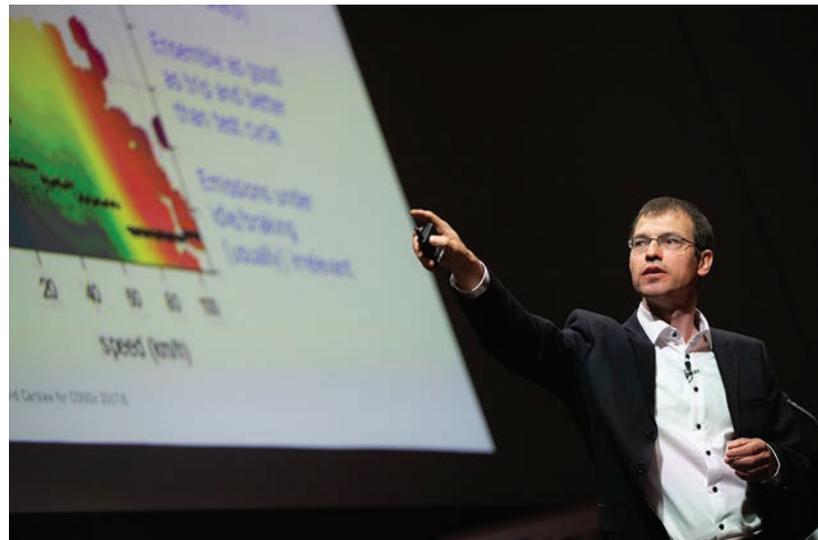


The first TRUE city symposium

June 7-8th 2018, London





Bloomberg





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The purpose of the TRUE symposium was to bring together city government officials along with technical and policy experts focused on reducing real-world vehicle emissions, to discuss the collection and analysis of real-world emissions data and city level policies that can be informed by such data.

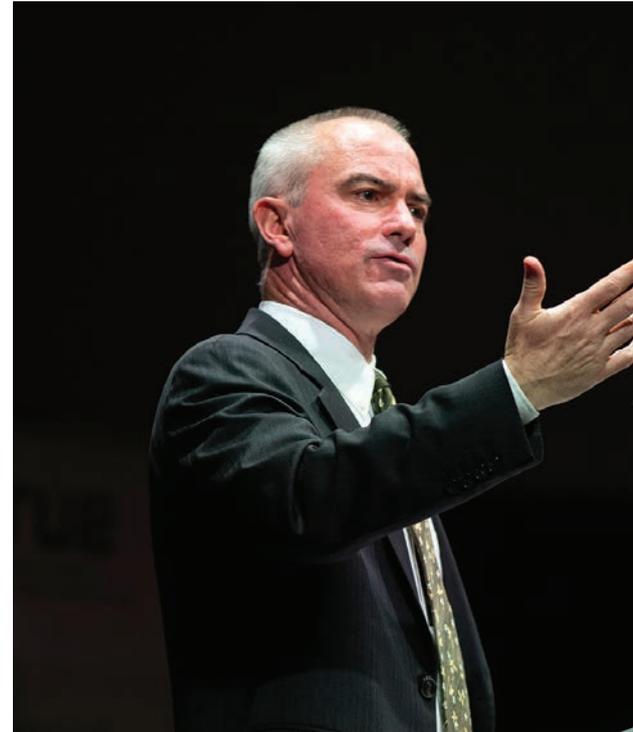
The invite-only, two-day event included approximately 50 participants from city government, NGOs, philanthropies, research organizations, remote sensing companies, and regional and national government. 15 cities from Europe and beyond were in attendance - London, Paris, Scottish Cities (via Transport Scotland), Brussels, Copenhagen, Oslo, Rome, Leeds, Seoul, Ho Chi Minh City, Auckland, Mexico City, Durban, Dar Es Salaam, and Amman.

DAY 1: BLOOMBERG

The event was opened with a keynote speech from Drew Kodjak, Executive Director of the International Council on Clean Transportation (ICCT). Drew set the stage by telling the story behind the Volkswagen (VW) dieselgate scandal, highlighting ICCT's involvement as the organization which commissioned the initial testing of a pair of diesel VW cars in late 2013. The finding of unusually high real-world emissions in that testing triggered an investigation by US authorities that ultimately led to over \$20 billion in fines and an on-going diesel emissions crisis in Europe.

