

Working Meeting of the G20 Transport Task Group Buenos Aires, Argentina September 24-25, 2018

ABOUT THE G20 TRANSPORT TASK GROUP

The G20 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 administered by the International Partnership for Energy Efficiency Cooperation (IPEEC) and 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.

INTRODUCTION TO THE TTG MEETING IN 2018

The first in-person meeting of the TTG took place from September 24-25 in Buenos Aires, Argentina. Attendees included representatives from seven G20 economies (Argentina, Brazil, Canada, European Union, Japan, Kingdom of Saudi Arabia, and the United States), the ICCT, IPEEC, and the International Energy Agency (IEA). A full list of participants and affiliations is included at the end of this report.

The working meeting was co-hosted by US EPA, the ICCT, and IPEEC, in partnership with the Argentinian Secretary of Energy and Secretary of Environment and Sustainable Development.

The objective of the meeting was to take stock of the progress made in improving the energy efficiency and environmental performance of HDVs in G20 economies, and as the first meeting of the group, to engage in a strategic discussion of the group's activities and vision for the coming years.



MEETING AGENDA

The meeting activities took place over two days. The final agenda is included below.

MONDAY, SEPTEMBER 24, 2018

11:00	Gather at Kenton Palace for meet-and-greet; Leave hotel on bus for FADEEAC
13:00	<p>Site visit to FADEEAC and lunch</p> <p>Fundación para la Formación Profesional en el Transporte (FPT) is the academic body of the Federación de Entidades Empresarias del Autotransporte de Cargas (FADEEAC). FADEEAC is a federation of transport cargo business chambers. FPT's objective is to train land transportation professionals. FPT teaches courses and programs for all levels of the cargo transport and logistics sector. The national government authorizes FPT to issue courses for truck drivers to obtain the National License.</p> <p>The site visit was held at the FPT. The venue has 1600 meters tracks for truck testing, as well as 800 m² semi-covered parking for trucks. The classrooms have state-of-the-art technology and heavy vehicle driving simulators.</p>

TUESDAY, SEPTEMBER 25, 2018

Location: El Patio, Kenton Palace, Buenos Aires

8:30	Registration (coffee and tea provided)
9:00	<p>Welcome</p> <p>Jose Luis Weisman, National Director for Energy Efficiency Programs, Secretary of Energy, Argentine Republic</p>
9:10	<p>Enhancing the environmental performance of heavy-duty vehicles through the G20 Transport Task Group</p> <p>Jim Blubaugh, Director of International Office of Transportation and Air Quality, U.S. Environmental Protection Agency (US EPA)</p>
9:30	<p>Programs to enhance the energy efficiency of heavy-duty vehicles in Argentina</p> <p>Fernando Lia, Coordinator of Energy Efficiency in Transportation, Secretary of Energy, Argentine Republic</p>
10:00	<p>Roundtable discussion: HDV policy developments in G20 economies</p> <p>Each participating economy was invited to share recent developments and plans to enhance HDV environmental performance.</p>
12:00	Break for lunch
13:30	<p>Overview of IEA Technology Collaboration Platforms (TCPs)</p> <p>Sacha Scheffer, IEA</p>
13:40	<p>Recap of G20 Transport Task Group activities in 2017 and 2018</p> <p>Diana Galperin, US EPA and Josh Miller, ICCT</p>
13:50	<p>Breakout session: Participants divided into groups to discuss how to enhance the value of Transport Task Group activities. Moderators facilitated discussion of questions covering Policy exchanges and G20 engagement, Deep dives, and Research activities.</p>
15:00	<p>Report out on breakout sessions and continue discussion as a group</p> <p>Moderator: Jim Blubaugh, US EPA</p>
16:00	<p>Summary of discussions and wrap up</p> <p>Jim Blubaugh, US EPA</p>

POLICY DEVELOPMENTS IN G20 ECONOMIES IN ATTENDANCE

During the morning session on September 25th, each G20 economy in attendance shared recent HDV policy achievements and plans for further policy development. Argentina, Brazil, Japan, and Saudi Arabia presented slides, which are made available on the event page. Canada, the EU, and the United States shared verbal remarks.

