



## Volvo Group North America

**Date:** July 6, 2016  
**To:** California State Agencies/California Freight Advisory Committee  
**From:** Dawn Fenton, Director Sustainability & Public Affairs, Volvo Group North America  
**Subject:** Volvo Group Comments on Draft California Sustainable Freight Action Plan

### Introduction

The Volvo Group understands the challenges facing the state of California and applauds the extensive effort being taken by state agencies to meet them. This Sustainable Freight Action Plan provides an important framing of the heavy-duty vehicle sector's future as envisioned by the state of California, and we appreciate the opportunity to submit comments on this draft strategy.

Volvo Group is one of the world's leading manufacturers of trucks, buses, construction equipment and marine and industrial engines. The Group also provides complete solutions for financing and service. Volvo Group, which employs some 100,000 people worldwide, has production facilities in 19 countries and sells its products in more than 190 markets. In the United States, Volvo Group employs 12,000 people and has nine manufacturing plants in six states.

### Overview

Identifying more sustainable means of goods movement is a growing national challenge as recognized by the inclusion of a National Highway Freight Program and the Nationally Significant Freight and Highway Projects Program in the Fixing America's Surface Transportation (FAST) Act signed into law on December 4, 2015. This challenge is especially critical in California due to the high percentage of freight that enters the U.S. from the state's ports and the unique factors that contribute to the creation of some of the worst air quality in the country.

In recent years, several reports have been published in California outlining the challenges and offering high-level recommendations for action. Volvo Group has reviewed and provided comments to several of these reports, which do not differ substantially from the points we are submitting herein. While some specific suggestions are included with reference to specific pages of this draft Sustainable Freight Action Plan, we would first like to highlight some overarching issues:

- We strongly support the development and utilization of advanced and transformative technologies, but they should be placed into the context of their likely contribution to a stated goal. OEMs like the Volvo Group bring products to market, not technologies. As a result, advanced technologies that cannot contribute to overall productivity of a vehicle will not be competitive and will therefore not be accepted by the market. If the ultimate goal is to improve

freight system efficiency, then all solutions should be evaluated based on the lowest lifecycle emissions generated by moving one ton of freight one mile. Such a performance metric is critical because if vehicle emissions are reduced at the expense of payload capacity, a seemingly “cleaner” vehicle might emit more emissions over the course of the entire work task or could generate other productivity disadvantages making it unacceptable to the potential buyer, even with financial incentives.

- By avoiding technology-specific requirements, solutions can emerge which help California achieve its goals more quickly and inexpensively. One example of this is the use of longer combination vehicles (LCVs). According to the Ontario Ministry of Transportation, LCVs reduce the greenhouse gas emissions (GHGs) associated with shipping goods by approximately one-third, and as each LCV replaces two conventional tractor-trailers, the number of collisions is expected to be reduced by 80% as compared to moving the same freight by conventional tractor-trailer.<sup>1</sup> The failure to even mention LCVs is an unfortunate omission which deserves equal consideration by the agencies leading this effort.
- In several places throughout the report, the importance of multi-stakeholder involvement to achieving success is emphasized. Volvo Group would underline that while industry engagement is essential, it is critical that industry not be viewed as a monolithic group. To truly understand the commercial viability of technologies in the marketplace, input is needed from both large and small OEMs, large and small fleets, dealers, and advanced technology integrators.
- California can accelerate the realization of air quality benefits for its disadvantaged communities by facilitating the adoption of fuels and technologies which provide incremental benefits while also supporting longer term solutions. Greater use of drop-in renewable diesel fuel and adoption of post-2010 diesel emission control technology can bring improvements to the health of California’s citizens much more quickly than the widespread adoption of zero and near-zero emission vehicles.

## Executive Summary

Page 1 - “which prioritizes California’s transition to a more efficient and less polluting freight transport system.”

This is a goal that the Volvo Group shares with the state of California. More than in other sectors, a partnership between the various state agencies and industry (both manufacturers and their customers) is critical to formulating a successful action plan.

