

THE BOTTOM RUNG

Noise: the challenges, trends, technologies, politics and opportunities

Looking forward; seeking solutions

Spring 2020

TIME FOR THE NUCLEAR OPTION?



Nuclear seems to be back on the agenda. Mini nuclear reactors (unlike the traditional one above) could be generating power in the UK by the end of the decade. Rolls-Royce has plans to install and operate factory-built power stations by 2029. Mini nuclear stations can be mass manufactured and assembled relatively easily, making costs more predictable. The nuclear industry is confident mini-reactors can compete on price with low-cost renewables. Rolls Royce plans to build up 15 stations in the UK, each a 16th of the size of a major power station such as Hinckley Point. The Rolls Royce news comes at a time when the Government plans to allow onshore wind farms to be built again after a 4 year break.

Whisper it, nuclear could provide a silent solution....

In our last issue we suggested that there should be a noise audit of energy projects. We argued that unless that took place there would be a real danger the move towards more carbon-friendly sources of energy would bring unacceptable noise problems. Any noise audit should include nuclear power. It has been a controversial source of energy. There have been concerns around cost and safety. In our view modern technology is sorting the safety problems and the smaller plants planned by the likes of Rolls Royce will cost much less. Nuclear power has been described as “the silent giant of today’s energy system – it runs quietly in the background, capable of delivering immense amounts of power, regardless of weather or season.”

Nuclear has had its critics but in noise terms it is preferable to wind, solar or fracking

From a noise perspective it is preferable to solar (see page 3), fracking and, particularly, onshore wind. Badly-sited turbines have caused real noise and health problems to people across the world. In previous issues we have argued that these badly-sited turbines should be demolished, with their owners compensated. Countries such as France or Sweden showed long before climate change was on the agenda that the quiet alternative, nuclear, has the potential to be the catalyst for delivering sustainable energy transitions. It should not be our only source of energy but, if governments are to avoid the noise problems and ill-health associated with some of the alternatives, they should choose the nuclear option.

John Stewart
Editor *The Bottom Rung*

Creative thinking about traffic reduction

At a time when a new report ⁽¹⁾ estimates 113 million people across Europe are affected by harmful levels of road traffic noise, we highlight innovative ways to reduce traffic...

In cities across the world, creative ideas are emerging about ways in which to reduce car and lorry traffic. The plans, many enabled by the new disruptive technologies coming on to the market, are driven by the environmental impact of the traffic and the costs to the economy of congested roads.

In 2018 the UK economy lost £8bn due to traffic congestion ⁽²⁾. Similar eye-watering figures can be found across the world. Moscow, Istanbul and Bogota are the world's most congested cities. The economic case for the introduction of road pricing is strong, especially when revenue from fuel duty will fall significantly with the move towards electric vehicles.

"The introduction of free public transport is the icing on the cake as part of our overall strategy for a multimodal revolution" Luxembourg

Road pricing will only work and have any chance of gaining public acceptability if it accompanied by investment in alternatives. An interesting plan is being put forward by the think-tank TransportforQualityofLife ⁽³⁾. It involves a pay-per-mile eco levy on driving, plus free local buses and Swiss-style public transport frequencies. Although aimed at reducing climate emissions and air pollution, the modal shift it would bring about would cut noise from traffic, particularly if it were accompanied by lower speed limits.

Free public transport is being introduced in a number of parts of Europe. Luxembourg has just become the first place to bring it in nationwide. They see it as part of a wider plan to cut car use: "The introduction of free public transport is the icing on the cake as part of our overall strategy for a multimodal revolution".



Cargo Tram
Gothenburg Taxi
Pedal Freight

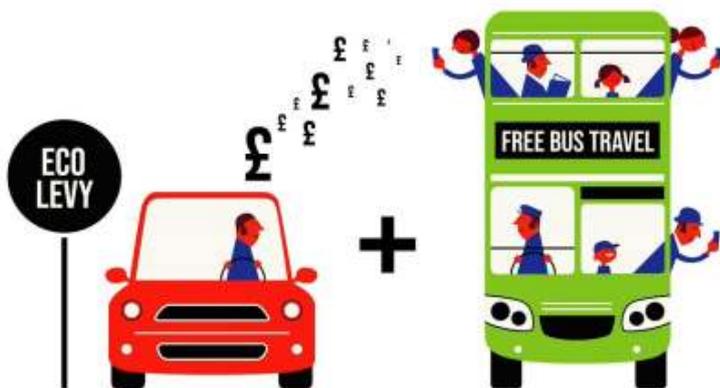


Illustration: J. Harris

So how quiet is solar?

