

Framework Document for a North American Bus and Heavy-duty Truck Sector Partnership



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For more information:

Commission for Environmental Cooperation
393, rue St-Jacques Ouest, bureau 200
Montreal (Quebec)
H2Y 1N9 Canada
t 514.350.4300 f 514.350.4314
info@cec.org / www.cec.org



Commission for Environmental Cooperation

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List of Abbreviations and Acronyms

AIAG	Automotive Industry Action Group (United States)
ANPACT	<i>Asociación Nacional de Productores de Autobuses, Camiones y Tractocamiones, A.C.</i> (National Association of Bus, Truck and Tractor-trailer Manufacturers) (Mexico)
AVA	<i>Alianza Verde Automotriz</i> (Alliance of Green Car Dealerships) (Mexico)
CDP	Carbon Disclosure Project
CEC	Commission for Environmental Cooperation
EH&S	environment health and safety
EMA	Truck Engine Manufacturers Association (United States)
OEM	original equipment manufacturer
SP	Suppliers Partnership for the Environment

Abstract

The CEC's Improving the Economic and Environmental Performance of the North American Truck and Bus Manufacturing Supply Chain project aims to create a foundation for North American public-private collaboration within the bus and heavy-duty truck manufacturing sector, similar to the Suppliers Partnership for the Environment (SP) and *Alianza Verde Automotriz* (AVA) for the North American automotive manufacturing sector. The goal of this collaboration of original equipment manufacturers (OEMs), suppliers and other relevant private- and public-sector organizations is to provide a self-standing forum for continued improvement, innovation, and success of environmental management practices that reduce environmental impacts and strengthen the sector by agreeing on a vision, goals and projects within the North American truck and bus manufacturers and suppliers network. This document provides a framework for the implementation of the partnership.

Introduction

This draft document is based on the CEC project Improving the Economic and Environmental Performance of the North American Truck and Bus Manufacturing Supply Chain. The report comprises interviews with sector leaders, followed by a general framework for the creation of a collaboration entity that would meet the objectives of the CEC's vision.

Specifically, the consultant reviewed an existing list of contacts in the heavy-duty truck and bus manufacturing sector ("the sector") and added relevant representatives from public and private organizations and trade associations in Canada, Mexico and the United States. The consultant also developed a questionnaire, with support of the CEC Secretariat staff, and identified 12 key representatives of the heavy-duty truck and bus original equipment manufacturers (OEMs) and Tier 1 suppliers. The goal of the project was to interview at least six representatives in order to gather their ideas, objectives and potential targets and commitments in this collaboration.

Lastly, based on the interview findings and industry best practices from previous initiatives (e.g., automotive sector), the consultant developed a framework document that describes the purpose of the collaboration. This includes: 1) operating principles of the collaboration; 2) mission and objectives; 3) profiles of member companies; 4) profiles of representative positions; and 5) how lessons learned from experiences of similar public-private collaborations apply to this collaboration. This framework document also describes a clear path forward and provides recommendations on how this collaboration could sustain itself in the future.

Interviews

Key findings

(See the Appendix for a report of each interview.)

- Each of the companies interviewed is a leader in its environment health and safety (EH&S) and sustainability activities.
- Each of the companies recognizes the importance of addressing economic and environmental issues within its North American supply chains.
- While there are some forums where EH&S and sustainability issues are generally discussed, there is at present no forum in which leaders in the heavy-duty truck and bus sectors may collaborate, share good practices, learn from each other, and improve the economic and environmental performance within the North American heavy-duty truck and bus sector.
- There should be recognition that there could be additional opportunities for the targeted sector if the category of trucks included were to be expanded beyond heavy-duty trucks to mid-sized trucks and vans.
- There will need to be a strategic discussion among leaders of the truck and bus sector to determine the objectives of such an effort and evaluate propositions for all companies engaged in the process, prior to the formalization of an organized forum such as *Alianza Verde Automotriz* (AVA), which is now operating in Mexico for the auto sector.

Survey

The CEC Secretariat had a preliminary list of contacts in the heavy-duty truck and bus manufacturing sector. The consultant analysed and revised the list of companies and identified twelve company

representatives to be consulted on their interest in a potential collaboration partnership of members of the sector.

The following questions were developed by the consultant and the CEC Secretariat to form the basis of a survey of selected leaders from the truck and bus sectors:

- Can you share with me how your company is presently addressing environmental and sustainability issues within your company and within the truck and/or bus sector supply chain and what are the areas of challenges and opportunities?
- Is there presently a forum where you and your peers meet, work together and collaborate with representatives from the tiers of your supply chain to address environmental and sustainability issues?
- Who do you consider to be the key company OEM and supply chain leaders in your sector?
- If there were an opportunity to meet together with your peers and peers from your supply chain to address environmental and sustainability issues, would or could such a forum provide value to you and your company?
- Would you anticipate that other management leaders in your company might also participate in those discussions?
- One of the things that the CEC is sensitive to is not duplicating efforts of others. Are you aware of any other organization or effort within your sector that provides a forum for OEMs and suppliers to meet together and identify specific projects that will enhance the environmental and sustainability efforts of the truck or bus sector?
- If there were an opportunity to meet with your peers and key suppliers to discuss ways to work together to constructively address environmental and sustainability issues, would you and your company participate?

In total, seven phone interviews were conducted among the twelve representatives identified.

