From: [redacted]
To: SizewellC
Subject: subject specific hearings
Date: 24 June 2021 10:21:06
Attachments: AQN.pdf
AQN.docx

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from Laurence Moss - Ref 20026568

I have already participated in the open hearings previously but wish to participate in the Subject specific hearings. My own interest is in Air Pollution [mostly from traffic] and think that the Transport and Traffic hearings on W July 7th and Th July 8th would be most appropriate. I am available for either.

I enclose my latest update on Air Pollution (Environment bill, Medical effects of Air Pollution, some of my own air quality readings]

as AQN.Docx and AQN. Pdf versions - attached

Laurence Moss

Update 23/24th June 2021

Laurence Moss ref 20026568 – for EN010012 Sizewell project

AIR POLLUTION

1. **Upcoming Environment Bill** -

The 'acceptable' limit for air pollution in the UK is now 20mg/m3, but the World Health Authority use a value of 10mg/m3. Lobbyists are hoping to reduce the UK acceptable limit towards that of WHO, and whilst medically this makes sense [as no pollution is acceptable], politically this would be very awkward for the government, as they would have to do something about it and spend money. Previously Therese Coffey MP [ex DEFRA] had suggested that the limit could be lowered for 50% of the country – sounds good, but it allows the politicians to choose the cleanest part of the UK to cleanup, and avoid the dirtiest part. In this context it would allow the Government to excuse air pollution excesses in this part of Suffolk.

Pippa Neill
May 28th 2021 ***Air Quality News [AQN]***

Government must include WHO air quality limits in Environment Bill

The government must include World Health Organisation (WHO) air quality limits in the Environment Bill, says the Chartered Institute of Environmental Health (CIEH).

The Environment Bill, which has been delayed multiple times, was finally brought back to the House of Commons for its Report Stage and Third Reading on Wednesday.

The government has tabled new amendments to the Bill, including a new peat action plan. However, a string of additional amendments from opposition parties were voted down.

As a member of the Healthy Air Campaign coalition of charities, CIEH has been campaigning for the government to tackle the growing issue of air pollution across the country.

Julie Barratt, CIEH President, said: 'We are happy to see the Environment Bill being finally brought back to Parliament.

'With COP26 just around the corner, it is a vital piece of legislation and must be used to showcase the UK's firm commitment to safeguarding and improving our environment into the future.

'As such, we have been calling on the Government to commit to World Health Organisation targets for reducing air pollution. We are deeply disappointed that this has not yet been done.

'The Government has a second chance when the Bill moves to the House of Lords and we will be calling on peers from across the political spectrum to raise the essential issue of air pollution.

'The recent coroner's report attributing the death of Ella Adoo-Kissi-Debrah partially to air pollution should be a wake-up call. Action has to be taken.

2. Medical effects of air pollution:

Evidence of the harmful effects of air pollution on young children has been described in a new report that suggests that ¼ of UK schools are in areas which exceed the WHO limit of 10mg/m3.

Point 3 - Businesses: are being asked to signal their commitment to cleaning up toxic air by assessing and addressing their business impact on air quality.

This would be relevant to the constructors of EDF's SZC.

Pippa Neill
June 17th 2021 ***AQN***

1/4 of UK schools exceed WHO air pollution limit

Over 1/4 of UK schools are located in areas where air pollution is above the World Health Organisation (WHO) limits, according to new data published by charity Global Action Plan.

The data, which was collected by EarthSense reveals that 7,852 out of 28,965 UK schools are in areas where particulate matter (PM2.5) is higher than the WHO recommended 'safe' level of 10ug/m3.

In London, 25% of schools exceed the WHO limits, with notable boroughs including, 158 schools in Lambeth & Southwark, 146 in Romford, 129 in Croydon, 119 in Twickenham, 116 in Brixton, and 95 in Ilford.

In the South East, 28% (2,181) of schools exceed the recommended level and in the East Midlands, 9% of all schools are in areas that exceed the level.

This year's Clean Air Day theme is 'protect our children's health from air pollution.'

Based on these findings, the charity behind Clean Air Day is calling for an environment where children can learn and play free from the damaging effects of air pollution using the following actions:

- *Individuals: are being to leave their car at home*
- *Schools: are being asked to host assemblies to raise awareness of air pollution*
- *Businesses: are being asked to signal their commitment to cleaning up toxic air by assessing and addressing their business impact on air quality*
- *Health sector: hospitals and health professionals are being encouraged to host events and use the campaign as an opportunity to share information with patients and staff*
- *Local authorities: are being asked to communicate the health risks of air pollution and how to tackle it to schools, residents, businesses and health groups with the need for action and say what they are doing to protect children's health from air pollution.*

Larissa Lockwood, director of clean air at Global Action Plan said: 'The fact that 27% of UK schools are above WHO air pollution limits is extremely alarming. Air pollution is not a fact of life. If we all do our bit, it can be solved with collaborative action and education.

