



# SUMMARY REPORT

## 2020 ANNUAL MEETING

**TTG** Transport  
Task Group

## EXECUTIVE SUMMARY

The 2020 Transport Task Group annual meeting was held on October 7, 2020. The meeting was attended by 48 participants from around the globe, including officials of ten G20 governments (Argentina, Australia, Brazil, Canada, European Union, India, Italy, Japan, United States, Saudi Arabia), three guest countries (Morocco, Uruguay, Singapore), and five international organizations. For the first time, the meeting was held virtually. Over three hours, the group exchanged updates on how this anomalous year has gone and the impacts it has had on policy developments. The group also focused on several key themes, including hearing about progress on an upcoming TTG report on the air quality and health impacts of heavy-duty vehicles.

The principal objective of the TTG meeting was to evaluate the impact of Covid-19 on policymaking processes and to learn about key policy advances in the transportation emissions space. The meeting began with introductory remarks by the current President of the G20- the Kingdom of Saudi Arabia, and by the co-lead of the TTG, the United States of America. Then the ICCT provided an overview of the key policy developments that have taken place over the year. Participants divided into groups and discussed how Covid-19 was impacting their priorities and operations. Later sessions featured an update on an upcoming TTG report on the air quality benefits of updated heavy-duty standards in G20 countries. Presentations by the Kingdom of Saudi Arabia followed this discussion and highlighted new studies on e-fuels and updates to the country's fuel economy standards. The TTG then heard from the Ricardo Group, which conducted an in-depth lifecycle study for the EU comparing alternative vehicles to traditional ones with internal combustion engines. The group concluded the meeting by having another break-out session to brainstorm topics for the TTG's work program, and finally hearing concluding remarks from our group leads and from the next President of the G20, the Italian government.

A full list of participants and affiliations is available from the webpage for the meeting. Presentations are also available on the site.

## ABOUT THE TRANSPORT TASK GROUP

The Transport Task Group (TTG) was established in 2014 to serve as a voluntary platform for G20 countries to share experience and work together to improve the energy and environmental performance of motor vehicles, especially heavy-duty vehicles (HDVs). The group is co-led by the United States Environmental Protection Agency (US EPA) and the European Union's Directorate-General for Climate Action (DG-CLIMA). It is supported by two implementing organizations: the International Council on Clean Transportation (ICCT) and the Global Fuel Economy Initiative (GFEI). Participation in the TTG is voluntary and open to all G20 economies and their neighbors.

## MEETING AGENDA

TIME	TOPIC	DURATION
09:00-09:05	Welcoming remarks: Jim BLUBAUGH	5 min
09:05-09:10	Circular Carbon Economy: Fareed ALASALY	5 min
09:10-09:30	Opening discussion of recent developments in transportation ICCT presentation: COVID impacts, vehicle technology uptake, and key policy developments over the past year	20 min
09:30-09:50	Small group breakout Ice breaker introductions and discussion of what is happening in countries Question #1: How has COVID impacted policy priorities in your country/region? Question #2: What questions are you trying to answer to inform how to move forward?	20 min
09:50-10:00	Large group and report back Use interactive platform to report back ideas from the groups	10 min
10:00-10:10	Break	10 min
10:10-10:35	HDV air quality and health impacts ICCT presentation: Preliminary results of HDV air quality and health study. The presentation will introduce the objectives, methods, and preliminary emissions results of the study, which evaluates the capacity of adopted and potential HDV exhaust emissions standards and fleet renewal programs to benefit air quality and related health outcomes in G20 countries. Moderated Q&A: Joshua MILLER	25 min
10:35-10:45	Enhancing Fuel Economy in KSA: Mohammed ALBASSAMI, SEEC & The role of E-fuels in meeting future transportation decarbonization targets: Amer Ahmad AMER, Aramco	10 min
10:45-11:00	Break	15 min

11:00-11:20	EU study of lifecycle emissions: Nikolas HILL Presentation of recent large-scale EU study of vehicle lifecycle emissions. Moderated Q&A: Ana DANILA	20 min
11:20-11:40	Break out into small groups Same groups as the morning session. These groups will discuss follow-on ideas for webinars and activities for the TTG group in the next year.	20 min
11:40-11:50	Large group and report back	10 min
11:50-12:00	Closing remarks: Jim BLUBAUGH, Fareed ALASALY, Simone RICCARDO and Daniele VILLORESI	10 min

## SUMMARY OF PROCEEDINGS

### OPENING DISCUSSION OF RECENT DEVELOPMENTS IN TRANSPORTATION

ICCT's Modeling Center Manager, Joshua Miller, gave a presentation on selected policy developments relevant to clean transportation in G20 countries. The presentation covered two themes: Climate, Electrification, and CO<sub>2</sub> standards; and Air pollution and Emissions standards. Two major economies have announced plans for climate neutrality: the European

Commission has proposed a Climate Law that would set a legally binding objective of net zero greenhouse gas (GHG) emissions in the EU by 2050 and a 2030 emissions reduction target of at least 55% compared to 1990 levels. The Commission is slated to review and propose revisions to relevant policy instruments to deliver these additional GHG reductions. This includes revisiting and strengthening the CO<sub>2</sub> standards for light duty vehicles (LDVs) by June 2021 and for heavy-duty vehicles (HDVs)<sup>1</sup> in 2022. China's President Xi Jinping announced that China will firmly support the Paris Agreement, strengthen its Nationally Determined Contributions, and take more robust policies and measures to peak CO<sub>2</sub> emissions by 2030 and achieve carbon-neutrality before 2060. China will also contribute to the global effort to stimulate a "green recovery" following the COVID-19 pandemic. China is currently developing its 14th Five Year Plan, which will establish air quality and emissions reduction targets and serve as a policy blueprint for China over the next 5 years.

