



# EXPANDING AND ALIGNING GREEN FREIGHT PROGRAMS IN LATIN AMERICA

Proceedings of the Latin America Workshop on  
Green Freight Programs



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## EXECUTIVE SUMMARY

From 27-29 June 2017, Argentina's Ministry of Transportation with the support from Argentina's Ministry of Energy and Mining, Argentina's Ministry of Environment and Sustainable Development, the United States Environmental Protection Agency (U.S. EPA), the Climate and Clean Air Coalition (CCAC), the International Council on Clean Transportation (ICCT) and the World Bank hosted the "Latin America Workshop on Green Freight Programs" in the city of Buenos Aires, Argentina. During the three-day event, more than 100 attendees met to discuss challenges and opportunities for green freight program development in the region.

During the first day, opening remarks by Argentinian officials identified the freight sector as a priority target to reduce greenhouse gases, mitigate health impacts and increase economic competitiveness. They presented current government initiatives to improve data collection, infrastructure and vehicle technology; and emphasized the importance of collaboration with industry, academia and international organizations to design effective policies. Experts from the U.S. EPA, CCAC, ICCT and the World Bank, among others, provided an overview of the programs and tools implemented in other regions such as the North American SmartWay program and the Global Green Freight Action Plan. In a very engaging session, officials from Brazil, Chile, Colombia, Mexico, Peru and Uruguay shared current and future initiatives to green the freight sector. Key recommendations from the first day included: leverage existing resources to facilitate capacity building; share knowledge and experiences across different countries to harness synergies; promote program harmonization to account for trade integration in the region; and encourage communication across relevant stakeholders.

On the second and third days of the workshop, the U.S. EPA provided training on program design and implementation and technology verification. These sessions enabled active participation and an exchange of ideas on how to learn from SmartWay's experience. During breakout sessions, participants worked in small groups to identify barriers and potential solutions to green freight in areas such as regulation, finance, technology, information and education, industry, resources and capacity building for the public sector.

At the end of the workshop, there was a strong willingness to continue the communication on the topic and to look for mechanisms to share information among the different government agencies and countries. The key goal is to share efforts and facilitate the harmonization of green freight programs in the region. Hence, one immediate next step, which emerged from the workshop, is to find those venues and activities to maintain the momentum of the collaboration and exchange in the region. Additionally, it was confirmed that Argentina will implement a pilot program, which requires follow-up work and support. The event sparked opportunities to expand green freight programs to other Latin American countries.

## BACKGROUND

The government of Argentina, represented by the Ministry of Transportation, the Ministry of Energy and Mining and the Ministry of Environment and Sustainable Development, hosted the “Latin America Workshop on Green Freight Programs” in the city of Buenos Aires, Argentina. The event was supported by U.S. EPA, CCAC, ICCT and the World Bank. Together with equivalent workshops conducted in Europe and Asia, the Latin America workshop is part of a set of activities under CCAC’s Global Green Freight Action Plan, which seeks to develop new green freight programs and harmonize existing programs while incorporating black carbon reduction strategies. These three workshops brought together experts, industry representatives and government officials to identify solutions, best practices and consistent methodologies to advance the environmental performance of freight.

## OBJECTIVES

The workshop’s purpose was to facilitate the discussion and exchange of knowledge and ideas for how to support the implementation of Transporte Inteligente, Argentina’s green freight program led by the Ministry of Transport. The workshop also gathered key stakeholders in Latin America to discuss how to develop capacity and a shared vision for green freight while fostering regional cooperation towards harmonized national programs. The ultimate goal is to foster programs with consistent objectives, methodologies and reporting procedures—a key factor to motivate companies to join and take a leading role in promoting green freight in Latin America.



Participants during the first day of the workshop

## WORKSHOP STRUCTURE

The three-day event took place at the national library of the Republic of Argentina in Buenos Aires. The workshop convened over 100 participants from 9 different countries. On the first day representatives from the Argentinian government and more than 15 experts discussed the general trends of freight transportation, challenges and opportunities, countries' experiences and best practices to advance green freight in the region. Training sessions on days two and three, led by the U.S. EPA, allowed for a closer and deeper analysis to build capacity and develop a green freight program and a technology verification protocol, and emphasized the importance of sharing information and harmonizing programs in the region. The workshop agenda is included in Appendix B.