ARGENTINA

In Argentina, 95% of goods and raw materials are transported by trucks, and 40% of the total cost of road freight companies is fuel. Government analysis shows that reducing fuel consumption of one truck can yield benefits equivalent to 6 or 7 LDVs. Argentina is developing an energy efficiency (EE) label for LDVs covering N1 and M1 vehicles weighing up to 3500 kg. Norms for measurement of LDV EE and a declaration of EE values by manufacturers and importers (by engine family) were published in 2017. The label will start out as solely informative (declaring the value). It is expected to start being applied in May 2019 with full implementation by May 2020. The government plans to expand it to a comparative label in 2021 and subsequently establish minimum LDV EE standards.

Argentina is working to develop a technology verification program for trucks by adapting the SAE J1321 testing protocol to local conditions. The government launched a pilot phase of its SmartWay program on October 2. The initial phase covers 50 trucks from companies that are already known to have good fuel monitoring practices (e.g. using telematics, fuel dispatch, or fuel cards). The pilot seeks to generate successful cases that can be scaled up to the whole truck fleet. It will determine baseline (ex ante) EE, implement EE measures, and report results along with a green freight certification. Argentina is preparing a National Energy Efficiency Law, which will include activities for each sector including transport. Argentina expressed interest in TTG members' ideas for EE actions in transport. The Argentine government just recently published [fuel efficient driving guidelines for LDVs](#). Additional activities under development include EU cooperation on end-use energy balances and EE measures for government fleets, tire EE labeling, and nascent activities to develop a HDV EE label and standards.

BRAZIL

Three ministers are responsible for Brazil's transport policies: the Ministry of Transport has authority over highways and roads, the Ministry of Development, Industry and Foreign Trade (MDIC) over manufacturers, and the Ministry of Environment (MMA) over vehicle emissions. Brazil has the fourth largest HDV population worldwide, with 2.4 million vehicles. HDVs represent 5.7% of the total vehicle fleet of 42 million. Diesel fuel is only permitted for vehicles carrying over one tonne (including some large pickups, LCVs, buses, and trucks). Diesel accounts for 40% of Brazil's transport sector energy demand. HDVs account for 47% of NO_x and 32% of PM₁₀ emissions from all sources in the state of Sao Paulo. HDV P-7 standards (based on Euro V) have been in place since 2012, and a proposal for P-8 (Euro VI equivalent) standards was under discussion as of September 2018. Brazil's Ministry of Environment approved P-8 emission standards for HDVs in November 2018. Euro VI-equivalent standards will apply to new models of trucks and buses by 2022 and all models by 2023.

Nationwide, soy biodiesel accounts for 9% of diesel blends today; this will increase to 10% in 2019 and potentially 15% in the future. Brazil has limited deployment of charging infrastructure, with a few stations between cities and some public charging in malls and supermarkets. Some companies have started to buy electric urban delivery trucks. The federal government exempts hybrid and electric vehicles from import taxes. Brazil has developed a comparative LDV FE label with [a mobile application](#) aimed at improving consumer purchase decisions.

CANADA

Canada's HDV Phase 1 GHG regulations are estimated to yield benefits that outweigh the costs by a factor of 6:1. In May 2018, Canada finalized its HDV Phase 2 GHG regulations, including more stringent emission standards for HDVs and their engines starting with the 2021 model year, and introducing new standards for trailers manufactured on or after January 1, 2020. Collaboration and consultation have been key factors in Canada's development of successful programs for reducing GHGs and air pollutant emissions from LDVs and HDVs. In addition to collaborating with the United States on regulatory development, Environment and Climate Change Canada (ECCC) has worked with US EPA on vehicle emission testing. These collaborative activities and effective consultation with stakeholders have enabled ECCC to develop successful regulations in a timely manner and make Canada-specific adaptations as needed. While ECCC is responsible for the development and administration of the federal vehicle and engine emission regulations, the Department of Natural Resources Canada (NRCan) is responsible for the administration of voluntary approaches and programs that help improve the fuel-efficiency/GHG performance of vehicles, including from HDVs, such as Canada's SmartWay, Driver Training and Green Freight Assessment programs. Canada's nationally determined contribution (NDC) includes a 30% reduction in GHG emissions below 2005 levels by 2030.

