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Blame Maggie Thatcher and every Government since for knowingly poisoning us with carcinogenic diesel fumes

Diesel vehicles are responsible for 90-95% of nitrogen dioxide (NO_2) exhaust emissions from road transport in London

'Clean Air in London' renews its call for a Royal Commission, with subpoena powers, into diesel – the biggest public health catastrophe of modern times

Maggie Thatcher was at the height of her (remarkable) powers in 1989, having been Prime Minister for 10 years (since 4 May 1979), when she addressed the United Nations on climate change before publishing the UK's first environment strategy in 1990. Unusually for a British political leader, before or since, she was a scientist (chemist) and (eventually) determined to improve the global environment.

Let's rewind. In 1979, the United Nations Economic Commission for Europe (UNECE) had implemented the subsequent Convention on Long-Range Transboundary Pollution. European countries, other than the UK, signed the 'Protocol on the Reduction of Sulphur Emissions' in July 1985 which pledged to reduce sulphur dioxide (SO_2) emissions by 30% (from 1980 levels) by 1993 to tackle acid rain in Europe (which must be considered again with oxides of nitrogen (NOx) as we leave the European Union in 2019). In the end, the UK received much adverse reaction but achieved the target after insisting that power stations installed flue gas desulphurisation equipment as part of the privatisation of the electricity industry in late 1990 and early 1991.

By the mid-1980s, Maggie Thatcher had clearly 'got' the environment. She had a major impact by the late 1980s, winning the battle against leaded petrol (that was reducing the IQ of children and causing behavioural disorders including violent criminal activity) after making unleaded petrol available at British service stations from 1988. A key mechanism was the use of 'tax incentives for unleaded fuel' (This Common Inheritance (TCI), Summary, page 22).

At the same time, Maggie Thatcher was addressing the depletion of the ozone (O_3) layer in the stratosphere that filters out ultraviolet radiation from the sun that is harmful to life on earth e.g. by causing skin cancer. 'The Montreal Protocol on Substances that Deplete the Ozone Layer' was the first universally ratified treaty in United Nations history. It was agreed on 26 August 1987 and entered into force on 26 August 1989. On 27 June 1990, Maggie Thatcher gave a speech to the 'Second meeting of Parties to the Montreal Protocol on substances that deplete the ozone layer'.

Meanwhile, looking for another opportunity to 'save the world', Maggie Thatcher gave a landmark speech to the United Nations General Assembly on 8 November 1989 on 'our global environment'… 'alone' that was subtitled '*Vast increase in carbon dioxide'*.

As a committed environmentalist by this time, Maggie wasted no time and published the UK's first environment strategy titled 'This Common Inheritance – Britain's Environmental Strategy' (TCI)

(290 pages) in September 1990 with a 'Summary of the White Paper on the Environment' (36 pages) on 25 September 1990. Notably, the former was presented to Parliament by the Secretaries of State for Environment, Health, Education and Science, Scotland, Transport, Energy and Northern Ireland and the Minister of Agriculture, Fisheries and Food and the Secretaries of State for Employment and Wales. Only Maggie Thatcher, before or since, could have achieved such a thing.

'This Common Inheritance' was a remarkably good document. It analysed all aspects of the environment and included a 14 page 'Summary of Government action' with specific commitments. These included:

- The Government will set itself the demanding target, if other countries take similar action, of returning emissions of carbon dioxide (CO_2) to 1990 levels by 2005 (5.20);

- To make people more aware of the environmental impact of their transport decisions, the Government will:

    - Improve and extend its guidance on **fuel economy** and good driving practice (5.45);
    - Consider further changes that could be made in the taxation of fuel and vehicles which might encourage people to seek greater fuel economy (5.51); and
    - Explore the scope for a code of practice on vehicle advertising (5.52).