Kelly Schultz of Bloomberg Philanthropies, one of the main sponsors of the event and the TRUE project, highlighted the Philanthropy's history of working in cities with a focus on the importance of good data. Kelly shared her appreciation and admiration for city level policy makers given the difficulties they face, especially in trying to tackle air quality issues.

Sheila Watson, Deputy Director of the FIA Foundation, a major funder of the TRUE initiative, but also a lead partner in the initiative and host to the TRUE Secretariat explained how the TRUE initiative fits well with the mission of the FIA Foundation to promote safe, clean, fair and green mobility. She explained the origins of the TRUE initiative, as a concept which emerged in the conclusions of an expert workshop on emissions held by the Foundation in June of 2016, to an announcement to partner with London and Paris in March of 2017, to the launch of the TRUE vehicle ratings in June of 2018.



'Independent third-party testing and real-world emissions has already played a key part in exposing the VW cheat, and is a vital tool in our armoury in combating air pollution.'
Drew Kodjak, ICCT.





'I would like to thank partners and FIA Foundation for your vision and leadership on this issue.'
Kelly Schultz, Bloomberg Philanthropies.



'The TRUE initiative will bring transparency and good data which is essential to good policy and informed consumer choices.'
Sheila Watson, FIA Foundation.

Panel 1 - real-world emissions and vehicle remote sensing technology.

The panel was moderated by David Ward from Global NCAP, and included four panelists: David Carlslaw from The University of York; Jens Borken from International Institute for Applied Systems Analysis (IIASA); Zlatko Kregar from the European Commission (DG Environment); and Rachel Muncrief from The ICCT.

David Carlslaw explained the evolution of the vehicle emissions issue we are facing today, and the trends over the last century. While pollutant emissions from individual vehicles have come down significantly over that time, the number of vehicles on the road has exploded – and cities are facing an unprecedented challenge to control these emissions. One of the key aspects of that challenge lies in the fact that amongst the millions of vehicles on the road in a given urban area emissions are constantly changing making it difficult for cities to quantify them.

Jens Borken introduced remote sensing technology. Remote sensing works by shining a beam of light through the exhaust plume of a vehicle as it drives by, to measure concentrations of different pollutants while at the same time gathering information about the speed, acceleration, and specifications of the vehicle. With enough remote sensing data it is possible to understand and identify the real world emissions of a given fleet over a wide range of driving conditions – from the average emissions of the whole fleet down to the vehicle model level.

The European Commission has been putting in place measures to attempt to minimize the gap between real world and 'official' emissions levels. Zlatko Kregar introduced this work, including the Real Driving Emissions (RDE) test protocol which was finalized in 2016 and is currently being phased in from September 2017 to January 2021. The RDE test mandates that vehicles meet certain emissions limits in certain conditions on the road, and represents a vast improvement over current emissions type approval tests.

The TRUE vehicle rating is central to the Initiative's work, and Rachel Muncrief explained the methodology behind the rating which was developed by ICCT. Remote sensing data is analysed to determine real-world NOx emissions from a given vehicle family (defined as all vehicles with a common manufacturer group, fuel type, emissions standard, and engine displacement). This grouping forms the basis of the TRUE NOx rating which assigns vehicles emitting over 180mg/km a red (poor) rating, all vehicles emitting under 90mg/km a green (good) rating, and all others a yellow (moderate) rating.



David Ward, Global NCAP.



Zlatko Kregar, European Commission, and Rachel Muncrief, ICCT.

Ford	
MODEL:	Fiesta
RATING:	NO _x

Fuel Type	Emissions Standard	Engine Size	Vehicle Class
Petrol	Euro (MY 2014-2018)	1.0 (999, 74)	Small

Ratings System Explained

TRUE ratings are green, yellow and red to help to indicate Good (green), Moderate (yellow) or Poor (red) emissions performance.

Green rating: vehicles that are no more than 90mg/km NO_x emissions that are below 90mg/km in a wide range of driving conditions.

Yellow rating: vehicles that are no more than 180mg/km NO_x emissions that are below 180mg/km in a wide range of driving conditions.

Red rating: vehicles that are no more than 180mg/km NO_x emissions that are above 180mg/km in a wide range of driving conditions, as well as vehicles that are no longer for sale in the EU.

TRUE rating: is a three colour categorisation system designed to compare the public of the magnitude of a vehicle's emissions over its lifetime over a wide range of operating conditions and driving behaviours.