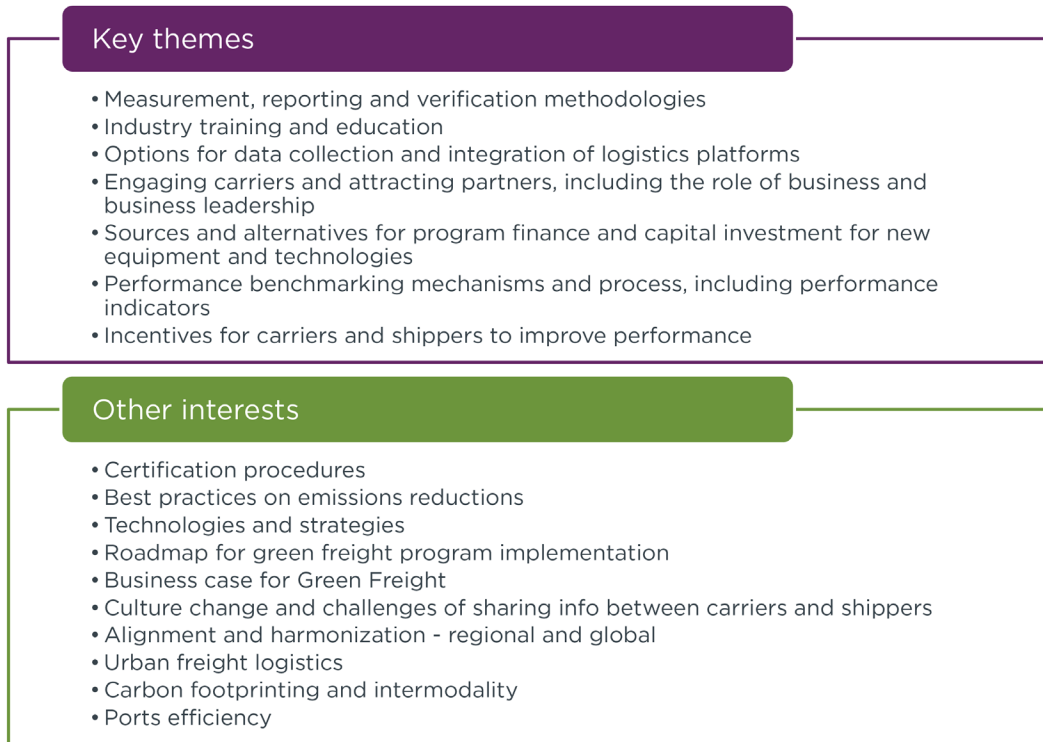


(From left to right) Andrea Heins (Ministry of Energy, Argentina), Daniel Indart (FADEEAC) and Cheryl Bynum (U.S. EPA)



## WORKSHOP PROCEEDINGS

The workshop was a successful venue for the discussion of critical aspects towards the improvement of freight environmental performance in Latin America. As showed in Figure 1, participants' priority themes and interests ranged from general trends in sustainable freight and logistics to specific actions and training to design green freight programs, which resulted in comprehensive workshop content.



**Figure 1.** Key priority themes and interests highlighted by a participant poll during the second day of the workshop

Discussion and engagement was also plentiful, allowing attendees to interact with experts and their peers and share useful know-how and experiences. This report aims to capture the key points presented during the different sessions, but more importantly to create a cohesive narrative so that the results can be easily shared with other regions. The workshop presentations, agenda and other materials are available through the Global Green Freight Website ([www.globalgreenfreight.org](http://www.globalgreenfreight.org)) for further reference.<sup>1</sup>

<sup>1</sup> Direct link to the event information: <http://www.globalgreenfreight.org/resources/calendar/event/latin-america-green-freight-workshop-june2017>



Participants during the third day of the workshop

## **FREIGHT ACTIVITY TRENDS AND THE CHALLENGE AHEAD**

It is clear that freight is becoming a public policy centerpiece for many countries in Latin America. Even though there may be some uncertainty with the exact numbers, there is an irrefutable trend: freight activity is increasing exponentially, with experts projecting global freight transport volumes to quadruple by 2050. As an example, the heavy-duty fleet in Argentina grew from 312,000 to 670,000 vehicles from 1995 to 2017. Powered by regional and global economic growth, goods movement is growing significantly. Experts highlighted the large burden imposed by freight, particularly road freight, on energy consumption, climate, pollution and human health.

Cheryl Bynum (U.S. EPA) indicated that freight currently accounts for 39% of all transportation energy use worldwide. Since freight is the fastest growing transport sector and its volume is projected to quadruple by 2050, freight's share of energy consumption will very likely keep rising. There are also equity concerns for communities near ports and distribution centers, which are more severely affected by air pollution that carries significant health consequences. At the same time, freight is an important component of economic growth, and it is essential to increase countries' and businesses' competitiveness.





Global trends, challenges and opportunities for green freight – (From left to right) Shomik Raj Mehndiratta (World Bank), Cristiano Façanha (ICCT), Cheryl Bynum (U.S. EPA) and Catalina Etcheverry (CCAC)

Road freight transportation (the trucking sector) is the most important component of freight transportation. As pointed out by Shomik Raj Mehndiratta (World Bank), even for countries with a developed rail system such as India, trucking still represents over half of emissions across all freight modes. The share of emissions from the trucking sector is considerably higher for developing countries and it is expected the gap will keep increasing over time, according to the World Bank's 2050 projections. Therefore, improving heavy-duty vehicle (HDV) efficiency

is a key priority for developing countries. In addition to improving HDV fuel-efficient technologies, Mr. Mehndiratta explained that it is also critical to get the most out of every truck trip, that is to increase truck's load factors by implementing operational strategies.

Cristiano Façanha (ICCT) also argued that in order to improve freight system efficiency and reach a two-degree scenario pathway, it is necessary to combine technology with innovative practices in the trucking sector. An integrated policy portfolio that includes fuel efficiency and GHG regulatory standards, market-based instruments and fiscal measures can facilitate progressive policy development and maximize the emission reductions in the sector. The fact that HDVs account for just 11% of the road global fleet but emit 46% of CO<sub>2</sub> and 71% of particulates emphasizes the relevance of the sector and indicates how effective controlling HDV emissions can be.<sup>2</sup>

2 Kodjak, D. (2015). Policies to reduce fuel consumption, air pollution, and carbon emissions from vehicles in G20 nations. International Council on Clean Transportation. Retrieved from <http://www.theicct.org/policies-reduce-fuel-consumption-air-pollution-and-carbon-emissions-vehicles-g20-nations>

## INCREASING AWARENESS AND COMMITMENT TO PROMOTE FREIGHT SUSTAINABILITY



Ministerial Welcome – (From left to right) Daniel Indart (FADEEAC), Guillermo Krantzer (Ministry of Transport, Argentina), Andrea Heins (Ministry of Energy, Argentina), Soledad Aguilar (Ministry of Environment, Argentina), Cristiano Façanha (ICCT)

The Ministerial welcome and remarks, along with the opening message of the Argentinian Ministry of Transportation and the United Nations Environment Programme (UNEP), exemplified the increasing awareness and willingness to work towards the improvement of the freight sector. It also was an opportunity to share the current and planned actions to promote freight efficiency from different entities in Argentina and to inform neighboring countries.