Page 2 – “Near-term efforts must integrate new technologies that are commercially viable.” While we share the idea of keeping a long-range goal and target, those long-range goals should not cloud near-term decisions, especially those taken in the next five years. For example, significant reductions in GHG and criteria pollutants can be gained through the more rapid adoption of current clean diesel technology, even if it does not meet zero emission or near-zero emission status. Such progress should

---

<sup>1</sup> <http://www.mto.gov.on.ca/english/trucks/long-combination-vehicles.shtml>

not be diminished in priority simply because it does not meet a long-term future goal (for which there is no current technology capable of meeting it).

Page 3 - We also agree that assessing the multiple impacts of the Plan's actions is a critical part of moving forward in a substantive fashion and would suggest that, as stated in the document, "government, industry, and environmental and community leaders" must all be involved in that assessment."

### **California's Freight Transport System in 2030 and Beyond**

The Volvo Group appreciates the state's many goals and objectives outlined on pages 5-6 and notes that the state should be pursuing them all. These are extremely important, and we believe those technologies and solutions that can help expedite their realization should be encouraged.

#### **Page 9 – System Efficiency Target**

According to Trucking Efficiency, <http://www.truckingefficiency.org/practices/routing-optimization>, freight efficiency is defined as the amount of freight hauled per gallon of fuel used. CARB's proposed method of measuring the relationship between the state's freight transportation GDP and the CO2 emissions equivalent measures emissions savings relative to the *cost* of freight moved rather than the *volume*. The most appropriate and accurate metric to use as an indicator of improvements to freight efficiency is CO2 emissions per ton-mile of cargo moved. If these parameters can be reasonably assessed periodically, then this metric is greatly preferred. This is in fact the metric deployed by EPA and NHTSA HD truck greenhouse gas and fuel consumption regulations, as well as the DOE SuperTruck programs.

#### **Page 9 – Transition to Zero Emission Technology Target**

The goal of deploying "100,000 freight vehicles and equipment capable of zero emission operation and maximize near-zero emission freight vehicles" appears to be a technology-focused goal, as opposed to a performance-based one. While it may look good as a 2030 goal, it actually lacks any metric that would ensure a positive and cost-effective impact on emissions or efficiency.

In addition, this sector is more diverse than large in number, so the significance of the 100,000 amount is unclear.

### **Investing in California's Freight Transport System**

The Volvo Group agrees that the Prop 1B investments to-date are a good benchmark to review. One of the key accomplishments of those fund disbursements was to upgrade emissions in recent-model trucks, adding DPFs. In addition, those funds were used to ensure that current emissions-compliant trucks were used in the ports, which resulted in the overwhelming majority of trucks (more than 90 percent, according to the Port of Los Angeles), opting to purchase clean diesel trucks. The emissions reductions from those upgrades have been documented by the Air Resources Board and local air quality districts. That kind of smart investment allowed the rapid deployment of significantly cleaner vehicles and had a positive impact on the local communities' environment while enhancing the productivity of the freight sector.

Page 11 -- We believe this should be the model for investment in the freight sector — a focus on positive near-term impacts while also setting aside money for the development of more advanced and far-reaching technology.

Page 12 - We found the discussion of funding interesting. The Plan states, “The Governor’s Proposed Budget also includes a one-year appropriation of funding for cleaner vehicles, equipment, and fuels.” The next sentence notes that ARB is “working with its local partners to identify funding needs and mechanisms to support the scale of zero and near-zero emissions mobile sources.” In the same way that Gov. Brown proposed a 10-year funding plan for infrastructure repair and maintenance, a similar ongoing substantial financial commitment will be needed if the state plans to transform its freight sector. Large OEMS like the Volvo Group dedicate a significant portion of their budgets to advancing technology as well as improving existing product, but without major financial investments from the state, the advances will take much longer to have an impact on the market

Page 13 - In the review of the “Trade Corridor Improvement Fund/Goods Movement Emission Reduction Program – Phase II,” we endorse the hierarchical nature of the criteria that places “using performance-based criteria” at the top. However, we believe additional metrics should be added so that programs are measured on their environmental benefits, as well as the projected return on investment and penetration rates for advanced technology vehicles and equipment. New technology that is not economically sustainable for either the manufacturer or the user will not result in the emissions benefits that may be projected.