While new vehicles are by definition certified to emissions levels at or below the legal limit, real-world vehicle emissions are often much higher due to a number of reasons. Data on real-world emissions is collected from a number of sources, including driving cycle data collected from fleets, and from a number of driving cycle data collection systems. The data points are then analysed to provide a positive way to rank and re-rate. The TRUE rating is based on these data.

The TRUE rating currently covers only NO_x emissions. The rating will be expanded to include additional emissions including particulate matter, nitrogen dioxide and carbon dioxide emissions during the coming years of the project.

GOOD **MODERATE** **POOR**

HOW DOES YOUR CAR RATE?

Find [Petrol](#) [Petrol](#) [Petrol](#) [Euro \(MY 2014-2018\)](#) [1.0 \(999, 74\)](#) [Vehicle Class](#) [True Rating](#) [Q](#)



Jens Borken, IIASA, and David Carslaw, University of York.

Panel 2 - the specific cases of London and Paris, the first TRUE cities.

The panel was moderated by Caroline Watson of C40 Cities and London was represented by Elliot Treharne, and Paris by Hervé Levifve.

Elliot Treharne outlined the wide range of measures that London has implemented and is planning to implement to curb transport related air pollution – one of the highest priorities for the current Mayor. London’s measures include: posting air quality alerts on bus; road and underground station signs; implementing low emission bus zones, ensuring that new city buses are hybrid, hydrogen or electric; disallowing the sale of diesel taxis; congestion charging with an additional emissions surcharge for older vehicles, an ultra-low emission zone that will get progressively more stringent; and a web-based Clean Vehicle Checker. The checker will eventually utilize TRUE rating data so that the public can get a better understanding of the real-world emissions of the vehicles they own or are about to buy.

Hervé discussed the many measures that are being implemented in Paris, including a low emissions zone, a clean bus plan, plans to encourage cycling and walking by giving cyclists and pedestrians more (and cars less) space, and a procurement plan whereby the city does not purchase any diesel vehicles.



Caroline Watson, C40 Cities.



'TRUE data will be integral to us being able to do our jobs'
Elliot Treharne, Greater London Authority.



'The TRUE data offers Paris real value in helping to raise public awareness and gain public acceptance for necessary clean air policies'
Hervé Levifve, City of Paris.

Roundtable 1 - Hearing from city government representatives.

During the session, attendees heard from representatives of cities from across the world, who explained how the issue of air quality was affecting their population; how their city authorities were addressing it; and the sorts of data and testing they were deploying in this area. In every city vehicles were seen as a key contributor to the problem, although light duty cars and vans were not the only culprit with heavy-duty lorries, buses and two-wheeler vehicles also contributing substantially.

Most cities had prioritised poor air quality as a key issue, and were adopting a wide range of policy responses to address the contribution of transport and vehicles to it. From improved labelling in Seoul, to strictly enforced inspection and maintenance in Mexico City; from licensing only cleaner vehicles in Leeds to restrictions of vehicle access in Dar Es Salaam; and from fiscal incentives for hybrids in Amman to a diesel ban in Brussels, it was clear that there are a wide range of policy tools open to cities as they tackle this issue.

Whilst there was a wide spread of experiences several issues were common to the cities.

- The impact of secondhand vehicles, either coming across borders without controls, or openly imported as a major source of legitimate additions to the fleet.
- The potential of Low Emission Zones (LEZ) and vehicle bans, and how real world data might help both in terms of establishing which are truly the most polluting vehicles, and how to enforce them in practice.
- The role of electrification, including of buses and bikes, the challenge of establishing the necessary infrastructure and the challenges for power generation.
- The importance of bus fleets and the complexities of procuring genuinely cleaner versions.

It was clear from discussion in this session that there is real scope for a real-world emissions city network on these issues, sharing good practice and networking those with responsibilities in this area with others in order to exchange learning, as a useful additional resource.