Guillermo Krantzer (Ministry of Transportation) stressed the critical responsibility that the present generation has to reduce climate change impacts and the Ministry's strategy to act on different fronts. Mr. Krantzer reaffirmed that, even though Argentina is working to reactivate rail freight, the reality is that trucking is and will still be the dominant freight mode in Argentina. He highlighted the Ministry's focus on infrastructure: doubling the road network and improving existing roads will benefit trucks' performance and operational speed. Also, a series of major improvements around the port of Buenos Aires is expected to alleviate congestion, reduce fuel consumption and emissions and enhance the port's competitiveness. He recognized that collaboration with industry is critical to expanding actions beyond infrastructure investment, and welcomed the workshop as a great opportunity to bring different actors together and learn from the best practices in other regions.

Transversal policies are critical to effectively reducing freight impacts. Commonly, government entities in charge of transportation work closely with the environment, health and energy agencies, as well as the industry. Andrea Heins (Ministry of Energy and Mining) stated that supplying the energy to support economic development in a sustainable way is their main objective. One of the initiatives is to implement driver training on efficient driving as part of the license issuing process. Despite being a fairly straightforward initiative, an agreement with other entities is needed to design, track and screen program evolution. Other initiatives include trainings on fleet management and the sustainable logistics observatory. The success of these actions requires collaboration with the Ministry of Transportation, the Argentinian Federation of Road Freight Transportation Companies (FADEEAC), the National Commission for Transportation Regulation (CNRT) and other relevant stakeholders.

**Argentina's state policy aims to reduce logistical costs significantly; it is essential to foster economic competitiveness.**

- Andrés Gartner, Chief Advisor,  
Argentina Ministry of Transport



As part of the Paris Climate Agreement, the Argentinian government submitted 12 Intended Nationally Determined Contributions (INDCs) in the transport sector: six calculated measures and six under review. According to Soledad Aguilar (Ministry of Environment and Sustainable Development), the actions related to the freight sector include: a green freight program (Transporte Inteligente), a fleet scrappage and renewal program, driver training and limiting maximum speed operation. Mrs. Aguilar highlighted implementation pathways for some of the measures as well as key barriers. Despite a net economic benefit, there are still important cultural and financial barriers. It is critical that the Ministries within the inter-ministerial working group take ownership of each measure to move it forward towards implementation, monitoring and enforcement.

## FREIGHT INITIATIVES IN LATIN AMERICA

The challenge and interest to improve freight environmental performance are understood and shared across different countries in Latin America. The session “Exchanging Lessons Learned and Best Practices” brought together representatives from Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Uruguay, who presented the different approaches and programs that each country has advanced or is planning to implement in the near future. The presentations were of high interest for all attendees, fostering an engaging and continuous discussion to gain a deeper understanding of each program. Actions and initiatives are highly influenced by each country’s specific context and the faculties each government agency possesses. As an example, Brazil’s SEST SENAT is able to leverage its established network of training facilities to provide driver training across the entire country. Also, Mexico has the capacity to replicate most of the U.S.’s SmartWay program thanks to the two countries’ trade integration. Figure 2 summarizes the key actions presented by the panelists.





**Judith Trujillo Machado**  
**Ministry of Environment and Natural Resources – SEMARNAT, Mexico**

With virtually no financial resources other than three staff officials, SEMARNAT has been running its green freight program (Transporte Limpio) since 2008. Judith Trujillo emphasized the importance to engage with the industry since the program's inception and take advantage of the program's voluntary characteristic to motivate participation. The current challenge for Transporte Limpio is to expand its reach to the owner-operated sector, implement a technology verification platform, and to harmonize the program with the North American SmartWay.



**Mayra Barragan**  
**Ministry of Environment and Sustainable Development, Colombia**

Similarly to other regions, Colombia has begun the work on the transportation sector by improving fuel quality, particularly reducing sulfur content to enable the use of cleaner technologies. For the freight sector, a recent tax reform exempts freight carriers if they certify that their operations are carbon neutral. The Ministry is also planning to implement a fleet renewal program, support better logistic practices and intermodal transportation. The challenge is to develop tests emissions, cost-benefit studies and additional relevant information to design effective policies.



**José Solís Valencia**  
**Ministry of Transport and Communication, Peru**

As part of the international climate goals, Peru has committed to reduce 30% of its GHG emissions by 2030. These are important efforts to increase the use of natural gas by building new infrastructure (pipelines). In the freight sector, the government started a pilot training program on eco-driving for 100 female drivers and implemented a scrappage program. The challenges ahead are to expand the training program and to make sure that the scrappage incentives are fairly set so that older trucks are retired from the fleet.



**Julio Villalobos**  
**Andres Bello University, Chile**

It is estimated that road freight companies' fuel costs account for about 40% of their total operating costs. To curb those costs, Chile's public policy aims to enhance both technology and operational practices. The general approach is to focus on: fleet configuration, fleet management, efficient driving, and logistics optimization. Knowledge transfer is critical as showed by the Chilean case; working closely with the industry, the government adapted SAE J-1321 international protocol to Chile's specific context and developed a national protocol for technology testing. It is essential to develop a consolidate program to ensure industry certainty and maximize program's effectiveness.



**Roberto Domecq**  
**Ministry of Transport, Argentina**

Argentinian government, both national and local level, has taken steps to reduce environmental impact of transportation activity. There has been an important focus on improving infrastructure to increase vehicle's operation speed and favor intermodal freight, and promoting cleaner technologies for urban buses. Since heavy-duty trucks account for only 5% of the total road fleet but produce 32% of GHG, the Ministry of Transportation is spearheading the implementation of a green freight program: Transporte Inteligente. The Ministry has already engaged in consulting processes with the industry and other government agencies. The next steps are to complete the implementation plan and to streamline with FADEEAC's Rango Verge program. It is essential to develop a consolidate program to ensure industry certainty and maximize program's effectiveness.