Page 14 - “Funding should support innovations, such as new technology, operational efficiencies and smart logistics projects that provide a business, transportation and environmental benefit.” Based on this statement, the Volvo Group would encourage California agencies to prioritize investment in greater vehicle connectivity (V2V and V2I) as a means to minimize many negative impacts of transporting growing freight volumes. Furthermore, in order to practically and safely reduce the number of trucks on the road and deliver more goods to a growing population demanding improved service, serious consideration should be given to the use of longer combination vehicles. Several U.S. states and countries around the world are successfully implementing both measures to safely and cost-effectively boost their freight efficiencies

While California is seeking to promote zero- and near-zero emissions, the Volvo Group would caution that such a goal not be translated into a blind preference for electric technologies. Certainly today’s diesel technology is already close to near-zero emissions and can be reduced even further through the use of renewable diesel fuel. As a major OEM investing in a plethora of advanced technologies around the world, we see that no single technology solution can reduce emissions in all cases and many different technology solutions can achieve an emissions goal. For example, we strongly believe that Dimethyl Ether (DME)-fueled vehicles offer one of the most attractive solutions for near- zero heavy-heavy duty vehicles and that other solution combinations, such as better utilization of existing transportation infrastructure together with greater vehicle automation and digitalization, will bring some of the most cost-effective, safest advances in freight efficiency.

### **State Agency Actions and Pilot Projects**

As stated in the second paragraph (pg. 17), “State agencies must continue building on the successful partnerships with the Legislature, industry, environmental and community groups.” The Volvo Group

believes consultation with major OEMs as an industry voice is critical for success, defined as the large-scale development, production and purchase of trucks that would achieve the Plan's goals.

Of the nine State Agency Actions listed, four are critical for industry and will need OEM involvement to be successful:

3. Focus on freight infrastructure planning and investment on providing modern freight corridors.
4. Accelerate use of clean vehicle and equipment technologies and fuels.
5. Establish a sustainable freight think tank to provide foresight into the innovative future of freight transport...
6. Convene stakeholders to identify and deploy strategies that consider commercial viability and promote the competitiveness...

Industry involvement will help move these initiatives toward the success envisioned. The reference to performance-based criteria should help create a positive action that industry can actively support (Action 3). In Action 4, industry can provide a "reality check" on the development of zero and near-zero emissions technologies and renewable fuels, as well as their potential commercialization.

Finally, the think tank proposed in Action 5 must include industry representation to be effective, as does the assessment of strategies and tools for cost/benefit analysis and determination of real-world commercial viability (Page 18).

### **Pilot Projects**

The Volvo Group is involved in multiple ITS and advanced technology projects in these target areas. While critically important for continued progress, California agencies must remember that these are long-range projects that will not bear fruit for many years – decades in some cases – even with extensive support by government and industry. To address immediate concerns, actions need to focus on what can be done now, through programs such as incentives to upgrade older trucks to the best-available technology and to use renewable diesel fuel. This will deliver immediate improvements to air quality and GHG reduction while these longer-term projects help point the direction for future freight movement.

## **Appendix C – State Agency Actions**

### **Action 3**

Vehicle Charging (pg. C-9). There needs to be agreement on the charging interface used by all OEMs before an electric charging infrastructure can be made available on any meaningful scale. The Volvo Group helped pioneer this standardization effort in 2013 as part of a plug-in hybrid drayage truck demonstration project with SCAQMD. Even though this initiative has seen great support from industry and academia, it will take several years for OEMs and suppliers to develop and certify components that can be deployed in vehicles – in addition to the work required to deploy the infrastructure.

Hydrogen Fueling Infrastructure (page C-11). The Volvo Group does not see hydrogen fuel cells as a significant fuel source for heavy-duty vehicles for the next several decades and therefore believes that greater benefits can be achieved by directing funds to other purposes.

Research Efforts to Support Sustainable Freight Transport System Development (page C-17). The proposal for research to support the development of a sustainable freight transportation system is a critical component and should form the basis for future plans. Significant work has already been done by the federal government and other governments in this area and should be used as part of the foundation for this research. California should use this existing research to identify the nature of the problem and potential solutions.