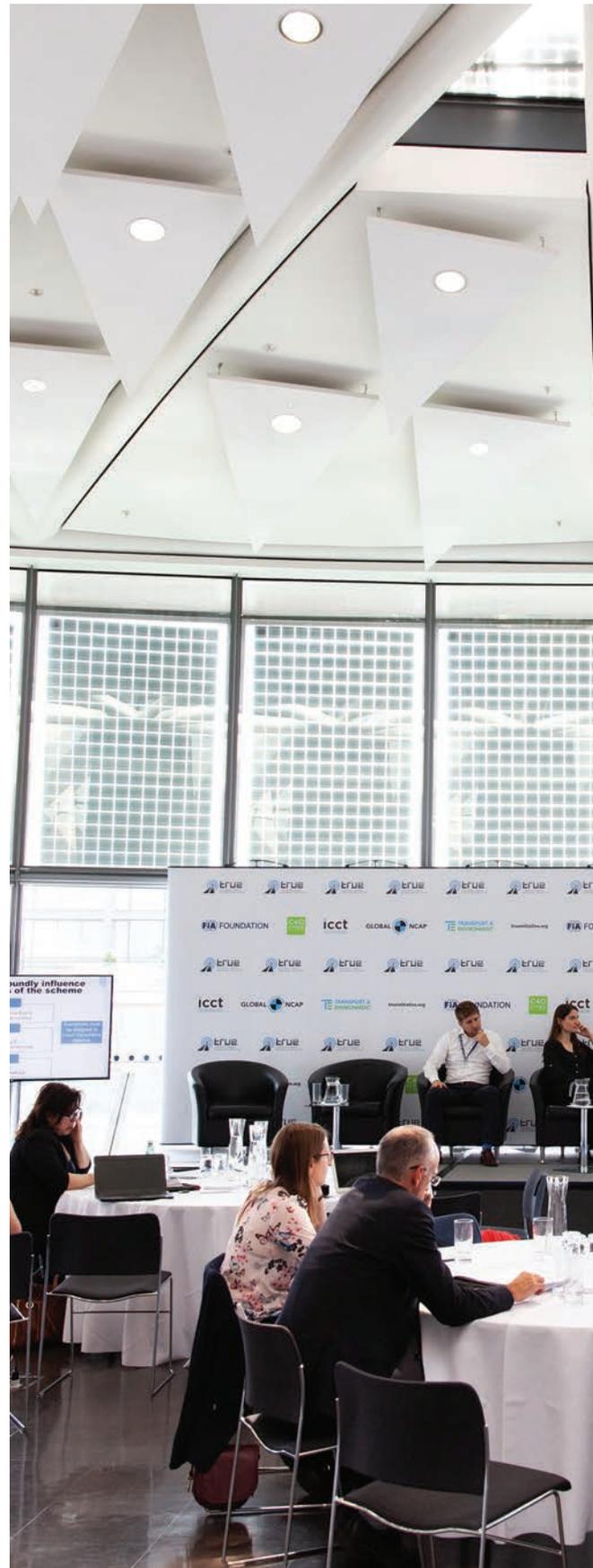




DAY 2: LONDON CITY HALL

The second day of the symposium took place at London's "Living Room" in City Hall, home of the Greater London Authority (GLA).

The keynote speech was provided by London's Deputy Mayor for Environment and Energy, Shirley Rodriguez. Shirley gave a high level overview of the many different ways in which the Mayor's office is working hard to reduce air pollution from the transport sector and also stressed the high priority that the mayor gives to this issue. The Mayor Sadiq Khan recorded a video message for conference attendees, in which he welcomed the work of TRUE. He also committed to tackling the thousands of premature deaths and many other serious health consequences of London's current poor air quality.





Shirley Rodriguez, Deputy Mayor of London



Panel 3 - city level experiences in emissions measurement and programs to curb real-world emissions.

The panel was moderated by Drew Kodjak from the ICCT and the panelists included Louise Duprez from Brussels, Mónica del Carmen Jaimes Palomera from Mexico City, Eunjung Choi from Seoul, Kate Blumberg from The ICCT presenting on California's program, and Marcela Castiillo from the Mario Molina Center presenting on Santiago's program.

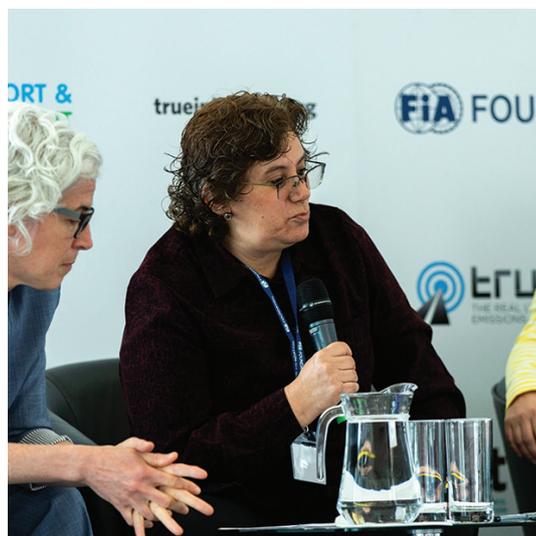
Louise Duprez explained that although the particulate matter (PM) and NO_x concentrations have been decreasing over time in Brussels, they still frequently exceed recommended limits. The transportation sector is a significant contributor to this issue - with the primary issue being NO_x emissions from diesel cars. Brussels implemented a low emissions zone in 2018 which will progressively tighten by 2025, at which point approximately one third of the fleet will not be allowed to drive within the designated zone. Furthermore, by 2030 Brussels is planning an all-out diesel ban in the city.