**Vinicius Ladeira**  
**SEST SENAT - National Confederation of Transport, Brazil**

As part of the National Confederation of Transport (CNT), SEST SENAT provides several government benefits to truck drivers, including health and training services. This unique institutional organization, enable SEST SENAT to reach thousands of companies and nearly 2 million drivers. Recently, SEST SENAT signed a memorandum of understanding with Natural Resources Canada, CNT, and ICCT; the aim is to offer eco-driving training to 50,000 drivers. Additionally, the organization conducted a fuel efficiency survey on road freight to better assess the current situation of the sector. The immediate next steps for SEST SENAT is to start a pilot project on technology verification. It will be important to engage with industry and the government to strengthen the results and take advantage of the positive inertia in Brazil.



**Antonella Tambasco, Adviser**  
**Ministry of Industry, Energy and Mining, Uruguay**

To take advantage from its clean electricity generation, Uruguay is working on initiatives to increase the share of electric-powered vehicles. However, the government is also promoting modal change (rail and river shipping) and changes in driver behavior through eco-driving training. Driver's time invested to attend and truck's availability to conduct the training is a critical barrier. Additionally, it is necessary to create a robust methodology to verify efficiency improvements.

Figure 2. Freight sector's actions and challenges in Latin American countries.

## **A KEY TOOL: GREEN FREIGHT PROGRAMS**







Despite the countries' unique attributes, the freight sectors across the region face similar barriers. Thus, sharing information and solutions can harness previous experiences and facilitate implementation in other countries. Green freight programs can be a flexible and effective way to incentivize technological and operational improvements. They can also be an effective mechanism to collect data and information about technological characteristics and operational practices in the freight sector, improving the accuracy for future assessments and informing regulatory development.

Green freight programs are market-based mechanisms to provide information and promote technologies and strategies to reduce fuel consumption and emissions. Although there is great variation across programs, they in essence rely on data collection and a commitment to an action plan towards better environmental performance. An emission assessment methodology and a technology verification protocol are very relevant to ensure the robustness of program results and to provide transparency to different participants. The North American SmartWay program led by U.S. EPA started in 2004 and is the most mature green freight program worldwide. U.S. EPA provided training to country participants on how to effectively design a national green freight program (day two) and develop a technology verification program (day three).

In Argentina, government and industry are working in parallel towards the development of a national green freight program. In 2016, the National Commission of Transportation Regulation (CNRT) enacted Resolution 1075-2016, which sets the basis for the development of the Transporte Inteligente program. The objective of this program is to promote the necessary actions (technology and operational) to reduce GHG emissions and increase energy efficiency in the road transportation sector. Similarly, FADEEAC is promoting Rango Verde, which focuses on six areas including technology improvements, training, the establishment of a test laboratory and fiscal incentives. Although both programs are aligned in terms of objectives, the agencies need to continue working side by side and consolidate them into one streamlined, national strategy.

## **IDENTIFYING KEY CHALLENGES AND BARRIERS**

Throughout the workshop and training sessions, experts, government officials and participants discussed key challenges and barriers for effective freight regulation and, specifically, for green freight program implementation. The breakout session in day two was particularly useful to organize the discussion into specific themes; Table 1 summarizes the main elements discussed in each category.

<p><b>Technology</b></p> 	<p>A key challenge in promoting green technologies and strategies is effectively measuring and verifying the effectiveness of technologies and solutions available to carriers and shippers. The source of the information can be modelling exercises, industry surveys or technology testing. Results must reflect real-world emissions and fuel consumption. Specific technology and operational profiles can considerably impact the effectiveness of different technologies, making technology verification complex but essential. A consistent and robust technology verification protocol is key to the success of green freight programs.</p>
<p><b>Policy and regulation</b></p> 	<p>Historically, passenger vehicles have been the focus of regulatory work in the region. This has led to an outdated regulatory framework for HDVs, particularly on emissions standards, inspection and maintenance programs and the technical specifications of trucks. This situation demands a larger effort from the different regulatory agencies to close the regulatory gap. The institutional arrangements often complicate policy implementation, since more than one government entity has regulatory authority over the transportation sector (Transportation, Energy, Environment, etc.), requiring complex, intra-governmental coordination. Lastly, political cycles affect the continuity of some programs, especially those not included in binding government plans.</p>
<p><b>Finance</b></p> 	<p>There are two broad aspects of this category. The first is the lack of financial resources to run a green freight program. The activities for data collection, technology verification, research and development, program implementation and follow-up require a certain amount of funding, which many times is not readily available. Second, there is often limited access to credit and financing for investment in new technologies. Small carriers and owner-operators typically represent high-risk debtors for traditional financial intermediaries. This is particularly sensitive, since small operators own the oldest equipment and therefore would considerably benefit from technology improvements.</p>
<p><b>Information and education</b></p> 	<p>Even though large carriers and shippers are focusing on fuel efficiency improvements to reduce their operational costs, an important part of the trucking sector is still unaware of the potential benefits. This is in part due to the lack of knowledge of technology potential, and more importantly of which technologies are more suitable for specific heavy-duty cycles. The information gap is further exacerbated by the private sector's reticence to share information with the government. Even for very cost-effective strategies such as efficient driving techniques, there is a need for improved communication and outreach strategies to truck drivers about their benefits.</p>
<p><b>Industry characteristics</b></p> 	<p>Although the interconnected nature of freight favors the use of different modes and the participation of multiple stakeholders, individual companies often make decisions based on the best choice for their own businesses. Without appropriate incentives or coordination, there can be enormous system inefficiencies such as a high share of empty trips. And without adequate regulation, incorporating social costs and impacts is unlikely.</p>
<p><b>Government capacity and resources</b></p> 	<p>A major barrier pointed out by several staff members of Latin American countries is the lack of technical capacity to develop green freight programs, signaling the topic's novelty in the region. Furthermore, many of the government entities operate with very limited staff members, often part-time, and few financial resources allocated to execute freight programs.</p>