Canada is implementing the Pan-Canadian Framework (PCF) on Green Growth and Climate Change that was adopted in 2016. The PCF represents Canada's plan to meet its emission reduction targets, grow the economy, and build resilience to a changing climate. It was developed by the federal government with the provinces and territories and in consultation with Indigenous peoples. While the GHG emission regulations for LDVs and HDVs are key elements of Canada's plan towards achieving its reduction target, the plan also includes measures to promote zero emission LDVs and HDVs and explore requirements to reduce emissions from in-use HDVs. The Pan-Canadian framework also targets mode shift, sustainable infrastructure investments, and an improved clean fuels standard. On a broader scope, the development and implementation of a carbon pricing system is a central element of the PCF.

KINGDOM OF SAUDI ARABIA (KSA)

The Saudi Energy Efficiency Program (SEEP) was established in 2012. SEEP involves 150+ professionals from 30+ government entities and state owned enterprises. SEEP is a program of the Saudi Energy Efficiency Center ([SEEC](#)). The transport sector accounts for 21% of energy consumption in KSA, equivalent to 1 million barrels per day. Transport energy use is projected to double from 2016 to 2030. HDVs currently account for 40% of transport sector energy use. HDV anti-idling and aerodynamics regulations are under assessment. SEEP estimates aerodynamic technologies have the potential to reduce fuel consumption (FC) by 5% to 9%. The aerodynamics regulation

is expected to be issued in 2019 and implemented in 2021. KSA introduced tire rolling resistance standards for LDVs and HDVs in Nov 2015. SEEP estimates these standards will reduce FC by 2% to 4% for LDVs and up to 6% to 8% for HDVs. A program to accelerate the retirement of LDVs and HDVs is also under assessment.

In 2012, average LDV fuel economy (FE) in KSA was substantially below international benchmarks. In response, KSA developed a LDV FE label in August 2014 and LDV FE standards in January 2016. In 2018, the (comparative and absolute) FE label was updated to include battery electric and plug-in hybrid electric vehicles. KSA's LDV standards are modeled after the US CAFE program. Sales-weighted FE standards apply to new vehicles, and minimum FE targets apply to used imported vehicles. FE has increased from 12.2 km/L in 2012 to 13.6 in the second quarter of 2018. SEEP estimates LDV FE will increase to 19 km/L in 2025, compared to 14.8 km/L without the standard.

JAPAN

Transport sector energy demand has increased 70% between 1973 and 2015. In 1979, Japan's Energy Efficiency Conservation Law established the legal basis for current EE programs. Transport accounted for 23% of final energy consumption in 2013. Transport energy demand is projected to increase 19% by 2030. HDVs accounted for 4% of the total vehicle stock in 2015 but 30% of road transport energy use (in 2014). Japan's first phase HDV FE standards took effect in 2015. All truck categories complied with the 2015 FE targets; some tractor and bus categories did not meet the targets. A second phase program for 2025 is under discussion.

EUROPEAN UNION (EU)

VECTO is the backbone for the EU HDV certification regulation. Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW) worked together with Directorate-General for Climate Action (DG CLIMA) to develop the certification regulation, which incorporates the tool into the EU type approval legislation. In the EU, GHGs are regulated by DG CLIMA, whereas local air pollutants are regulated by DG GROW. Starting from 1 January 2019, every truck leaving the production facility will be CO₂-certified using VECTO. Currently the certification regulation and the monitoring and reporting regulation apply to trucks only. The European Commission (EC) is working to add buses and coaches. The EC proposal for HDV CO₂ standards released in May 2018 would address vehicle types covering 70% of HDV CO₂ emissions in the EU. As of September 2018, the proposal is being discussed by the European Parliament, Council and Commission. The CO₂ targets for 2025 and 2030 will be determined by these discussions.