Mónica del Carmen Jaimes Palomera began her presentation by introducing the audience to Mexico City's unique geography - high altitude and high solar radiation - which contributes to the city's ongoing challenge of higher concentrations of ozone and secondary pollutants. Again a large contribution comes from the transportation sector. Mexico City has experienced some improvement in air quality over the years, but still suffers from over 200 days per year where the air quality exceeds the 95ppb ozone standard. Over the past 8 years, Mexico City has implemented numerous programs to reduce air pollution from mobile sources. Notably, they have implemented a remote sensing campaign where they have been collecting at least 40,000 valid remote sensing measurements per year since 2013 and using the data for fleet characterization, since 2016 also been issuing penalties to high-polluting vehicles.

Eunjung Choi talked about some of the issues that Seoul is dealing with in terms of air quality. PM levels in Seoul have increased slightly since 2012 along with the number of 'bad air days' - which were at a 3 year high in 2017. While Seoul has to contend with external emissions sources (PM being blown in from China and elsewhere), Eunjung also noted that PM 2.5 from vehicles are a significant source. Seoul, which has taken the unique path of directly involving their citizens in the policymaking process, has taken a number of steps to mitigate this pollution and is working on additional measures for example; it is in the process of upgrading to a new vehicle labeling scheme that will differentiate



Drew Kodjak, ICCT.



Mónica del Carmen Jaimes Palomera, Mexico City



Kate Blumberg, ICCT.



Louise Duprez, City of Brussels.

vehicles based on emissions. Cars with the greenest labels will qualify for various incentives and the scheme will also be used to inform which vehicles may enter Seoul’s “Green Transport Promotion Zone” with enforcement starting in 2019.

Kate Blumberg shared the on-going efforts taking place in California and being led by California’s Air Resources Board (CARB). California has been very focused on gaining a better understanding of real-world emissions to inform policy and develop their emissions inventories. A significant amount of the work in California has focused on understanding (and reducing) the real-world NOx emission from Heavy Duty Vehicles (HDVs). Indeed, California has been using remote sensing for around 20 years to track trends in real-world fleet emissions. They have recently developed a new effort they are calling “REAL” which stands for Real Emissions Assessment Logging. This effort is the first of its kind and will track, log, and report real-world emissions on the vehicle, using the on-board sensors and algorithms. The REAL concept has many potential benefits which include motivating the manufacturer to use optimal control during all driving conditions, close to real time feedback on actual emissions control performance, and faster and cheaper testing data.



Eunjung Choi, City of Seoul.

Finally, Marcela Castillo shared the latest strategies being put in place for the Metropolitan Area of Santiago – which has had a designation of non-attainment for PM and Ozone since 1997. The first “Decontamination Plan” – which focused on cleaner fuels and better emissions standards and has served to cut PM in half over the past 20 years. However, Santiago still struggles with non-attainment issues and has put in place a new plan that started in 2017. Features of the new plan include: a low emissions zone for trucks, moving to Euro 6 for urban buses, improved standards for Light Duty Vehicles (LDVs), and a low emissions zone where vehicles registered before 2012 will not be granted access from May to August.



Marcela Castillo, Centro Mario Molina.



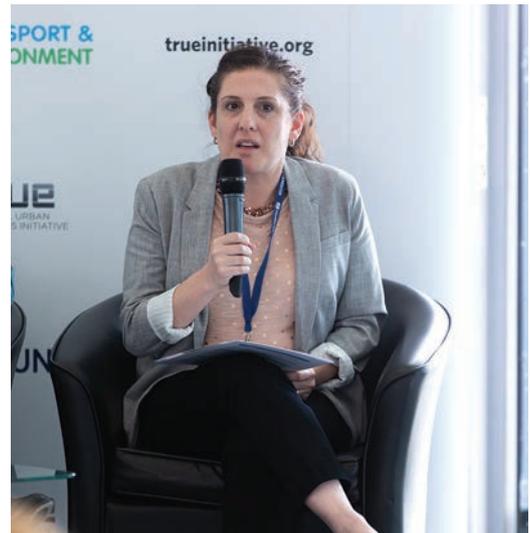
Panel 4 - policy solutions for cities.