<sup>1</sup> LDV, light-duty vehicles; HDV, heavy-duty vehicles

More countries and regions are setting increasingly ambitious targets for electric (EV) and zero-emission (ZEV) vehicles.<sup>2</sup> In 2019, nearly 60% of passenger vehicle sales in Norway were EVs. Norway aims to increase this share to 100% by 2025. By 2030, Norway has targeted 75% EV sales for long-distance coaches and 50% for trucks. The Canadian province of British Columbia adopted a ZEV regulation that requires automakers to meet an escalating annual percent of new zero emission (ZE)-LDV sales and leases, reaching: 10% of LDV sales by 2025, 30% by 2030, and 100% by 2040. California adopted its Advanced Clean Trucks rule, which sets annual percent sales requirements for HD pickups and vans, rigid trucks, tractor trucks. California's governor Gavin Newsom also directed the California Air Resources Board (CARB) to develop and propose ZEV regulations that will achieve 100% ZE-LDV sales by 2035, transition 100% of the HDV fleet to ZEVs "everywhere feasible" by 2045, and achieve 100% ZE drayage trucks and off-road vehicles and equipment by 2035. These regulations will support California's goal to achieve carbon-neutrality before 2045. In July 2020, 14 other U.S. states and the District of Columbia signed a Memorandum of Understanding with California and committed to achieving 30% of ZE-HDV sales by 2030 and 100% by 2050. Several national governments in Europe have launched stimulus packages that promote EV sales and vehicle replacement. China has also extended its national new energy vehicle subsidies until the end of 2022. The European Commission released a hydrogen strategy for the EU, and China established a national roadmap for hydrogen fuel cell vehicles.

With respect to air pollution, G20 countries have made varied progress on HDV emissions standards. Regulators in Brazil and Mexico are facing automaker pressure to delay the implementation of their adopted Euro VI-equivalent standards. In Indonesia, regulators are also facing pressure to delay adopted Euro IV-equivalent standards. Decreased vehicle sales due to COVID-19 is a primary concern cited by the industry. Yet, stimulus efforts in Europe and China indicate that vehicle sales can be directly supported without weakening regulations, and instead accelerate the deployment of clean vehicles and the replacement of older vehicles. India successfully implemented its Euro VI-equivalent standards in April 2020 without significant delay and just three years after India implemented Euro IV-equivalent standards. A long-awaited scrappage program is also under development. In China, the implementation of Euro VI-equivalent HDV standards is scheduled for 2021. No postponement has been requested. In Europe, "Euro 7/VII" standards are under development. In the U.S., CARB adopted its HDV Low-NO<sub>x</sub><sup>3</sup> regulation, which will tighten NO<sub>x</sub> limits by 75% below current standards in 2024 and 90% in 2027. Further developments to US EPA's Cleaner Trucks Initiative are forthcoming.

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<sup>2</sup> EV, electric vehicles; ZE, zero-emission; ZEV, zero-emission vehicles.

<sup>3</sup> NO<sub>x</sub>, oxides of nitrogen; BC, black carbon.

## REPORT ON AIR QUALITY AND HEALTH IMPACTS OF HDVS

ICCT Researcher Lingzhi Jin gave a presentation on a TTG report that is under development on the air quality and health impacts of HDVs in G20 countries. The study aims to quantify and enhance understanding of the multiple benefits of key policies for reducing air pollutant emissions from HDVs. Lingzhi presented preliminary estimates of diesel HDV exhaust emissions in G20 countries under four policy scenarios: one reflecting the projected effects of adopted policies and three progressively stringent new-policy scenarios that consider expanded adoption of Euro VI-equivalent standards (Expanded world-class), adoption of next-generation HDV Low-NO<sub>x</sub> standards (Next-gen), and development of accelerated fleet renewal policies (Accelerated). Compared to adopted policies, the Expanded world-class scenario could reduce aggregate HDV NO<sub>x</sub> emissions among G20 countries by 35% in 2040 (and by 85% for BC), Next-gen could reduce NO<sub>x</sub> by 77%, and Accelerated could reduce NO<sub>x</sub> by 87–92% (and by 95% for BC), depending on the pace of fleet turnover. The study will also estimate the benefits of these policy scenarios for reduced population exposures to ambient fine particulate matter and ozone, reduced incidence of premature deaths and years of life lost, the value of avoided health damages, and the climate benefits of reduced HDV non-CO<sub>2</sub> emissions.