Solar energy can be created in two basic ways: either in a solar farm or from solar panels on the roof of a property.

We consider the noise from solar farms first.

The noise comes from the invertors and the transformer. A key study (4) found that the average noise at 10ft from the inverter face ranged from 48 decibels to 72 decibels. At 150ft the study showed that typically the noise didn't exceed background levels. Generally, there was a reduction of 6 decibels with a doubling of distance.

This means that noise from solar farms is only heard close to the farm. It takes the form of a hum. The report explains: "The high frequency peaks produce the characteristic 'ringing noise' or high frequency buzz heard when one stands close to an operating inverter. The tonal sound was not, however, audible at distances of 50 to 150 feet beyond the boundary. All low-frequency sound from the invertors below 40 Hz is inaudible, at all distances".

The available evidence, therefore, suggests, as long as solar farms are not sited within a few hundred feet of a property noise should not be a problem.



What about noise from rooftop panels?



There is less unanimity than with noise from solar farms. What is agreed is that invertors will make a humming noise while converting energy. And that could create a noise nuisance in a person's home. One resident said: "A solar system was installed in April. A few weeks later, we started noticing a hum noise inside the house. It is more noticeable inside the house (as opposed to outside). The loudness of the hum is approximately the same in each room, upstairs and downstairs,

as well as in the garage". That reaction may not be typical as solar panels have not generated the level of protest which noise from wind turbines have. What is clear, though, is that in rented properties where tenants have little control over the siting of invertors or in blocks of flats where the panels may belong to somebody else there could be problems.

References:

- (1). <https://www.eea.europa.eu/publications/environmental-noise-in-europe/>
- (2). <https://inrix.com/press-releases/scorecard-2018-uk/>
- (3). https://www.transportforqualityoflife.com/u/files/200131%20An%20Eco%20Levy%20for%20Driving_cut%20carbon%20and%20clean%20up%20toxic%20air.pdf
- (4). <https://files.masscec.com/research/StudyAcousticEMFLevelsSolarPhotovoltaicProjects.pdf>

The Flight Path Revolution

The biggest shake-up to flight paths for more than half a century is underway. It could have profound implications for noise.....



A new type of flight path is being introduced at airports across the world. It will have significant implications for local communities. Air traffic control is moving from a ground-based system to a satellite one to guide aircraft. The new system, known as Performance Based Navigation (PBN) will mean narrower, more concentrated, dedicated routes. PBN will reduce fuel bills for airlines, cut CO2 emissions per plane and improve the resilience of airports while allowing more planes to use them. But these concentrated routes have proved very unpopular with many communities where they have been introduced and, particularly in America, have resulted in court cases. All the aircraft are concentrated over the same communities all day, everyday, and sometimes at night as well.

However, it need not be like this. PBN routes could bring benefit to communities if multiple routes were developed at an airport to enable them to be rotated during the course of a day to give people periods of predicible respite from the noise. This is what the owners of Heathrow Airport are promising. They have pledged that, if a third runway is built, there will be no all-day flying over any community. Heathrow has led the way in developing the concept of 'respite' – a predicible break from the noise – and will remain committed to it even if it remains a two runway airport.

The surveys and consultations the airport has done show that this is what people want. In its consultation on its flight path changes, it invited local communities to help shape the design of the routes. They were asked whether they would prefer a. the smallest number of people to be overflow (which would be done through pure concentration of the routes) or b. whether giving each community respite from the noise was the most important consideration or c. if avoiding new areas was top priority. The least popular option was concentration. The focus groups the airport held came up with the same result. So, Heathrow has been designing its new flight paths to provide respite and avoid new areas if at all possible. Heathrow, though, so far has been the exception to the general rule. Most airports have not gone for multiple routes and respite, choosing instead to concentrate their routes over the same communities. It means that while some areas have had relief from the noise those over which flight paths has been concentrated are in a *significantly* worse position.

