Comment – Understanding the implications of a decision to incinerate waste at Newhurst –

Part 1 PM2.5 emissions

The health impacts of incineration (EfW) are not completely understood. Information is advancing all the time. By contracting the County's residual Waste entirely to incineration, the County Council binds the Community to suffer consequences that are as yet not fully understood.

It would be prudent and responsible for Cabinet to defer a decision to contract with Biffa until the impacts of PM2.5 on those with higher activity levels are fully researched and appropriate air quality targets are set.

Presumably, if the Cabinet is content for Leicestershire's waste to be incinerated at Newhurst, Members will be making a conscious decision that this will **contribute to the amount of PM2.5 breathed by the Community**, including elite and endurance athletes and they are prepared to live with the consequences.

Fine particulate matter (PM2.5) has a complex impact on human health. Once inhaled, these elements and compounds may pass into the blood stream, scarring blood vessels. Others may become lodged in the deepest parts of the lungs. In fact preventable deaths due to PM2.5 is the 3rd leading cause of preventable deaths in Leicestershire and approximately 88 deaths in 2018 could be attributed to it. Cabinet Members will also be aware of statements made by The Director of Public Health about the dangers of PM2.5.

Waste Incineration at Newhurst will produce PM2.5 emissions-to-air. Emissions of PM2.5 emitted at the Flue are subject to limits specified in an Environmental Permit, these emissions will be monitored reported to the Environment Agency who will take action if/when limits are exceeded.

The levels of PM2.5 in the ambient air, especially downwind of the incinerator in Loughborough, will be monitored by the Environmental Protection Team from Charnwood Borough Council.

The permitted annual mean (AQO) levels of PM2.5 are currently set to 20 ug/m3 and will be reduced to an expected 10 ug/m3 when the Government next releases targets; the comparative World Health Organisation level is 5 ug/m3.

However these levels of PM2.5 in the air do not mean that it is safe for the Community to breath. The World Health Organisation states "even the new limits should not be considered safe, as there appears to be no level at which pollutants stop causing damage"

A further consideration is the location of the Newhurst incinerator in relation to Loughborough University's campus, where elite and endurance athletes train and compete. Data collected recently by the CBC Environmental Protection Team, using sophisticated monitoring equipment located between the incinerator site and the campus, show an annualised mean of PM2.5 of 11.50 uq/m3 – this is even before the incinerator becomes operational!

In her submission to the Environmental Targets Consultation (Maty 2022) Jane Hunt, MP for Loughborough, stated the following…

"…where we are lacking in research and data is the impact PM2.5 has on elite athletes. The University informs me that, while the average resting human breathes approximately 5 to 6 litres of air per minute, a typical endurance athlete may breathe around 150 litres a minute, and some world class athletes may breathe 300 litres a minute. This increased ventilation means that elite athletes are far more susceptible to respiratory problems such as asthma.

This is of particular concern in my constituency, given that the University is the UK's leading university for sport, playing host to international, Olympic and Paralympic teams who come to take advantage of its unique facilities, some of which are located in the vicinity of the new incinerator. I would, therefore, argue that before setting an air quality target, more work needs to be done into the impact of PM2.5 on those with higher activity levels"

"Particulate matter is understood to reduce life expectancy by 6 months on average, and most of the short-term acute exposures that contribute to the cumulative burden go unnoticed or forgotten"

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Part 2 CO2 emissions

It is inescapable that man made CO2 is the main causal factor for climate change – worldwide. By contracting the County's residual Waste entirely to incineration, the County Council commits to the avoidable production of CO2. Incineration is in direct conflict with the Draft Waste & Resources Strategy 2022 – 2050 which states…

"How we view 'waste' has changed; it is no longer only something to get rid of, but is now considered a valuable resource, to be retained and reused, or avoided at all where possible…"

It would be prudent and responsible for Cabinet to defer a decision to contract with Biffa until alternative, proven waste disposal technologies that do not generate significant tonnages of CO2 are fully evaluated.

Presumably, if the Cabinet is content for Leicestershire's waste to be incinerated at Newhurst, Members will be making a conscious decision that will result in **the production of circa 175,000 tonnes of CO2 annually** and they are prepared to live with the environmental consequences.

Incinerators emit large quantities of CO2, roughly one tonne* of CO2 for every tonne incinerated. About half of this CO2 derives from fossil sources such as plastic. For decades incinerators have been releasing harmful greenhouse gas (GHG) emissions without compensating society for the associated harm that this has caused.

Much of what is incinerated is not genuinely residual waste, but rather valuable material that could and should have been recycled or composted. Compositional analysis studies show that there are many instances where the majority (i.e. over 50%) of 'waste' collected at the kerbside could have been recycled or composted had it been put into the correct bin. And this does not even take account of the opportunities for Councils to extend the range of materials they accept for recycling at the kerbside.

When incinerators burn plastic they consume fossil fuel (most plastics are made from crude oil, a fossil fuel). The small amount of energy produced by incinerators is generated inefficiently and comes at a high climate cost.

Difficult-to-recycle materials are increasingly being redesigned or phased out, meaning incinerators are becoming increasingly reliant upon burning recyclable and compostable material.

It is important to note that carbon is sequestered within plastics; unless the plastic is burned the carbon is either not released or is released over many years as the plastic degrades. Conversely when plastic is incinerated the carbon is released in a 'hit' of CO2 thus overwhelming the ability of trees and plant-life to absorb it.

Proponents of incineration will refer to methane being produced from waste that is sent to landfill as being more potent than carbon dioxide at trapping heat in the atmosphere and that methane is not produced when waste is incinerated. What they won't tell you is that only the biogenic component of waste in landfill produces methane as it decomposes over time, whereas the entire combustible component of incinerated waste produces CO2. Atmospheric methane is short-lived compared to CO2 and as the Global Methane Initiative states "There are many economically viable opportunities worldwide to reduce methane emissions".

The bottom line is that incinerating Leicestershire's waste will produce circa 175,000 tonnes of CO2 annually that **would not be produced** if alternative waste disposal technologies were to be used to the exclusion of incineration. Generating CO2 is wholly inconsistent with Objective 3 of the RWS, namely…

"Reduce carbon emissions from Leicestershire's waste"

*When carbon (C) is incinerated it is combined with oxygen (O) which turns it into CO2. One can convert carbon content (% Carbon) to Fossil CO2 by multiplying by 44/12 (3.6667). Thus, to derive the CO2 released by the incineration of one tonne of Dense Plastic (which has a carbon content of 54.8%) one multiplies 0.548 by 3.6667 to get around 2.01 tonnes of Fossil CO2.