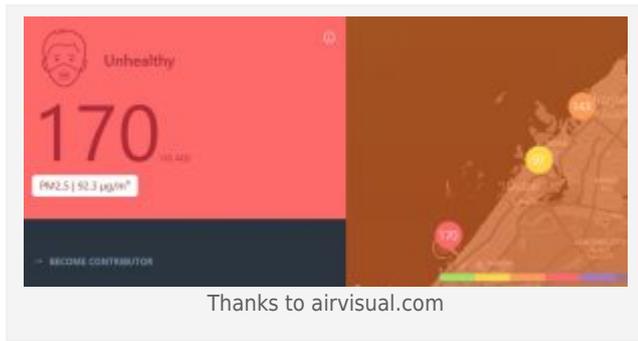


Emissions KPI's: Which ones really count?

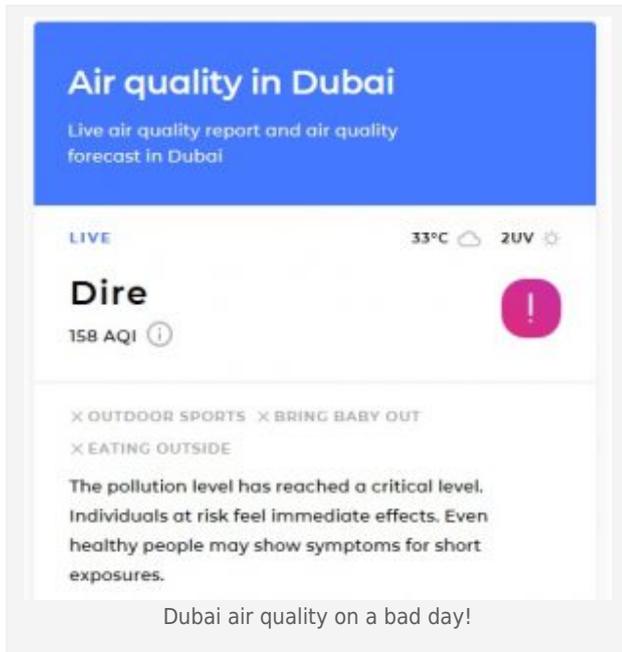


Air quality standards vary across the world. Arguably, the toughest are set out by the [World Health Organization](#). and the weakest are set by the USA. So, when [air.plumelabs.com](#) reports air quality in a city is 'Dire' or [airvisual.com](#) records the same city's air quality is 'Unhealthy' – both sites using the US standards – you know its air is polluted. You

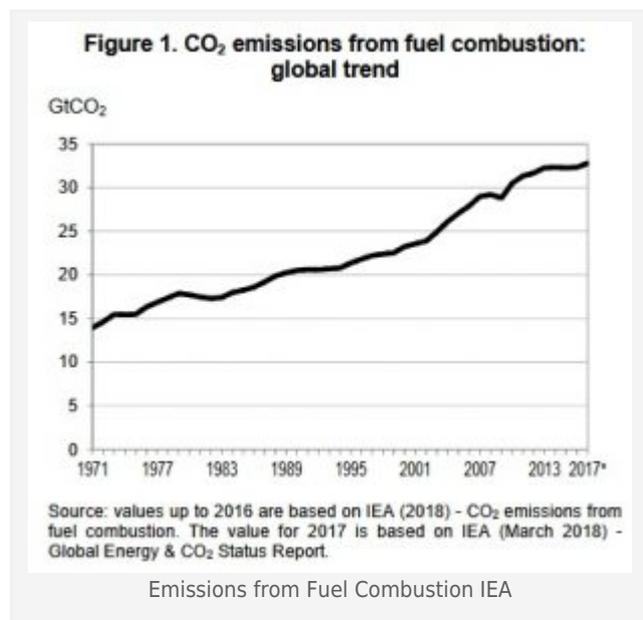


might expect these air quality descriptions in low income, fast developing cities in Vietnam, India or China but they are also routine in rich, industrial cities in the Gulf, Europe, Australia and the US. Maybe, vehicle makers and dealers should begin to take as much notice of overall air pollution levels as they do with their own vehicle emissions...before they are forced to do so.