Heathrow has led the way to use the new flight paths to provide communities with 'respite' – a predicible break from the noise.

Comment

Almost every ghetto eventually erupts. Noise ghettos will be no different. Flight paths at far too many airports have been concentrated in such a way that communities under them get a constant stream of planes while their neighbours get off scot-free. People are up in arms....and rightly so. The number of planes going over their heads is unbearable. The fact that aircraft are quieter than they were is of little relevance. This sort of concentration is unfair, especially when there is an alternative: to alternate the routes. It may make life a bit harder for the airlines and airports but, if communities are also to benefit from the new technologies, it is what should be done.

Listen Out!

- the chance for you to sound off!

Why Scandinavia is a favourite destination.....and it's not Greta!

We hear a lot these days about 'flight shaming'. Now I've got a confession to make. I couldn't give up flying for the sake of the climate. Perhaps I should but I can't. However, I'm not altogether a lost cause! Noise drives me round the bend. I don't want it. And I don't want to impose it on others. So my rule when flying (which, in truth, is not that often) is, wherever possible, to use the airports which disturb the least number of people. I've become a bit of an expert. If I fly from Stansted to Rome on holiday, I disturb over 250,000 fewer people than if I go from London City to Frankfurt. Scandinavia has become a favourite destination. They have had the sense to build out-of-town airports. Moscow is a no-no. And a lot of the big American airports present real problems.

My rule when flying is, wherever possible, to use the airports which disturb the least number of people

Madrid is preferred to Lisbon where the planes land right over the city. Don't get me wrong, I do use trains. Paris or Brussels is always Eurostar. And rail comes in handy to reach a place I refuse to fly to. I fly to the nearest 'acceptable' airport and then catch the train or coach. And two things to remember for any of you who may want to follow my rather quirky habit. First, remember the numbers disturbed can bear no resemblance to the size of the airport. Glasgow, for example, disturbs more people than Schiphol. And, second, always try to go for a direct flight. I'd love you to join me. We could set a trend. Look where it got Greta!

Sue Thomas loves travelling but wants to do it as quietly as possible after been driven crazy by noisy neighbours in her native Cardiff.

- *Listen Out!* is an opportunity for people with a strong opinion on a noise matter to have their say. Have your say!

Help! I've got a noise problem!

You can contact:

The Noise Abatement Society

<http://noiseabatementociety.com/>

Helpline on 01273 823 850;

email info@noise-abatement.org

The Noise Abatement Society also carries out a range of activities including research and lobbying

Or contact **Noise Nuisance**

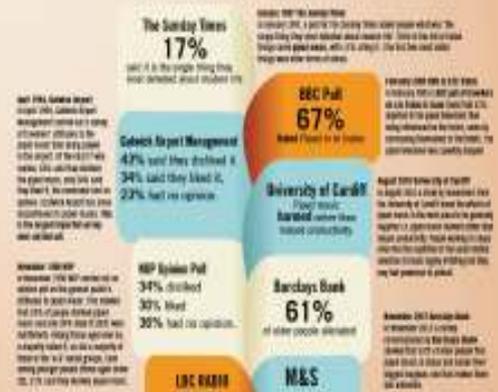
<https://noisenuisance.org/>

PIPED MUSIC THE FACTS

Amid the many claims and counter-claims made about piped music (also called music, raised music or elevator music), objectively researched facts about piped music's effects and its real popularity can be very hard to find. This sheet presents the facts about people's attitudes to piped music and its effects on human health.

MORE PEOPLE HATE PIPED MUSIC THAN LIKE IT

Contrary to what is often believed, objects to piped music outnumber those who like it, as the following survey shows:



To find a great list of venues free of background music check out <https://quietcorners.org.uk/> run by the admirable Pipedown.



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The Bottom Rung is a quarterly journal published online by Cut Noise: www.ukna.org.uk. We are always looking for contributions, be it letters, articles or opinion pieces. Email johnstewart2@btconnect.com

Overheard

'The trouble with listening is that so much of what we hear is noise'
Julian Treasure