**Table 1** - Freight sector's actions and challenges in Latin American countries.



## SOLUTIONS AND RESOURCES TO SUPPORT GREEN FREIGHT PROGRAMS

Discussion and the exchange of experiences are very effective ways to identify solutions and useful resources to increase freight efficiency. Likewise, U.S. EPA's training sessions provided a detailed description of important considerations when developing a green freight program. An important lesson for Latin American countries is to share information and take advantage of existing resources. Numerous initiatives were presented during the workshop, and even though they cover different aspects of green freight, they provide valuable knowledge and methodologies to overcome many of the barriers described in the previous section of this report. Since several of those solutions impact aspects of different types of barriers, the icons next to the following paragraphs indicate the types of barriers each is likely to address.



Agustin Matteri (United Nations Environment Programme) explained the United Nations' active role, through its Latin America Environment Division, to support sustainable transportation policy in the region. He highlighted the efforts to bring together government entities and industry to communicate frequently and share capacity to arrive at specific and tailored actions to favor electric mobility. This experience can be easily replicated for freight projects.




Catalina Etcheverry (CCAC) and Cristiano Façanha (ICCT) addressed the Global Green Freight Action Plan, including technical support, communication and outreach and targeted support to selected countries. All activities and resources are shared through the initiative's website ([www.globalgreenfreight.org](http://www.globalgreenfreight.org)).



Martin Tanco (University of Montevideo, Uruguay) and Julio Villalobos (Andres Bello University, Chile) presented examples of technology verification protocols tested in collaboration with the academic sector in Latin America. This proved to be a great way to share technology testing costs and to obtain robust results. Mr. Villalobos suggested taking existing standards from developed regions (such as the test procedure SAE J1321) and adapting them to the specific reality of each region. This would reduce the time required to develop technology verification protocols.

**It essential to include all stakeholders, with the understanding that some motivations might differ, but focusing on the common interests to promote collaboration.**

- Martin Tanco, Professor, University of Montevideo



Setting the stage of Latin American freight and logistics - (From left to right) Jorge Tesler (Sustainable Logistic Center), Roberto Domecq (CNRT), Martin Tanco (University of Montevideo), and Julio Villalobos (Andres Bello University)

Jointly administered by the U.S. EPA and Natural Resources Canada, the SmartWay program is currently the most mature green freight program worldwide. During the second day of the workshop, Cheryl Bynum and Buddy Polovick (U.S. EPA) shared SmartWay’s experience and how it has evolved from a small program with just 15 partners into a bi-national program with thousands of carriers, shippers and technology vendors actively participating. Key recommendations highlighted by U.S. EPA to develop and advance a green freight program include:

- 

Public-private partnerships and collaboration from the program’s early stages are essential to bring the industry’s perspective, align objectives, and develop measurement methodologies and verification protocols. It is important to engage with leading partners so they can participate as an advisory group and encourage other companies to participate.
- 

The voluntary nature of green freight programs can spark action without complex legislative or regulatory processes. This is an opportunity to progressively enhance the program over time as more data is collected. In the same vein, the voluntary nature will likely incentivize more companies to participate and increase the amount of data to work with.
- 

Branding, outreach and marketing strategies increase program attractiveness. While providing direct incentives to participate in the program might be a challenge, the creation of value through the green freight program brand can be an important asset for companies with corporate social responsibility targets. The combination of a strong branding plan with public recognition of the top performing companies is a powerful incentive to participate in the program and implement strategies to reduce fuel consumption and emissions.



Harmonization and consistency in emission methodologies and technology assessments across countries facilitate compliance. It also reduces implementations costs, since sharing information and data between government entities is feasible and comparable due to the alignment of methodologies.



**Working with leading companies is critical for program success. Despite the fact that the sector is composed of thousands of companies, road freight activity (vehicle miles traveled, VMT) is dominated by the 400 largest companies.**

- Cheryl Bynum, National Program Manager,  
U.S. EPA SmartWay

Conducted by Anthony Erb (U.S. EPA), the training session on technology verification programs provided an overview of the steps needed to design and implement this critical element for green freight program success. Over the course of the three days, the issue of testing and validating technology's fuel savings was mentioned consistently. Government agencies realized the complexity of designing a protocol and, at the same time, the importance of ensuring a high level of accuracy. The five modules of the technology training provided insights about the importance of developing a verification protocol, target setting, data and infrastructure requirements, budget and sources of funding to run the program, among other elements.

It is essential to create a comprehensive plan that incorporates a roadmap from the very beginning of the program. There was an emphasis on implementing the program with the information and resources available, and to keep progressively enhancing processes as more data is gathered and the program evolves. Using local and national inventories on air quality can be a starting point to identify the technologies with the highest emissions reduction potential. Engaging with industry and academia was mentioned again as a way to jointly work in close collaboration and develop testing protocols, design methodologies and implement pilot programs.



**The freight industry works as an integral ecosystem; it is worth it to explore the use of the information and communication technologies (ICT) and “big data” to gain a better understanding of the sector.**

– Cecilia Briceno-Garmendia, Lead Economist,  
Transport and Global Practice,  
World Bank



Resources and solutions to support green freight programs – (From left to right) Julio Velázquez (FADEEAC), Cecilia Briceno-Garmendia (World Bank), Rick Baker (ERG), Cristiano Façanha (ICCT) and Buddy Polovick (U.S. EPA)

## KEY MESSAGES AND NEXT STEPS

There is a clear consensus that freight has profound effects on the economy, competitiveness, innovation, climate and public health in Latin America as well as a strong willingness and momentum to increase freight environmental and energy performance to address these effects. Key messages and themes of the workshop are summarized below.