The panel was moderated by Rachel Muncrief from the ICCT and the panelists were Caroline Watson from C40 Cities, Greg Archer from Transport and Environment, and Uwe Tietge from the ICCT.

Caroline Watson talked about the power of collaboration between cities, especially mega-cities and the work C40 is doing to support that, for example a network of the world's largest cities working together to tackle climate change. These cities represent approximately 20% of global GDP and 25% of global urban GHG emissions. The recent Fossil Fuel Free Streets Declaration was cited as a prime example of the power cities can have when they collaborate. 12 global cities have committed to purchasing only zero emissions buses from 2025 and ensuring a major area of their city is zero emissions by 2030.

Greg Archer stressed that although there are currently around 250 low emission zone schemes around the EU (including Low Emissions Zones, charging schemes, and other vehicle restriction schemes) they are not all equally effective. Indeed the evidence suggests that the design of the scheme is crucial. It must cover a large enough area to reduce driving overall (if it is too small people will just drive around it), it should focus on all vehicles not only HDVs or buses, and enforcement of the LEZ is critical to its success.

Uwe Tietge wrapped up the panel by elaborating how city actions are having an impact on the diesel car market in Europe. Since "dieselgate" broke in September 2015 Spain, France, the UK and Germany have all seen declining diesel sales EU wide, the diesel share of the market has declined from 52% to 44% in 2017. Whilst dieselgate on its own did not necessarily trigger all of the decline that has been seen in diesel sales, it did trigger some cities to announce different types of diesel vehicle bans and low emissions zones that place greater restrictions on where diesel vehicles can be driven. The announcements of these future bans seems to have played a significant role in decreasing diesel's share of the market.



Rachel Muncrief, ICCT.



Greg Archer, T&E.



CONCLUSIONS

After a lively final discussion moderated by Drew Kodjak of ICCT, four key conclusions emerged from the discussions at the symposium.

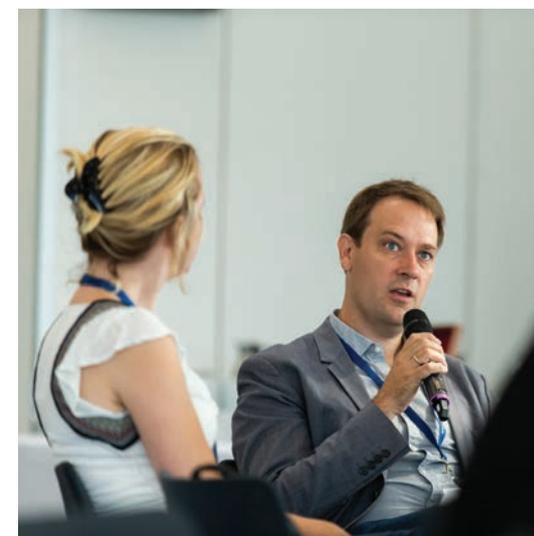
The work of the TRUE Initiative was welcomed by all attendees, as a key useful contribution to policy development and informed consumer choices, however it needs to develop and grow to maximise its usefulness. Specifically:

1. The TRUE data must be kept **up to date** to have a full understanding of how vehicle emissions are changing over time and how new vehicles, type approved under the newest standards, are behaving.
2. **A city network** of those authorities with a focus on these issues, which allowed cities to collaborate with each other – particularly at the regional-level would be useful.
3. It was also considered vital that TRUE work with cities on different ways in which the data can be used to **inform various policy measures**, so some analysis of those options should also be made available.
4. Finally, **a further series of meetings** of the nature of this first city symposium would be useful in order to grow and strengthen the network, and allow on-going learning and exchange.

The TRUE partnership is committed to taking forward these conclusions and recommendations, although further resources, new city collaborations and in particular greater adoption of remote testing will be crucial to achieving them.



Caroline Watson, C40 Cities.



Uwe Tietge, ICCT.





For more information:

www.trueinitiative.org

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