#### **Action 4**

Investments in Advanced Vehicles and Equipment Technology (page C-36). Incentives for zero and near-zero equipment are important, but needs to be proportionate to the availability of such technology. On their own, purchase incentives are insufficient to influence OEM decisions to invest in commercializing technology.

Lower In-Use Emission Performance Level for HD Vehicles (page C-37). The recommendation for lower in-use emissions performance levels for heavy-duty trucks (also including more regulations, inspections and warranty amendments), does not address the potential cost to industry to comply with these new regulations or the impact those costs might have on the availability of new, advanced technologies that might further the state's goals. Industry has a limited amount of personnel and capital to devote to advanced technology development and these types of in-use programs may divert funding and staff time from those activities.

Innovative Technology Certification Flexibility (page C-37/8). The proposed tiered certification and on-board diagnostic requirements for heavy-duty engine or vehicle technology is an important step, however it is critical that the flexibility be sufficient to provide meaningful risk reduction for OEMs.

Greenhouse Gas Emissions Standards Phase 2 (page C-38/9). The development of national GHG Phase 2 standards has been much more difficult than originally realized, leaving OEMs with significant uncertainty about how they will be achieved. The potential introduction of California-only provisions for the Phase 2 proposal would only increase the cost of compliance for OEMs, which with the state's interest in simultaneous lower NOx emissions, may lead to hard decisions about limiting product availability and indirectly incentivizing the purchase of vehicles from neighboring states.

Low-Nitrogen Oxides Engine Standard (page C-40). The Volvo Group does not support the adoption of a federal ultra-low NOx standard for heavy-duty trucks without further research and modeling to better understand the real-world impact of such emission reductions. A cost-benefit analysis should also precede any federal action since EPA claims that all but nine counties outside of California will meet the latest ozone standards without any additional regulatory activity.

Zero-Emission Vehicle Market Forums (page C-42). The use of forums to address critical barriers to commercialization is a good recommendation; however, it is essential to include industry stakeholders

beyond technology suppliers or limited production OEMs. Widespread introduction and penetration of alternative technology vehicles will require the commitment of large OEMs with the resources for needed durability testing, design iterations, certification, maintenance and training, etc. Without an assessment of barriers and costs facing large OEMs across the entire R&D chain to commercialization, it is not possible to attain a realistic prediction of product availability and penetration.

Standardize Vehicle and Equipment Charging Standards and Protocols (page C-49). The Volvo Group is proud that its work under the plug-in hybrid drayage truck project funded by SCAQMD has contributed to the creation of the SAE working group addressing this need and believes that support for the acceptance of a single charging standard should be given highest priority.

Outreach and Advocacy to Increase Awareness of Advanced Vehicle and Equipment Technologies (page C-63). The Volvo Group agrees that additional outreach about the status of advanced technology vehicles is critical. We would emphasize the importance of including the voice of OEMs, dealers and fleets in this effort to ensure real-world commercial factors are considered.

## **Action 6**

Competitiveness Data Development (page C-65). The Volvo Group strongly supports the recommendation to gather additional information about freight transportation system competitiveness. A quantitative metric is critical to accurately assessing the amount of fuel and emissions saved through new technologies and actions. The current use of measuring vehicle emissions on a g/bhp-hr does not account for reductions in payload capacity resulting from fuel and powertrain changes. Failure to use such a metric could undermine efforts to incentivize new technologies as vehicle purchasers factor this into their return on investment calculations.

## **Action 7**

Truck Platooning (C-67). Truck platooning and other forms of automation can provide significant benefits to improving freight efficiency. The Volvo Group has been working with Caltrans and the University of California Berkeley on the research referenced, and we strongly encourage California government agencies to support continued development of vehicle-to-vehicle and vehicle-to-infrastructure technologies. We equally agree that it is impossible at this time to give stable cost projections for such technology, but do believe that, when coupled with other efficiency gains and the use of renewable fuels, they could provide emissions savings much more cost effectively than through fleet electrification.