- » There is a strong business case, generally accepted by the private sector, to improve the energy efficiency of the freight sector. Fuel consumption and emission reductions will reduce operational costs and emissions, which will in turn increase competitiveness.
- » Several freight initiatives are currently ongoing in the region, and governments can leverage those initiatives to design and implement regionally harmonized national green freight programs.
- » Although green freight programs can share common elements such as emissions quantification methodologies and technology verification protocols, they need to be flexible and tailored to specific local conditions. In addition, it is very important to recognize, as was the case in the SmartWay program, that green freight programs will constantly evolve and improve as participation increases and more data is collected.
- » Engaging and partnering with stakeholders with expertise and active roles in the freight sector, such as shipping and logistic companies, carriers, automakers, trade associations, non-governmental organizations and universities, is essential to starting a green freight program. Leading companies can provide data and insights about technology and operational effectiveness and become examples for other companies to follow.
- » The voluntary characteristic of green freight programs should be used as a feature to attract more participants. It is also likely that participants would be willing to share information and data in a program they see as mutually beneficial, rather than with regulatory and enforcement implications.
- » It is important to emphasize branding and performance recognition when designing a program. If shippers and carriers can differentiate from their competitors by being

recognized as top performers or socially responsible companies, they will more likely participate and invest in technologies and strategies to reduce fuel consumption.

- » Training of drivers and fleet managers should be a key activity in green freight programs. Several countries in the region have already identified the potential benefits of educating drivers on fuel-efficient techniques. Fuel management and vehicle maintenance training should also be included as a way to enhance fleet managers' skills.
- » Private-public partnerships with industry and universities to conduct technology tests can reduce costs, enhance transparency, improve results and facilitate technology pilot programs.
- » Working on a common green framework for the region leads to important benefits. Consistent methodologies, accounting systems and testing protocols reduce the industry's compliance costs. In addition, streamlining processes across the region facilitates inter-country dialogue, collaboration and data sharing.

The workshop favored and enabled conversations to establish cooperation in a myriad of themes around green freight. Government representatives, industry leaders and researchers from different institutions agreed that collaboration is essential to harness synergies at different stages in green freight program implementation. The recommended next steps resulting from the workshop are the following.

- » Design and implement green freight programs across the region. Voluntary green freight programs such as the North American SmartWay program encourage carriers and shippers to adopt technology and operational strategies by reducing information, technology, and financial barriers. Such programs can also be effective in generating freight data and reducing communication barriers between government and industry.
- » Ensure strategic alignment and coordination towards the development and harmonization of green freight initiatives. This includes the creation of a communications platform to facilitate information exchange among workshop participants and other relevant stakeholders, to present current developments in the region and to share international best practices. This can be supported by resources such as the [globalgreenfreight.org](http://globalgreenfreight.org) website, itself a one-stop shop for green freight resources, as well as other communication means such as webinars and newsletters.
- » Build capacity across relevant stakeholders. Similar to this workshop, continued efforts to build technical capacity amongst relevant stakeholders are key to support the development and alignment of green freight programs in the region. This includes not only the steps towards the development of programs and technology verification, but also a better understanding of the national freight sector, technologies and operational measures.
- » Develop technical studies and collect data to support clean freight policies and initiatives. The development of sound policies depends on the availability of good information about national and local freight systems, including fleet and technology characteristics, operational profiles, existing institutional and regulatory frameworks, market barriers, etc. National freight assessments based on international guidance are strongly recommended as the first step to inform national programs. The consistent collection of freight data, ideally leveraging new technologies such as GPS, telematics and OBD, is also essential to support better policies and efforts to green the freight sector.

- » Conduct technology verification to ensure the implementation of the most effective technologies. The effects of different truck technologies on fuel consumption vary greatly depending on technology and operational characteristics. Robust technology verification can differentiate across multiple technologies and identify those that will be most effective, thus supporting better investment decisions by carriers.
- » Standardize methodologies to assess program benefits. Consistent methodologies, accounting systems and testing protocols reduce the industry's compliance costs and encourage wider program adoption. In addition, streamlining methodologies across the region facilitates inter-country dialogue, collaboration and data sharing. For example, the Global Logistics Emissions Council (GLEC) Framework for Logistics Emissions Methodologies can provide a common platform in Latin America to calculate freight emissions. Secure financing for small carriers to support smart fleet renewal efforts. In many regions, a very large proportion of trucks are over 20 or even 30 years old and impose a burden on clean and efficient freight systems. Smart fleet renewal schemes effectively scrap the dirtiest and least efficient fleets and replace them with newer technologies. International climate funding and green bonds could be used to provide loan-back guarantees to local banks to offer low-interest loans to small fleet operators for the purchase of cleaner and newer vehicles. These schemes can be transformational to renew truck fleets that would otherwise take decades to renew.