## KINGDOM OF SAUDI ARABIA INSIGHTS: “A CIRCULAR CARBON ECONOMY”, “ENHANCING FUEL ECONOMY IN KSA”, AND “THE ROLE OF E-FUELS IN MEETING FUTURE TRANSPORTATION DECARBONIZATION TARGETS”

Holding the Presidency of the G20, the Kingdom of Saudi Arabia updated the Transport Task Group on a number of initiatives that the government is currently undertaking. Fareed Alasaly highlighted the key outcomes of the G20 Energy Ministers Meeting, where Ministers endorsed a Circular Carbon Economy platform and “4Rs” framework (Reduce, Reuse, Recycle, and Remove) for reducing greenhouse gas emissions. Mohammed Albassami with the Saudi Energy Efficiency Center described the multiple initiatives ongoing in his group to improve energy efficiency of on-road vehicles in Saudi Arabia. Current ongoing work includes moving to Phase II of the Saudi CAFE standard and Tire Rolling Resistance and Wet Grip standard. The group also plans to complete an HDV Aerodynamic Device Regulation. A fuel economy label has already been completed by the group. Dr. Amer Ahmad Amer, Transport Chief Technologist at Saudi Aramco provided a presentation on the role of E-fuels in meeting future transportation decarbonization targets. E-fuels are liquid or gaseous drop-in-fuels created when water is split into hydrogen and oxygen with electricity, and then the hydrogen is either utilized directly or combined with carbon dioxide to create hydrocarbons. Dr. Amer described optimism

that e-fuels are currently technically feasible and that their costs, which is one of the current significant barriers to their adoption, will decrease over time.

## EU STUDY OF LIFECYCLE IMPACTS

Nikolas Hill (Ricardo Energy and Environment) presented the main results of a study on the lifecycle impacts of different road vehicle types, powertrains and energy carriers conducted for the European Commission, DG Climate Action. This two-year project, carried out jointly with E4tech and the Institute for Energy and Environmental Research Heidelberg (ifeu), included extensive consultation with industry stakeholders.

The increasing interest and relevance for life cycle assessment (LCA) of road vehicles is driven by changes in technology and policy. Until recently, the relative impacts of different road vehicles were well characterized by exhaust ('tailpipe') impacts. However, the expanding variety of power technologies and alternative fuel options calls for a comprehensive analysis relying on expanded boundaries. LCA is an important tool to reveal possible trade-offs between different impact categories. It supports comparison of different vehicle and fuel technologies on a like-for-like basis, and it allows identification of key impacts, hotspots and sensitivities, in order to better understand opportunities to address them.

The scope of the study included the whole vehicle cycle from the production of raw materials, vehicle and component manufacturing, through the conversion of fuels and electricity and vehicle operation and maintenance, to the impacts from end-of-life processing and recycling. The project covered a wide range of 14 LCA impact metrics, not limited to GHG emissions and cumulative energy demand. Seven light- and heavy-duty vehicle types, and different duty cycles, were analysed using a consistent and harmonised methodology.

Results prove the significant potential benefits of EVs, whilst highlighting key dependencies and hotspots: the benefits of BEV, PHEV, FCEV are significantly enhanced with decarbonised electricity/hydrogen, battery improvements, and with improved process efficiency in the production of key raw materials. The EU Circular Economy approach yields potential benefits of improved recycling material recovery rates and shifts to lower carbon electricity in recycling processes. The cumulative energy demand is very high for e-fuels compared to other electrification options due to the less efficient energy chain. Yet further work is needed in understanding overall results for low carbon fuels, particularly on low carbon fuel options that are not yet commercially mature.

## ACTION ITEMS

The meeting concluded by soliciting areas of interest for future Transport Task Group activities from participants. Meeting participants identified areas of interest for the TTG. The topics included:

- » 1) Long-term impacts of Covid-19 on transportation demand
- » 2) Lifecycle analysis, including:
  - » a. Lifecycle emissions of electric vehicles. Additionally, country-specific outlooks for well-to-wheel emissions.
  - » b. Lifecycle assessments of shipping and aviation
  - » c. Lifecycle attributes such as water usage
- » 3) Technology and commercial readiness levels of different fuel-powertrain options
- » 4) Fleet turnover policies analysis for G20 countries
- » 5) Zero Emissions Vehicles, including:
  - » a. Non-regulatory complementary measures
  - » b. Technology uptake and feasibility
  - » c. Vehicle-use patterns
- » 6) Off-road technologies, including:
  - » a. Electrification
  - » b. Emission reduction technology
  - » c. Possible rates of transition to zero-emission technologies
- » 7) Biofuels
- » 8) Natural gas HDV
- » 9) Non-exhaust emissions regulations
- » 10) Inspection and Maintenance programs

The meeting participants held that this first virtual summit for the group was a success. Many participants noted that participation was enhanced with a virtual setting, since many who could not travel in previous years were able to participate. The TTG will explore increasing its virtual interactive capabilities for future events. The TTG will use this feedback to plan for a series of 2021 events and a 2021 annual meeting.