UNITED STATES (US)

All HDV original equipment manufacturers (OEMs) are meeting the HDV GHG Phase 1 standards, which effectively brings the average new fleet up to the best in class over the period 2014 to 2018. Customers have adopted these technologies willingly, and US EPA has not observed any adverse impact on HDV sales. The Phase 1 program focused on strategies such as low rolling resistance tires, aerodynamics, and idle reduction. The Phase 2 program uses analysis of technology fuel-saving potential to bring in powertrain, transmission, engine, and axle improvements. Early analysis indicates

that Phase 2 will also be successful in introducing these technologies. To implement the full-vehicle standard, US EPA uses its vehicle simulation model, GEM, to combine component data and to certify new HDV fuel consumption and GHG emissions.

POLICY DEVELOPMENTS IN SELECT G20 ECONOMIES NOT IN ATTENDANCE

Several G20 economies that have participated in the Transport Task Group activities were regretfully not able to attend the meeting in-person in Argentina. In particular, China, India, and Mexico have made major progress on policies for HDVs. Below is a brief summary of these major policy developments.

CHINA

China's [Stage 3](#) HDV fuel consumption standard was finalized in February 2018. It covers new commercial trucks, dump trucks, tractors, coaches, and buses with a gross vehicle weight over 3,500 kg. Stage 3 applies to new HDV type approvals in July 2019 and all new HDVs in July 2021. The program will reduce the average fuel consumption of new HDVs by 15% in 2020 compared to 2015 levels.

In June 2018, the Ministry of Ecology and Environment (MEE) finalized its [China VI](#) emission standard for HDVs. China VI consists of two phases. China VI-a is equivalent to Euro VI and applies to new gas HDVs in July 2019, new urban HDVs in 2020, and all new HDVs in 2021. China VI-b introduces more stringent testing requirements and remote emissions monitoring and applies to new gas HDVs in January 2021 and all new HDVs in July 2023.

INDIA

After implementing Bharat IV (Euro IV equivalent) vehicle emissions and fuel standards nationwide in 2017, India will leapfrog to [Bharat VI](#) standards in April 2020. BS VI is equivalent to Euro 6/VI for new cars, light commercial vehicles, HDVs, and two-wheeled vehicles. India has also adopted [fuel consumption](#) standards for HDVs weighing over 12 tonnes. The adopted standards include two sets of targets based on constant speed fuel consumption testing. The targets will apply in April 2018 and April 2021.

MEXICO

Mexico updated its [HDV emissions standards](#) in February 2018. Starting on January 1, 2021, all new HDVs must meet US 2010 or Euro VI standards.

OVERVIEW OF IEA TECHNOLOGY COLLABORATION PLATFORMS

Sacha Scheffer presented an overview of the IEA technology collaboration platforms (TCPs). Each TCP focuses on an area of research related to emerging technologies. There are several TCPs whose work is potentially of interest to the TTG. These include the TCPs on Hybrid and Electric Vehicles, Bioenergy, Combustion, Hydrogen, Advanced Fuel Cells, and Advanced Motor Fuels. The presentation, which is available on the TTG meeting page, covers the objectives, relevant work on HDVs, and future

activities of these TCPs. IEA's transport activities also include scenario analysis of transport energy and CO₂ emissions using the Mobility Model (MoMo), and international collaboration through the Global Fuel Economy Initiative (GFEI) and the Electric Vehicles Initiative (EVI).

RECAP OF TTG ACTIVITIES IN 2017 AND 2018

During the afternoon session on September 25, Diana Galperin (US EPA) and Josh Miller (ICCT) presented an overview of the TTG's past and present activities. These activities fall into four categories.

Deep Dives cover a single policy issue or technical topic over several months to build domestic support and enhance capability for action on that topic. In 2018, the TTG carried out a deep dive project on the measurement and certification of HDVs and their components to assist countries in developing HDV efficiency labeling programs and standards.

Policy Exchanges cover a recent policy development with the objective to share lessons learned and exchange best practices among G20 countries. Recent policy exchanges have included the European Commission's proposal for HDV CO₂ standards, Argentina's HDV efficiency programs, the U.S. HDV Phase 2 GHG standards, and the EU Real-Driving Emissions (RDE) program for light-duty vehicles.

Research Reports released by the ICCT have demonstrated the progress made by G20 economies in recent years and evaluated the benefits of further action.