- To improve vehicle **fuel consumption**, the Government will:

    - Work with the European Commission on measures to improve the **fuel consumption** of motor vehicles (5.49);
    - Improve the enforcement of speed limits (5.49);
    - Extend the MOT test and so improve the tuning of vehicle engines (5.49); and
    - Continue to develop better vehicle technology (5.47).

A revealing figure on page 73 of TCI showed an index of CO_2 as a kilogram of carbon per 100 passenger kilometres. This focus determined the need to prioritise diesel passenger cars over petrol, which had recently been incentivised to encourage the switch from leaded to unleaded petrol. Passenger transport conversion factors published by the Carbon Trust in 2011 estimated that the average petrol passenger car emitted 0.2086 kg of CO_2 per kilometre compared to 0.1935 for diesel. For large cars over 2.0 litres the comparison was more striking at 0.29991 kg CO_2 per kilometre for petrol and 0.2433 kg CO_2 per kilometre for diesel i.e. a 18.7% reduction for diesel.

There were three major flaws with the Government's obsession with CO_2. First, by myopically addressing one greenhouse gas from air emissions, the Government failed to balance or address the problems of air pollution holistically i.e. by using Clean Air in London's 'One Atmosphere' approach which advocates the addressing of climate change, health and environmental issues with zero air emission solutions at source and lifestyle changes. Remember also that O_3 is a greenhouse gas.

Second, the strategy acknowledged that the health and environmental (e.g. acid rain) impacts of diesel would be greater than petrol (pages 146 and 147 of TCI). For example, it stated 'The remaining major source of smoke is diesel engines' and 'Of more recent concern are the smallest particles in

diesel exhaust fumes ('particulates') that have been identified as a possible contributor to cancer' and (reassuringly but wrongly!) 'There is a strict limit on these emissions from diesel engine cars'. This comment was prescient given that diesel exhaust was only declared carcinogenic for humans by the World Health Organisation in June 2012.

Third, the strategy planned to rely on regulation and technology 'silver bullets' to reduce harmful emissions from diesel vehicles (page 147 of TCI) through European wide standards. The mechanism would be European engine emission standards for diesel passenger cars which subsequently required reductions in emissions of particulates in grams per kilometre (g/km) from Euro 1 (July 1992) of 0.14g/km to Euro 5 (September 2009) of 0.005 g/km and oxides of nitrogen (NOx) from Euro 3 (January 2000) of 0.5 g/km to Euro 6 (September 2014) of 0.08 g/km. As we know now, vehicle manufacturers have cheated on these standards, most famously as Volkswagen admitted in September 2015. A key lesson to learn is that future technologies should never be relied upon to solve today's pressing problems or avoid applying the precautionary principle.

A Department of Health letter dated 28 March 1990 obtained by Clean Air in London, using powerful European Union access to environmental information laws, boasted that "The European Community Environment Council agreed on 9 June 1989 a Directive on emission standards for small cars… that will set tight standards for petrol and diesel engine cars, covering both particulates and gaseous emissions. The UK Government played a leading role in reaching this agreement".

The many failures of the myopic focus on CO_2 were highlighted in answers to Parliamentary questions dated 25 June 2007 (Motor Vehicles: Exhaust Emissions) and 3 October 2011 (Motor Vehicles: Carbon Emissions) which revealed that diesel passenger cars in the 2005 fleet produced 4.3% less CO_2 (g/km) than petrol passenger cars but 16.9 times as much PM_{10} (g/km) and 83.9% more oxides of nitrogen emissions (g/km). The second parliamentary question revealed, based on 2009 emission factors, that diesel saloons produced 15.3% less CO_2 (g/km) than petrol saloons but 21.7 times as much PM_{10} and 2.1 times as much NOx. Interestingly, the CO_2 benefit was reversed for transit size vans i.e. lower CO_2 for petrol.