What can '*forced to do so*' mean'? Major US drug company Johnson & Johnson never thought it would be fined \$572BN in the opiate epidemic lawsuit with Oklahoma in July 2019. Purdue Pharma filed for Chapter 11 bankruptcy in August 2019 under the weight of incoming opiate epidemic lawsuits. Several hundred further cases are pending against multiple companies – and their distributors – which could lead to an outcome similar to the \$206 million settlement tobacco companies reached with 46 states in 1998, but on a much larger financial scale. Consider some of the evidence: The link between vehicles emissions and air pollution is [well documented](#). Vehicles produce over 70% of the worlds carbon



monoxide and nitrogen dioxide emissions and around 30% of particulate matter (PM) and VOC's (Volatile Organic Compounds) air pollution. So too is the effect of vehicle numbers, speed and traffic congestion on [air pollution](#). Most accept the science which says that vehicle emissions are a significant contributor to 'Green-house Gases' (GHG) which create [global warming](#) and leads to poor human health outcomes. If pharmaceutical companies can be fined when users become addicted to their products and become ill or die, why not vehicle makers and distributors when pedestrians become ill or die from breathing air pollution? The paradox for automotive producers and distributors alike is that, while successive generations of vehicles have become cleaner and greener, air pollution and global warming have worsened. Partly it's due



to government policy. The EU's advocacy of diesel engines reduced CO₂ emissions, but increased PM's (Particulate Matter) and encouraged buyers into larger cars. Building new homes further from jobs and public transport encouraged more vehicle journeys. Quantitative

easing to support bank liquidity after the Financial Crash led to more cheap credit that supported higher new vehicle sales and led to record numbers of global vehicles in use. But, it's also due in part to OEMs and their distributors focusing on the wrong KPI's in the past. In the last two decades, vehicle makers and their distributors have operated as if their responsibility for the GHG emissions of the products they sold ended when the ownership had transferred. It's emerging that large sections of the global public and their political representatives think differently.

Lessons from Nuclear Power and Big Tobacco

Whenever there have been gaps between the expected and actual performance of globally available products it has not ended well for the product's producers or distributors. The expected pace and size of planned new [Nuclear Power Generation](#) installations has fallen 20% since new regulations were introduced after the Fukushima Daiichi accident in 2011, according to the OECD. While the tobacco growing and cigarette making industry continues to expand in developing markets, such as China and Asia, regulations in the US and the EU have severely limited its social acceptance and growth in the affluent ones. Tobacconists are now an officially endangered species. So, how might the gap in the desired and actual emissions of road vehicles be addressed by policy makers?

Policies For Who? The Public, the Scientists or the Economy.

Because both the timetable and target for mitigating global warming are hotly debated in the public arena, vehicle makers and distributors should expect a variety of policies at the city, country and international levels. While current governments and economists may be comfortable with 'net zero' emissions by 2045 or 2050, climate activists and some scientists are lobbying for 'net zero' by 2025 or [2030](#), no matter what the immediate economic consequences. Successful public policy makers have to balance the demands from three critical audiences: they have to anticipate the wider **public acceptance** of policy changes; navigate **scientific opinion** about what 'net zero' requires. (Nobody wants a repeat of the switch to diesel mentioned earlier); and deliver enough economic growth to generate the income that **economists** want to pay for the mitigation, reduce global poverty, hunger and the rest of the UN's [Sustainable Development Goals](#) (SDG's).

Divergent Policy Pathways

Current trends suggest that policy will take divergent paths in the 'TRIAD' markets. The EU and China will move quickly towards Zero Emissions and Electrification under leadership from central government. China will likely emerge as the leading nation in transforming to a decarbonised transport system. In contrast, the US has already started a patchwork of initiatives at the individual, corporate, state and city level, and will probably decarbonise more slowly with minimal central co-ordination and without consistent Federal support.

Europe and China

LOCAL POLICY MIX				
	Investment	Education	Incentives	Regulation
Vehicle Efficiency		DRIVER TRAINING		
Reduced Miles/Kilo	TRIP COST REDUCTIONS		CAR SHARING SUPPORT	RESTRICTIONS
Vehicle Technology	INCENTIVES FOR NEWER VEHICLES		INCENTIVES FOR NEW VEHICLE TYPES	
Fuel Sources				
Public Transport	INCENTIVES FOR NEWER VEHICLES			RESTRICTIONS
Speed Regulation	INCENTIVES FOR NEWER VEHICLES	DRIVER TRAINING		
Access Control				RESTRICTIONS

While the policy mix to reduce global warming will vary according to local laws and priorities, in Europe, at the country level and below, it will likely have four components: Investment in technology and infrastructure; Education and public information efforts; Financial incentives and penalties; and, finally, Legal regulation. As the EU hopes to maintain leadership of global Vehicle Emissions legislation, energy de-carbonisation targets across its member states can be expected at a fast pace. Policy makers are primarily pushing for more efficient vehicles, alternative sources of energy such as electricity and bio-fuel, electric vehicles, speed regulation, reducing vehicle miles/kilometres travelled (VMT/VKT), traffic signal coordination, public transit system improvements, and traffic access control measures. Vehicle distributors may be expected to shoulder burdens such as higher local property or sales taxes, increased vehicle registration costs and tighter controls on the emissions of products they sell. If they're in a market without a progressive 'Clean Car' emissions tax and discount programme, they should expect to find one will be applied soon. They may even be expected to have electric vehicles available for sale and on display at all times. Finally, they should expect disincentives for sale and supply of high emission new and used vehicles.