## APPENDIX

## A. List of abbreviations

<b>CCAC</b>	Climate and Clean Air Coalition
<b>CNRT</b>	National Commission for Transportation Regulation ( <i>Comisión Nacional de Regulación de Transporte</i> )
<b>CNT</b>	National Confederation of Transport, Brazil
<b>CO<sub>2</sub></b>	Carbon dioxide
<b>ERG</b>	Eastern Research Group, Inc.
<b>FADEEAC</b>	Argentinian Federation of Road Freight Transportation Companies ( <i>Federación Argentina de Entidades Empresarias del Autotransporte de Cargas</i> )
<b>HDV</b>	Heavy-duty vehicle
<b>ICCT</b>	International Council on Clean Transportation
<b>ICT</b>	Information and communication technologies
<b>INDC</b>	Intended Nationally Determined Contributions
<b>SEMARNAT</b>	Ministry of Environment and Natural Resources, Mexico
<b>SEST-SENAT</b>	Social Service of Transport (SEST), and the National Transport Training Service (SENAT), Brazil
<b>U.S. EPA</b>	Environmental Protection Agency, United States
<b>UN</b>	United Nations
<b>VMT</b>	Vehicle miles traveled



B. Agenda



**LATIN AMERICA WORKSHOP ON GREEN FREIGHT PROGRAMS**

**Day 1 – Tuesday June 27, 2017**

Buenos Aires, Argentina

8:30 – 9:30	Registration
9:30 – 9:45	<p><b>Brief introduction and welcome</b></p> <ul style="list-style-type: none"> <li>Agustín Matteri, Legal Specialist, UN Environment</li> <li>Andrés Gartner, Chief Advisor, Ministry of Transport</li> </ul>
9:45 – 10:45	<p><b>Global trends, challenges and opportunities for green freight</b></p> <p>Moderator: Cristiano Façanha, Program Lead, International Council on Clean Transportation</p> <ul style="list-style-type: none"> <li>Catalina Etcheverry, Coordinator, Climate and Clean Air Coalition to Reduce Short Lived Climate Pollutants</li> <li>Shomik Raj Mehndiratta, Practice Manager, Transport and ICT Global Practice at World Bank</li> <li>Cheryl Bynum, National Program Manager, US EPA SmartWay</li> </ul>
10:45 – 11:00	Coffee break
11:00 – 12:00	<p><b>Argentina ministerial welcome and opening remarks</b></p> <ul style="list-style-type: none"> <li>Guillermo Krantzer, Transportation Management Secretary of Transport</li> <li>Andrea Heins, Secretary of Energy Efficiency</li> <li>Soledad Aguilar, Nacional Director of Climate Change</li> <li>Daniel Indart, President, Argentina Federation of Transportation Companies</li> </ul>
12:00 – 13:00	Lunch
13:00 – 14:00	<p><b>Setting the stage of Latin American freight and logistics</b></p> <p>Moderator: Jorge Tesler, Director, Logistics Sustainable Center in Argentina</p> <ul style="list-style-type: none"> <li>Julio Villalobos, Director, Center of Transport and Logistics, Andrés Bello University</li> <li>Martín Tanco, Professor, University of Montevideo</li> <li>Roberto Domecq, National Commission Director of Transit and Road Safety</li> <li>Gordon Wilmsmeier, Professor, University of Los Andes (via video)</li> </ul>
14:00 – 15:00	<p><b>Resources and solutions to support green freight programs</b></p> <p>Moderator: Buddy Polovick, Environmental Protection Specialist at US EPA SmartWay</p> <ul style="list-style-type: none"> <li>Cristiano Façanha, Program Lead, International Council on Clean Transportation</li> <li>Cecilia M. Briceno-Garmendia, Lead Economist, Transport and Global Practice, World Bank</li> <li>Rick Baker, Senior Scientist, Eastern Research Group, Inc.</li> <li>Julio Velázquez, Manager, Argentina Federation of Company Entities of Cargo Transport (FADEEAC)</li> <li>Sophie Punte, Executive Director, Smart Freight Centre (via video)</li> </ul>
15:00 – 15:15	Coffee break
15:15 – 16:30	<p><b>Exchanging lessons learned and best practices</b></p> <p>Moderator: Erica Marcos, Consultant, International Council on Clean Transportation</p> <ul style="list-style-type: none"> <li>Judith Trujillo, Subdirector, SEMARNAT in Mexico</li> <li>Antonella Tambasco, Adviser, Ministry of Industry, Energy and Mining in Uruguay</li> <li>Vinicius Ladeira, Adjunct Director, SEST SENAT in Brazil National Confederation of Transport</li> <li>José Solís Valencia, Economics Specialist, Peruvian Ministry of Transport and Communication</li> <li>Mayra Barragan, Specialist, Colombia Directorate of Sectorial and Urban Environmental Affairs</li> </ul>
16.30 – 17.00	<p><b>Final remarks and closing</b></p> <ul style="list-style-type: none"> <li>Cheryl Bynum, National Program Manager, US EPA SmartWay</li> </ul>



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y Desarrollo Sustentable

Ministerio  
de Energía y Minería

Ministerio  
de Transporte



## SMARTWAY PROGRAM TRAINING

Day 2 – Wednesday June 28, 2017

Buenos Aires, Argentina

9:00 – 9:15	Registration
9:15 – 9:30	<b>Welcome and opening remarks</b> • Guillermo Campra, National Automotive Cargo Transport Director
9:30 – 9:45	<b>Introduction</b> • Cheryl Bynum, National Program Manager, US EPA SmartWay
9:45 -10:45	<b>Module 1: Drivers for green freight initiatives</b> • Cheryl Bynum and Buddy Polovick, US EPA SmartWay
10:45 – 11:00	Coffee break
11:00 – 11:30	<b>Group exercise with breakout groups and group discussion</b>
11:30 – 12:30	<b>Module 2: Build program foundation</b> • Cheryl Bynum and Buddy Polovick, US EPA SmartWay
12:30 – 1:30	Lunch
13:30 – 14:30	<b>Module 3: Create program</b> • Cheryl Bynum and Buddy Polovick, US EPA SmartWay
14.30 – 15.30	Coffee break
15:30 – 15:45	<b>Module 4: Launch and implement program</b> • Cheryl Bynum and Buddy Polovick, US EPA SmartWay
15:45 – 16:30	<b>Module 5: Evaluate, refine, enhance, expand</b> • Cheryl Bynum and Buddy Polovick, US EPA SmartWay
16:30 – 17:00	<b>Discussion, Q&amp;A and closing</b>

