radio bulletin said there would be no more Virgin trains between Preston and Glasgow before Wednesday.. A couple of hours later a train could be seen heading for Glasgow – but perhaps it was operated by First TransPennine Express or Northern Rail, not Virgin. With multiple train operators, how is a normal traveller expected to know? Life was less complicated in the days of British Rail!

Early on Sunday morning, most of the buses were in their depot on a Morecambe industrial estate. However the police had closed both bridges across the River Lune from there to Lancaster, as a shipping container floating down the swollen river had crashed into them and they had not yet been inspected to check they were safe. And the bus station was flooded – so no buses.

The first challenge to going anywhere by car was that our garage has an electric door mechanism. I know how to open it from the inside in an emergency but have never considered how to open it from the outside. We're OK as we have a door to the garage from the house, but several of our neighbours don't. One, who has a bad back, would be unable to manhandle a double up-and-over door. A couple of neighbouring properties with long drives have electrically-operated gates with keypads for access – I've no idea how they function with no power. But there was not much point in taking out the car as the city centre was cordoned off, the southern exit onto the M6 (J33) was closed by a flood and the northern exit (J34) was closed by a chemical alert – or so we understood.

Actually we had very little idea what was happening – our usual sources of information, the internet and TV, were not working, which left word of mouth and the radio. A neighbour who usually listens to DAB [Digital Audio Broadcasting] radio found it was off-air (presumably because the signal comes from a booster station that relies on the mains) and she didn't think to retune to FM. The first local news we found was not much help: they told us that 55,000 homes in the Lancaster area had lost power, but we had worked that out already, and that engineers were working to restore supplies – vaguely reassuring but not definitive. There were well over a dozen other FM channels, but which would be best for local news? Impossible to tell flicking through the spectrum as most played a superficially similar mix of light music. Unless you regularly listen to local radio, how would you know? In emergencies, there is a lot to be said for a single authoritative source of information – bring back the BBC Home Service?

*The Bay* radio was great. Their studio is on the Quay, where they can look out of the window to see what is floating down river and they have a generator to keep the transmitter going. However, because they had decamped from the flooded studio, they had only one working phone line and no internet or mobile connections. They sent one of their few reporters home, outside Lancaster, to look at the internet and phone in to say what she could find out that could be relayed to listeners. A second source of information came from listeners who phoned-in with something interesting - useful snippets like where in Morecambe it was possible to get mobile reception or which roads were open.

Primary schools usually communicate with parents by text message or e-mail – neither was working. Several had decided to close until mid-week and the heads had phoned *The Bay* (using a special code word to avoid hoax calls) who then broadcast the messages. At one local school, the message was written with indelible marker on a pillowcase fixed to the railings with cable ties.

With thousands of students, little catering, no power and an uncertain idea of when the situation might be restored, the University decided to end term a week early. It posted a prominent message on the website (unfortunately not available to anyone actually in Lancaster as there was no internet) and e-mailed all heads of department to ask academic staff not to come in on Monday. However, not all were contactable and, when those that were cascaded the information by the usual e-mail lists, they had no idea how many received it. The University has a 1,000 kW generator and a 1,800 kW wind turbine, which is more than enough to keep emergency lights and the heating boilers going. However the system is not designed for “islanding” so, when the 11 kV feeders were lost, everything shut down. If extreme weather is expected to become more frequent, there must be a case for rearranging the system to allow the university to be self-contained when mains power is lost.

On Monday morning at 06:00, power to central Lancaster was restored, heralded by a chorus of burglar alarms from the street (why are they designed to go off when power is restored – it’s hardly as though burglars are going to switch *on* the system?).

Monday was a lovely sunny day and we walked round Lancaster, noting the generators parked on street corners with cables snaking into the local substations. Apparently Electricity North West (ENW) had managed to rustle-up more than 60 of these in a couple of days. The internet told us that the main substation in Caton Road was still flooded and we were relying on these generators for power. At the lower end of town there were BT technicians burrowing around in roadside connection boxes with muddy tidemarks half way up the doors – there must be a case for installing this sort of kit at least a metre above the pavement.

Everything seemed fine – just like a spring day. Naïvely we assumed the problems were over but at 16:00, just as it was getting dark, the power went off again. As before, looking out of the window confirmed that it was a widespread blackout, not just our local generator.

The BBC told us that Lancaster had lost power again – we *had* noticed – and *The Bay* said they had heard nothing officially from ENW but one of their listeners had phoned-in to say he had been talking to “an engineer” he met outside a substation who said there had been a fire at an HV transformer. If there is a lack of information, someone will fill the gap, however unreliably. An anodyne ENW press announcement of “unanticipated flood damage” was never going to match a fourth-hand, eye-witness report of a fire. All radio channels carried David Cameron’s comments about the amount of rain being unprecedented and briefing from DEFRA about a “once in a 100 years event” – a nonsense statement as the fundamental point of climate *change* is that the present is, and the future will be, different from the past.

By Friday 11<sup>th</sup> December things were almost back to normal and lorries were transporting the generators out of the city. The events of this week demonstrate how dependent 21<sup>st</sup> Century urban life is on electricity. If climate change means we will see more extreme weather, perhaps we need regular exercises like this to see how well our cities can withstand its effects.