'We have seen the power of Clean Air Day to unite a movement, to bring confidence to talk about the importance of tackling air pollution even in trying times, and to push for change, but it can't stop there. Tools like the Clean Air for Schools Framework are available for free to help any school set up a clean air action plan, but schools cannot do this alone. If we all come together – individuals, schools, businesses, local authorities across the UK to collectively act and seize this moment we can create and support change, for good.'

I measured the air quality directly outside Yoxford Primary school – on the A1120 – and informed the Headteacher, and offered to measure the pollutant levels in the classroom. Note that this is before any construction – and consequent increase in traffic -

	Yox school								
1614344744	2021-02-26 13:05:4	40.0	38.0	3.0	2.0	46.0	3.0	3.0	
1614344804	2021-02-26 13:06:4	44.0	30.0	16.1	2.0	51.0	2.0	16.0	
1614344864	2021-02-26 13:07:4	48.0	27.0	3.0	2.0	55.0	2.0	3.0	
1614344924	2021-02-26 13:08:4	51.0	23.0	3.0	2.0	57.0	2.0	3.0	
1614344984	2021-02-26 13:09:4	53.0	20.0	3.0	2.0	58.0	2.0	3.0	
1614345044	2021-02-26 13:10:4	53.0	19.0	3.0	2.0	59.0	2.0	3.0	
1614345104	2021-02-26 13:11:4	56.0	16.0	11.2	2.0	61.0	1.0	11.0	
1614345164	2021-02-26 13:12:4	55.0	16.0	3.0	2.0	60.0	1.0	3.0	
1614345224	2021-02-26 13:13:4	56.0	15.0	3.0	2.0	61.0	1.0	3.0	
1614345284	2021-02-26 13:14:4	57.0	13.0	3.0	2.0	61.0	1.0	3.0	
1614345344	2021-02-26 13:15:4	56.0	13.0	10.5	2.0	60.0	1.0	11.0	
1614345404	2021-02-26 13:16:4	53.0	12.0	30.1	3.6	58.0	1.0	30.0	
1614345464	2021-02-26 13:17:4	52.0	12.0	3.0	2.0	57.0	1.0	3.0	
1614345524	2021-02-26 13:18:4	50.0	11.0	32.4	3.0	56.0	1.0	32.0	
1614345584	2021-02-26 13:19:4	43.0	15.0	3.0	2.0	51.0	1.0	3.0	
timestamp	**date (UTC)**	**NO2 (ppb)**	**VOC (ppb)**	**pm 10 (ug/m3)**	**pm 2.5 (ug/m3)**	**NO2 (Plume AQI)**	**VOC (Plume AQI)**	**pm 10 (Plume AQI)**	**pm**
	avg	**51.1**	**18.7**	**8.7**	**2.2**	**56.7**	**1.5**	**8.7**	
	max	**57.0**	**38.0**	**32.4**	**3.6**	**61.0**	**3.0**	**32.0**	

During this 14 minute survey at 1pm on a february day:

•there were 5 readings over 10mg/m3 for PM10s

•there were 2 readings over 20mg/m3 for PM10s

•on this occasion the PM2.5's were acceptable.

This is a random survey of a 'normal' reading of air pollution in a village in a County that is believed to have good quality air. Since the children are indoors with windows shut, it is not scientifically accurate to think that the pollution can be kept out of the school, but rather that the high levels are maintained without adequate ventilation, [rather like pollution levels being higher in cars with the windows up, than with the windows down, because of improved airflow/ventilation]

Suffolk does have better average air quality than many counties in the UK, but it does have high levels in some places, usually associated with proximity to vehicles and roads. It does exceed WHO levels regularly, and the higher UK levels of 20mg/m3 regularly. Increased traffic flow due to SZC and the plant therein will make it far worse.