## SMARTWAY TECHNOLOGY VERIFICATION

Day 3 – Thursday June 29, 2017

Buenos Aires, Argentina

9:00 - 10:00	<b>Module 1: Why develop a heavy-duty diesel Technology Verification Program?</b> • Anthony Erb, US EPA
10:00 – 10:15	Coffee break
10:15 – 10:45	<b>Group exercise with breakout groups and group discussion</b>
10:45 – 12:00	<b>Module 2: Getting started</b> • Anthony Erb, US EPA
12:00 – 13:00	Lunch
13:00 – 14:00	<b>Module 3: Design your program</b> • Anthony Erb, US EPA
14:00 – 14:15	Coffee break
14:15 – 15:00	<b>Module 4: Launch your program</b> • Anthony Erb, US EPA
15:00 – 15:30	<b>Module 5: Evaluate, refine, and expand</b> • Anthony Erb, US EPA
15:30 – 16:00	<b>Discussion, Q&amp;A and closing</b>

C. List of attendee

Argentina	
<b>35 South Consulting</b>	Tamara Rodoni
	Tomás Seguí
<b>Andreani Logistics</b>	Esteban Bocco
	Federico Witenas
	Gabriel Federico Perez
	Mauro Castelli
	Silvio Serafini
<b>Argentina Association of Renewable Energy Installation</b>	Carlos Fariña
<b>CATAMP - Argentine Chamber for Road Transportation of Hazardous Materials and Waste</b>	Guillermo Caniesky
	Juan Segovia
	Sanchez Ramon Agustin
<b>CENT -National Executive Transportation Consulting</b>	Hector Marcelo Perez
<b>CNRT - National Commission of Transportation Regulation and Road Safety</b>	Roberto Domecq
<b>Deflectores RP</b>	Federico Viñesky
	Mauro Benitez
<b>FADEEAC</b>	Alejo Gonzalez Prandi
	Carlos Suter
	Daniel Indart
	Daniel Clarke
	Guillermo Werner
	Juan Aguilar
	Julio Velazquez Arancibia
	Maria Laura Donatelli
	María Luciana Donatelli
	Matias Belusci
	<b>General Administration of Ports S.E.</b>
<b>General Motors</b>	Fabián Silva
<b>Illumination S.A.</b>	Mariano Ravazzola
	Miguel Martin
<b>Independent Consultant</b>	Rodolfo Fiadone
<b>ITBA - Technological</b>	Juan Carlos Lopez Marti
<b>Institute of Buenos Aires</b>	Pedro Orbaiz
	Teresa Brandi
<b>Ministry of Energy and Mining</b>	Alan Roitman
	Andrea Heins
	Fernando Lia
	José Luis Weisman
	Juan José Aranguren
	María Inés Hidalgo
	Rocio Rodriguez
<b>Ministry of Environment and Sustainable Development</b>	Alvaro Zopatti
	Julio Vassallo
	Martín Rabia
	Soledad Aguilar
	Stefania D Annibali
<b>Ministry of Transportation</b>	Alejandra Perkins
	Andrés Gartner
	Antonio Cortes
	Ariel Filadoro
	Clara Sanguinetti
	Gabriel Francou
	Guillermo Krantzer
	Lucila Capelli
Rodrigo Canessa	
<b>Port of Buenos Aires</b>	Estefania Demichelis
	Macarena Terrada
<b>Professional Foundation for Transportation</b>	Adolfo Cánepa

<b>Solidagro</b>	Cecilia Theulé
<b>Sustainable Logistic Center</b>	Jorge Tesler
<b>Sustentar Association</b>	Rodrigo Rodriguez Tornquist
<b>UBA - WHO</b>	Lilian Corra
<b>WooCar</b>	Federico Bengolea
<b>World Bank</b>	Santiago Arias
	Veronica Raffo
<b>Zarcam S.A.</b>	Ernesto Tentori
	Matías Alvarez Piris

### Brazil

<b>ICCT - International Council on Clean Transportation</b>	Erica Marcos
<b>SEST SENAT CNT</b>	Vinicius Ladeira

### Chile

<b>Gasco LPG</b>	Claudio Cordova
<b>Ministry of Environment</b>	Rodrigo Araya
<b>Ministry of Transportation and Telecommunications</b>	Carmen Contreras
<b>Programa Transforma Logistica</b>	Lisette Isa
<b>Sustainability and climate change agency</b>	Cristian Vergara
<b>University Andres Bello</b>	Sebastián Carvallo
	Julio Villalobos

### Colombia

<b>District Secretary of mobility</b>	Nicolás Cruz González
<b>Ministry of Transportation</b>	Mayra Alejandra Lancheros Barragan

### France

<b>Climate and Clean Air Coalition</b>	Catalina Etcheverry
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### Mexico

<b>SEMANART - Ministry of Environment and Natural Resources</b>	Judith Trujillo
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### Paraguay

<b>UN Environment</b>	Agustín Matteri
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### Peru

<b>GIZ German Federal Enterprise for International Cooperation</b>	Paola Lazarte
<b>Ministry of Transportation and Communications</b>	José Solis Valencia

### United States

<b>Eastern Research Group</b>	Rick Baker
	Sandeep Kishan
<b>ICCT - International Council on Clean Transportation</b>	Cristiano Façanha
	Ulises Hernandez
<b>U.S. Environmental Protection Agency</b>	Anthony Erb
	Buddy Polovick
	Cheryl Bynum
<b>World Bank</b>	Cecilia Garmendia
	Shomik Mehndiratta
	Steven Farji Weiss

### Uruguay

<b>Ministry of Industry, Energy and Mining</b>	Antonella Tambasco
<b>University of Montevideo</b>	Martin Tanco