- » 2015 - [Policies to reduce fuel consumption, air pollution, and carbon emissions from vehicles in G20 nations](#)
- » 2017 - [Impacts of world-class vehicle efficiency and emissions regulations in select G20 countries](#)
- » 2017 - [Status of policies for clean vehicles and fuels in select G20 countries](#)

G20 Engagement by the TTG has been instrumental in securing high-level domestic support for activities to enhance the efficiency and environmental performance of HDVs. In 2016, under China's G20 Presidency, the [G20 Energy Efficiency Leading Programme](#) (EELP) encouraged G20 members to work toward given examples of world-class clean fuel and vehicle standards. Under Germany's G20 Presidency in 2017, the G20 Hamburg Climate and Energy Action Plan for Growth confirmed the importance of continuing implementation of the EELP.

BREAKOUT SESSIONS

The objective of the afternoon session was to engage participants in a strategic discussion of the group's activities and vision for the coming years. Participants divided into breakout groups that focused on three themes: Policy exchanges and G20 engagement, Deep dives, and Research activities. These themes were based on the TTG's activities to date. Together, they also cover a rich set of potential activities that the TTG could pursue to further its mission. At the start of the session, participants in each group were asked several framing questions:

1. How do you see the transport sector in your region developing over the next 5 years?
2. If you could exert any change on this trajectory, what would you wish to see?
3. What political, technical, or research activities might help to bring about that vision?

Common responses to the first question (where you see transport in 5 years) included:

- » Growing volume of freight activity and fleet size
- » Turnover rates, fleet renewal (some see it increasing, some see it stagnant)
- » Mode shift to rail, improvement of rail network infrastructure
- » Widespread adoption of GHG standards and strengthened compliance activities
- » Increased penetration of advanced technology, hybrids, and electric vehicles, not only for LDVs, but also buses and other HDVs
- » More biofuels, including renewable natural gas, as well as increased use of natural gas (CNG and LNG) in transportation

Common responses to the second question (what change you wish to see) were as follows:

- » Strict emissions standards
- » Progress towards fully (100%) zero emission fleets
- » Increased use of digitalization and autonomous technologies in trucks
- » Continuous in-use monitoring of fuel consumption and emissions for all trucks
- » Increased adoption and acceptance of fuel efficiency technologies
- » Accelerated renewal of fleets older than 10 years
- » Retrofit or replacement of vehicles/engines not meeting world-class emissions standards
- » Increased use of transit and non-motorized transport (bicycling and walking)
- » Policies aimed at reducing fuel carbon intensity
- » Reduction in the number of unpaved roads (applicable in some countries)
- » Regional collaboration on policies
- » Better understanding of co-benefits of emission and fuel efficiency standards

Responses to the third question are integrated into the following sections.

POLICY EXCHANGES AND G20 ENGAGEMENT

Participants in this group noted the challenge and opportunity to think bigger amid resource and timing constraints. Participants agreed on the substantial and unique value of meeting in person and recommended that we seek to leverage opportunities for participants to meet throughout the year (and not only at the annual meeting). It was suggested that the group explore a collaborative forum to facilitate the exchange of ideas more quickly and readily. IPEEC pledged its support to help G20 economies that have not had the resources to participate in TTG activities to identify the funding and means to participate. External reports were highlighted as an effective driver of

policy change. The importance of pairing mid- to long-term strategies with near-term benefits was also emphasized. Subject to participating country interest, the group could revisit the concept of voluntary policy roadmaps that bridge near-, mid-, and long-term policy actions, priorities, and needs. It was noted that although the countries in the group may have their own domestic priorities and be at different stages, all are moving toward common objectives.