In the same vein, here is a screenshot of recorded data on the beach outside SZC. EDF would suggest there is a very low level of pollution here, but my data suggests otherwise.

	beach hot windy spray?					
mestamp	date (UTC)	NO2 (ppb)	VOC (ppb)	pm 10 (ug/m3)	pm 2.5 (ug/m3)	
624377627	2021-06-22 16:00:27	0.0	110.0	25.6	4.3	
624377687	2021-06-22 16:01:27	0.0	100.0	3.0	2.0	
624377747	2021-06-22 16:02:27	0.0	106.0	9.7	2.0	
624377807	2021-06-22 16:03:27	0.0	110.0	13.8	2.1	
624377867	2021-06-22 16:04:27	0.0	0.0	21.1	2.1	
624377927	2021-06-22 16:05:27	0.0	112.0	22.9	2.5	
624377987	2021-06-22 16:06:27	0.0	112.0	3.0	2.0	
624378047	2021-06-22 16:07:27	0.0	115.0	3.0	2.0	
624378107	2021-06-22 16:08:27	0.0	116.0	3.0	2.0	
624378167	2021-06-22 16:09:27	0.0	116.0	3.0	2.0	
624378227	2021-06-22 16:10:27	0.0	116.0	37.8	3.9	
624378287	2021-06-22 16:11:27	0.0	118.0	3.0	2.0	
624378347	2021-06-22 16:12:27	0.0	117.0	25.5	2.7	
624378407	2021-06-22 16:13:27	0.0	120.0	5.4	2.0	
624378467	2021-06-22 16:14:27	0.0	118.0	35.6	3.0	
624378527	2021-06-22 16:15:27	0.0	119.0	16.6	2.0	
624378587	2021-06-22 16:16:27	0.0	121.0	8.3	2.0	
624378647	2021-06-22 16:17:27	0.0	120.0	19.8	2.5	
624378707	2021-06-22 16:18:27	0.0	120.0	17.4	3.2	
624378767	2021-06-22 16:19:27	0.0	120.0	4.3	2.0	
624378827	2021-06-22 16:20:27	0.0	122.0	32.8	3.1	
624378887	2021-06-22 16:21:27	0.0	121.0	63.8	6.5	
624378947	2021-06-22 16:22:27	0.0	124.0	5.2	2.0	
624379007	2021-06-22 16:23:27	0.0	122.0	3.0	2.0	
624379067	2021-06-22 16:24:27	0.0	126.0	3.0	2.0	
624379127	2021-06-22 16:25:27	0.0	127.0	72.9	5.2	
624379187	2021-06-22 16:26:27	0.0	134.0	10.0	9.0	
624379247	2021-06-22 16:27:27	0.0	142.0	21.5	20.5	
624379307	2021-06-22 16:28:27	0.0	144.0	33.8	32.8	
624379367	2021-06-22 16:29:27	0.0	151.0	32.2	31.2	
624379427	2021-06-22 16:30:27	0.0	150.0	68.5	46.5	
624379487	2021-06-22 16:31:27	0.0	170.0	56.8	48.3	
624379547	2021-06-22 16:32:27	0.0	675.0	266.5	29.4	
624379607	2021-06-22 16:33:27	0.0	2469.0	193.7	37.9	
624379667	2021-06-22 16:34:27	0.0	2384.0	51.3	50.3	
624379727	2021-06-22 16:35:27	0.0	2213.0	41.3	40.3	
624379787	2021-06-22 16:36:27	0.0	2003.0	53.5	44.2	
mestamp	date (UTC)	NO2 (ppb)	VOC (ppb)	pm 10 (ug/m3)	pm 2.5 (ug/m3)	
	avg	0.0	366.6	34.9	12.4	
	max	0.0	2469.0	266.5	50.3	

In the half hour I was there, 19 ‘minutes’ had PM10 levels over 20, and 10 ‘minutes’ of PM2.5 over 20.

So air raised pollution levels may not be the rule, but are still quite common in Suffolk near SZC

2a Medical effects

So air pollution is now linked to infertility!

Pippa Neill
June 21st 2021 ***AQN***

Air pollution and infertility: the next global crisis?

Birth rates are decreasing worldwide, and in European countries, they are even dropping below population replacement levels. While these decreases might be due to many adults postponing

having children, an increasing body of research suggests that this is not the full picture. Pippa Neill, editor at Air Quality News investigates the worrying environmental factors that may be responsible for our declining fertility rates.

Declining fertility rates

It might sound like something out of a dystopian novel, but across the world, fertility rates are declining at an alarming rate. In a groundbreaking study published last July in the Lancet, researchers at the University of Washington's Institute for Health Metrics found that across the world, fertility rates have nearly halved from 4.7 in 1950 to 2.4 in 2017.

In this study, the authors explain that age is one of the main reasons for these falling birth rates. With more women in education and work than ever before, an increasing number of women are choosing to have fewer children and are choosing to do so later in life.