We know now that very senior civil servants knew what they were doing. One admitted later and unattributably, in an interview by John Vidal in the Guardian, that cost-benefit studies of a switch to diesel were done, but climate change was "the new kid on the block" and long-term projections of comparative technologies were not perfect. "I recall all the discussions had the health issue as a significant factor," he says. "We did not sleepwalk into this. To be totally reductionist, you are talking about killing people today rather than saving lives tomorrow. Occasionally, we had to say we were living in a different political world and everyone had to swallow hard." This reality was confirmed in response to a Freedom of Information request to the Department of Health by Clean Air in London that included minutes from a Department of Transport hosted meeting on 28 September 1990.

Of course, on 28 November 1990, Maggie Thatcher was 'gone' – replaced by John Major. But she had already embedded carbon (not greenhouse gas) reduction into the DNA of the UK government. This was demonstrated by 'The First Year Report' on Government actions in This Common Inheritance which included an opening letter by the new Prime Minister John Major dated September 1991. He commented "In Europe, it includes new agreements to curb pollution from cars, lorries and other sources'. 'The Second Year' report again opened with a letter from the Prime

Minister dated September 1992 which started with 'The Earth Summit [in Rio de Janeiro in June 1992] has dominated the environmental agenda in 1992, and rightly so". The report included a progress report on 479 'Summary of White Paper Commitments' with 'Action to date' and 'Commitments to further action'.

There can be no doubt therefore that successive Conservative Governments committed the UK to a future with carcinogenic diesel fumes and hoped that vehicle technology would solve the known health effects of diesel. Perhaps the extent of Maggie Thatcher's 'success' in embedding CO_2 dogma throughout the DNA of the government, is that Gordon Brown, who at the time was the Chancellor of the Exchequer, announced in 1998 that "diesel cars should attract less vehicle tax than their petrol equivalents because of their better CO_2 performance". In 2001, Gordon Brown reduced vehicle tax for all cars with low CO_2 emissions, giving company car buyers, responsible for half of new purchases, an incentive to switch to diesel". This followed the new Labour Government supporting the Kyoto Treaty in 1997 which prioritised cutting greenhouse gases.

Astonishingly, subsequent Governments failed to reverse the myopic focus on CO_2 in government. The most significant example occurred when the Committee on the Medical Effects of Air Pollutants' published a report in December 2010 titled 'The mortality effects of long term exposure to particulate matter in the United Kingdom' which estimated 29,000 deaths attributable to long-term exposure to fine particles ($PM_{2.5}$) in 2008. There was no change in Government policy.

The Liberal Democrats must therefore accept their share of responsibility. Norman Baker, a well-respected Transport Minister, made clear at a Policy Exchange event on 17 July 2013 titled 'In the slow lane: Is Britain doing enough to tackle air pollution from transport?' that CO_2 was still the Government's overriding priority when it came to air pollution, even if it meant that health problems of transport fuels would not be addressed until the vehicle fleet was decarbonised in 2040.

In conclusion therefore, Clean Air in London is convinced that Maggie Thatcher is primarily to blame for putting the UK and perhaps Europe on the path of breathing carcinogenic diesel fumes. Further, she is almost certainly the only Prime Minister since the Second World War with the power or determination to embed her approach throughout Government for nearly 30 years. Every subsequent Government has continued to favour diesel cars over petrol despite increasing evidence of the health effects of this disastrous policy. Conservatives, Labour and Liberal Democrats must all therefore apologise and agree to compensate those affected (obtaining full restitution from vehicle manufacturers and others) whether through health or being encouraged to purchase a vehicle producing carcinogenic emissions.

However, action cannot wait on compensation. We need all political parties to work together now to take urgent action to achieve zero air emissions at source to reduce greenhouse gas emissions and improve air quality. This must start with a ban of carcinogenic diesel exhaust in the most polluted places as we banned coal and wood burning so successfully over 60 years ago. Governments and Mayors must also warn people and give them advice on protecting themselves and reducing air pollution for themselves and others.

Note: This article is based on a key note speech by Simon Birkett to the Environmental Chemistry Group of the Royal Society of Chemistry on 1 March 2017 titled '*Inside the Engine: from Chemistry to Human Health*?'