DEEP DIVES

Participants were asked to evaluate the format of deep dive activities and recommend strategies to enhance their effectiveness. In 2018, the deep dive took the format of a series of monthly 90-minute virtual meetings with presentation and Q&A over a period of six months. On a scale of 1 to 10, participants rated the current format a 7, with answers ranging from 5 to 8. Participants put forth several recommendations on the format of future deep dives:

- » Communicate deep dive topics, and objectives well in advance to ensure identification of the ideal target audience. Target the technical staff of decision making entities.
- » Continue to seek opportunities to engage academia and industry stakeholders.
- » Mix one-way communication formats (presentations) with interactive sessions (trainings).
- » Explore innovative formats to overcome issues with time zones and language barriers (e.g. a video with step-by-step explanation of measurement procedures).
- » Explore a platform to enable multiple means of communication among TTG participants.
- » Make future recordings of deep dive presentations publicly available, but also dedicate time for unrecorded discussions.
- » Continue to work with participants to correct any technical issues with videoconferences.
- » Customize sessions to support countries at multiple stages of policy development.
- » Promote bilateral follow-ups between countries that may have already solved a given issue and countries that are currently experiencing that issue.

Participants were also asked to suggest potential topics for future deep dives:

- » Technology innovations for specific markets
- » Specific training on component testing and gathering of simulation inputs
- » Use of PEMS to gather inputs or validate models
- » Use of telematics to gather inputs or validate models
- » Comparative evaluation of VECTO and GEM vehicle simulation models
- » Cost-effectiveness criteria for incorporation of standards
- » Zero emission vehicles
- » Low-NOx standards
- » Biofuels

- » Baseline efficiency of HDVs in the US and EU
- » Driver training programs to enhance HDV operating efficiency
- » Barriers/challenges with OEMs
- » Updates on initiatives that are of interest to member states

Lastly, participants were asked about the status or plans to use HDV simulation tools to support HDV CO₂ or efficiency labeling programs or standards in their country. Everyone considered the topic of simulation tools helpful, as they understand it is the only cost-effective way of assessing CO₂/fuel consumption for many combinations of complete HDVs. Among the countries that are not currently using these tools, there is interest in beginning to implement them. Some challenges mentioned include (1) the need for expensive equipment and dedicated infrastructure to obtain the necessary inputs, and (2) the need for political will and support to advance these policies.

RESEARCH ACTIVITIES

Participants were asked to identify knowledge gaps and research questions associated with desired developments in the transport sector. Suggested research areas included:

- » **Evaluating the multiple benefits** of EE and clean transport policies for air quality, public health, and climate change. Taking a multiple benefits approach, beyond fuel saved or CO₂ reduced for EE policies, could enable governments to move forward joint programs on efficiency and cleaner transport while ensuring all priorities are advanced.
- » **Surveys of public opinion** and priorities could increase public engagement and give decision makers the confidence to move forward on programs with societal benefits.
- » **Study of the impacts of emerging technologies** such as vehicle automation, digitalization of transport and logistics, and vehicle sharing platforms, for HDVs and LDVs. This research could help governments get out ahead of technology developments instead of being limited to a reactive approach.
- » **Study of emerging best practices in compliance and enforcement.** This research could help governments expand and improve upon inspection and maintenance programs and adopt newer compliance methods and technologies such as portable emissions measurement systems, remote sensing, and remote monitoring of on-board diagnostic systems.
- » **Evaluation of coordinated regional actions.** Increased coordination among countries within the same region or economic community could enable more rapid progress and lower transition costs. Such actions could be led by G20 economies and supported by regional or bilateral agreements. Activities could encompass HDV and LDV efficiency and environmental performance and include actions such as labeling, standards, and exploration of potential regional harmonization.
- » **Data sharing platforms** among governments could improve the quality of research activities and accelerate the development of clean transport programs. For example, sharing data on the costs, benefits, and technical factors of pilot/demonstration projects could accelerate the transition to full scale programs. Increased sharing of data from monitoring and reporting (e.g. for vehicle efficiency standards) and compliance activities could enhance the capacity of governments to improve standards and ensure their effectiveness.

Participants also brainstormed potential collaborations with other groups or institutions to avoid duplication of efforts. IEA affirmed the potential for the TTG to accomplish even more by leveraging the work of the IEA and its Technology Collaboration Platforms (TCPs).

Next Steps: TTG members will provide input on group priorities for 2019-2020. The TTG leads will suggest a new communications platform for the group and plan for future webinars and deep dive discussions.

LIST OF PARTICIPANTS

Name	Title	Organization
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