However, research seems to suggest that these trends are not purely down to greater gender equality. In fact, even when controlling for age, research suggests that fertility rates are still in decline. In a study published in 2017, an international group of researchers found that sperm counts among men in North America, Europe, and New Zealand have declined by more than 53% since 1973.

Although there is no one conclusive reason behind this, increasingly researchers are pointing towards a host of environmental factors.

Environmental factors

Professor Audrey Gaskins, an expert in the relationship between environmental, dietary and lifestyle factors and fertility at Emory University, Atlanta told Air Quality News: 'Age is by far the biggest risk factor when it comes to infertility, but increasingly we are finding that various environmental factors are also playing a significant role.

'There are a broad range of chemicals that have been found to be potentially dangerous when it comes to fertility: parabens found in cosmetics and pharmaceutical products, flame retardants found in furniture, BPAs that are used to make certain plastics and potentially the most significant of them all – air pollution.

'Air pollution is very concerning because it actually seems to impact fertility at a couple of different time points and on a couple of different levels,' explains Professor Gaskins.

'When we look at markers of male and female fertility, studies have shown that air pollution is associated with a lower sperm count in men, meaning that men who have a higher lifetime exposure to air pollution have lower sperm concentrations and poor sperm quality.

'Then on the female side, air pollution is associated with an increased risk of menstrual cycle dysfunctions and irregular periods. It is also potentially associated with accelerated ovarian aging.

'When a pregnant woman is exposed to air pollution, the developing fetuses' gametes, meaning its sperm or ovary follicles may also be affected – this means this change can pass on to the next generation.

‘So the research seems to suggest that air pollution can impact our reproductive health on both the male and female side, but that it can also have a multi-generational downstream effect.’

Despite this growing body of research, in the UK, information and advice for those struggling with infertility or reproductive issues contains no mention of the potential impact of air pollution.

Tone Jarvis-Mack, the co-founder of the Fertility Foundation, a UK based charity that provides support and help to individuals and couples who are accessing fertility treatment, told Air Quality News: ‘A lot of patients that come through the Fertility Foundation are raising awareness to the fact that they’re also struggling with their breathing, we’re seeing a lot more people with asthma.

‘It’s very difficult to attribute that to one specific thing, but when we’re looking at people’s lifestyles, this is one thing that keeps popping up time and time again.’

Global impact

It would be easy to think that declining birth rates might actually be a positive thing; a smaller population would reduce our carbon emissions, reduce deforestation and reduce our demand on the earth’s resources. However, researchers have highlighted that a falling population can lead to many complex social, political and economic issues.

As explained by Professor Audrey: ‘This is a really new body of research but I think it’s really important that it influences policy.

‘No one wants to hear that air pollution is causing women to lose babies or causing couples to struggle to have children – not only does this have a heavy emotional impact but there are other huge economic impacts too.’

According to a report published by the research firm International Strategic Analysis, a declining birth rate will lead to fewer workers, which can lead to labour shortages and in turn can slow down economic growth. Falling birth rates also mean that the average age of the population continues to rise, and unless the aging population are economically active they can become a burden on the economy.

Who pays for healthcare for the elderly? Will people still be able to retire from work? Who looks after the elderly? – these might soon become the questions that we are all struggling to answer.

Beyond the economic impact, it is also important to highlight the emotional impact that infertility issues can bring. Tone Jarvis-Mack has seen this first hand, he explained: ‘Every day we see patients with mental health issues, we see relationships break down, marriages totally destroyed – infertility can very quickly become an all-consuming factor in your life.

‘You’re taught in school how not to get pregnant, but you’re not really taught about your future options and the struggles that you can face when you do want to start a family. The conversations are very one-sided at the moment.’

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As explained by Professor Audrey: ‘I think one of the reasons that air pollution is particularly concerning is because on an individual level you have very little control over what you are being exposed to, it takes policy guidelines on a country or county level to really make a difference.

‘Recent research has shown that in the U.S, Europe and in other developed countries where our exposure to air pollution is relatively low, we’re still seeing the effects that air pollution can have on fertility.

‘This means that air pollution that we currently consider to be safe could still be impacting our general and reproductive health – therefore perhaps our safe limits should perhaps be even lower.’

With new research coming out all the time, this is still a relatively unexplored area of research but while we wait to find out all the answers, there has never been a better time to finally reduce air pollution. As stated by Professor Audrey and reiterated by the World Health Organisation, when it comes to air pollution there is ‘no safe level.’