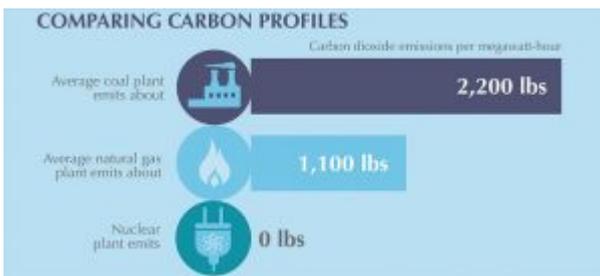
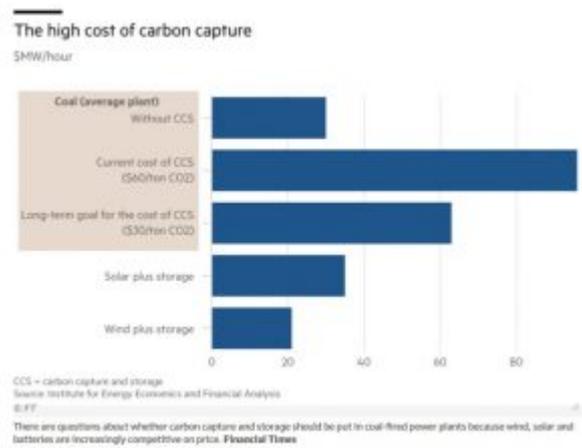
Sources of Air Pollutant and Greenhouse Gases (GHG's) vary in scale. Clearly, individual households and vehicles are the smallest units, while power generation and international transport are among the largest. It's evident that, although policy makers have a variety of policy tools available, the primary target for city-wide policy will be individual households and vehicles, leaving the member state or EU to target the country-wide providers. To begin with, regulator's attention may initially be on Demand Management - reducing the numbers of miles driven, GHG's emitted and vehicles in use, particularly in urban areas. However, as the technology and infrastructure barriers to electric vehicle adoption are eliminated, attention will likely turn to Supply Management - with regulations introduced to speed fleet renewal - eliminating older, conventional Internal Combustion Engine (ICE) vehicles and incentivising the switch to Electric (EV) vehicles. Expect restrictions or higher costs on parts supply, waste oil removal, workshop licensing and other after market activities related to ICE vehicles.

The USA

Given the present US administration and the lack of bi-partisan co-operation between the US Congress and the US Senate, it looks as if new US Policy initiatives will be fashioned 'bottom up'. Individual states will enact their own programmes in groups such as the [US State Climate Alliance](#). Individual [corporates](#) will start initiatives to improve brand image or respond to customer demands. For example, US [retailers](#) are evaluating investment in Electric Trucks and charging infrastructure as a response to customer demand, not state policies.



So, while countries in the **Asia and the Pacific region**, are likely to follow China’s approach, the US may take a different, probably longer path – albeit to the same destination – due to their energy mix and political geography. Right now, the US has a large number of Coal-fired power stations in operation, supplied from domestic mines, similar to Poland, Czech Republic and Romania in the EU. All these power stations face an uncertain future, squeezed between the added costs of Carbon Capture and Storage and the falling costs of renewable energy sources, such as Wind, Water and Solar (WWS). But, it’s unlikely they’ll be closed by Federal or State policy as is the policy in Germany. Instead, they’ll probably be forced to close themselves as they shrink under market forces. In turn, US coal mines may face a similar fate to their UK counterparts.



The US has significant numbers of Nuclear power stations as well as local oil and gas reserves. Even though Nuclear power has zero emissions, it is unable to match the operating costs of coal and gas stations – partly due to regulatory charges, so nuclear plants are closing, raising US total GHG emissions. The

nuclear industry’s proposed solution is traded carbon credits – which would place them on a level playing field with the lower cost but high emission coal stations. Without it, US Nuclear stations will close alongside their coal-fired counterparts. Both being replaced by renewable energy sources.

researcher found none that had set out their GHG emissions target thus far. For what it's worth, as a vehicle maker or a distributor, I'd track three numbers at least: First, the estimated total emissions in use from each of the product lines made or sold. This would track the emissions produced by selling more vehicles as well as the emissions from each vehicle. The incentive would be to switch production or sales away from higher emission to lower emission vehicles, especially when they are sold in large volumes. I'd avoid a single figure for a vehicle maker because a single aggregate number across all products allows inefficient vehicles to mask their results in the average; Second, I'd check the air quality for my city, state, region or country and ask if I'm helping to make it better or worse. If air quality is falling, public anger will start rising at some point. At least by checking the trend, I'd probably know whether more policy or regulatory action was headed my way. Finally, I'd check on the number of legal cases, rulings, fines or regulations concerning vehicle pollution in my city, state or region. The more quickly they rose, the more concerned I would be to act voluntarily before the politicians, judges and regulators decided for me. As the US pharmaceutical and tobacco companies found to their cost: if you do harm, you may be expected to compensate your victims one day.