Discussion

The survey results, found in detail in the Appendix, can be grouped into three broad discussion points, as follows:

- Agreement that environmental, health and safety, as well as sustainability issues are important to the truck and bus sector and are, in most companies, being addressed in a sophisticated management approach. A general consensus is that the key issues that need to be addressed in order to improve the sector's impact on the North American economy and environment are energy, water, waste/material efficiency, and supply chains.
- While there are some limited forums at which issues affecting the truck and bus sector supply chain can be discussed, there is no specific forum for truck and bus sector leaders to meet and identify projects that will enhance their sector, and thereby acquaint leaders with internal as well as external audiences.
- In addition, while there may be interest and a need for some type of truck and bus forum, the value and goals of such an activity will need to be clearly defined in order for company leaders to justify engaging staff and resources in it.

Framework Document

Based on the interviews conducted and good practices identified as part of previous collaborations, including the Suppliers Partnership for the Environment (SP) and AVA, a framework document for a collaboration entity will have to be developed by working strategically with a core of leaders of the heavy-duty truck and bus sectors. At this stage, the present document outlines the scope of such a framework, based on the survey results and on previous experiences aimed at building similar collaborations.

Operating Principles

In order to develop the principles for the creation of an entity for collaboration across North America, truck and bus manufacturing leaders with responsibility for such activities could be identified and invited to participate in a strategic discussion with their peers. The discussion would aim to develop the vision, mission and goals of an entity that would meet the EH&S and sustainability needs of the companies. Key principles that participants would need to identify and clarify could include the following:

- Agree that all truck and bus OEMs and companies from the truck and bus supply chain across North America be allowed to participate.
- Aim not to advocate with governmental entities, but to work collaboratively with identified stakeholders such as the US Environmental Protection Agency, Environment Canada, and Mexico's *Procuraduría Federal de Protección al Ambiente* (Federal Attorney for Environmental Protection) and *Secretaría de Medio Ambiente y Recursos Naturales* (Ministry of the Environment and Natural Resources).
- Agree that, if needed, projects or work groups could be organized in order to address key issues identified by participants, such as: increasing renewable energy; supporting environmental and sustainability management processes and systems; improving energy efficiency, water sustainability, material efficiency, and supply chain and procurement issues; and addressing life-cycle approaches to the supply chain.
- Agree that there will be at least two meetings per year at locations chosen by the participants.
- Recognize that staff and financial resources will be required in order to support the consulting efforts. It appears that, if given additional resources, SP would be willing to create the new entity within the management structure of SP: a "Truck and Bus Work Group."

Mission and Objectives

The mission and objectives for the effort will need to be identified and agreed upon by the participants.

A mission statement could include the following:

- The Truck and Bus Work Group (T&B Work Group) is an innovative leadership collaboration among North American truck and bus original equipment manufacturers and their suppliers. The Work Group creates new and innovative business-centered approaches to environmental protection and sustainability that improve the environment while providing value throughout the truck and bus supply chain. The T&B Work Group provides a forum for heavy-duty as well as mid-sized trucks, vans and buses to work together, learn from each other, share environmental management practices, and identify specific issues that can be addressed collectively by Work Group supporters.

A set of objectives for the collaboration could include:

- providing leadership opportunities for companies within North America to address greenhouse gas emission reduction opportunities;
- aspirational goals relating to major water reductions or to closed-looped water systems in manufacturing plants;
- addressing ways to move toward net-zero waste and other material efficiency opportunities that also create economic opportunities;
- communicating the success of the collaboration to targeted audiences; and
- collaborating with other key trade associations in the truck and bus sector.

Profiles of Potential Leadership Companies and Associations

- **Bosch Rexroth**: Bosch Rexroth is a drive and control technology company that provides productive, energy-efficient and customized solutions to their customers in the truck and bus and larger automobile industry. The company also works as a global partner, supporting mechanical and plant innovation around the world with its technology and knowledge. Bosch Rexroth focuses on making it easy to use cross-technology solutions, through predefined functions and incorporated engineering. The contact for this company is Rodney Rusk, Automotive Industry Manager at Bosch Rexroth.
- **Daimler Trucks**: Daimler Trucks is the leading medium- and heavy-duty truck manufacturer in North America. Daimler Trucks' North American manufacturers sell and service multiple commercial brands, including Freightliner and Thomas Built Buses, while also providing heavy- and medium-duty diesel engines and other components. The contacts for this company are Sandra Carter, Corporate EH&S for Daimler Trucks (Detroit Diesel, Freightliner, Thomas Built Buses, and Western Star); and Alice Wiselman, Corporate EH&S for Thomas Built Buses.
- **ERA Environmental Management**: ERA Environmental is a company focused on helping facilities use their software to solve environmental management problems. The company provides services to truck- and bus-related companies in an effort to help them calculate their environmental impact and simplify their regulatory reporting. The contact for this company is Gary Vegh, Director of Research and Development for ERA Environmental Management, Quebec.
- **General Motors Company**: General Motors Company produces a wide variety of trucks for sale and service through multiple brands and countries. The company also puts effort into developing new technology in the hopes of improving the future automobile and truck industry. General Motors works with Global Partnerships in order to get new technology and trucks to the customers in a faster manner. The contact for this company is Amanda Kurzman, Manager for Facility Sustainable Initiatives at General Motors Company.
- **Goodyear**: Goodyear is one of the world's leading tire companies and works to deliver the most high-quality tires and related products and services to its customers in the truck and bus industry. The company also devotes time to innovation and value in its brands and products, while attempting to conduct a sustainable business model with strong returns to investment. It is now building a new tire manufacturing facility in Mexico. The contact for this company is David Woodyard, Global Manager for Environmental Sustainability and Product Stewardship.

- Oshkosh Corporation: The Oshkosh Corporation designs and builds some of the toughest specialty trucks, truck bodies, and access equipment in the world. The corporation works to provide solutions that safely and efficiently move people and materials, and is presently one of the world's leading defense vehicle manufacturers. The contact for this company is Kevin Tubbs, Director of EH&S.
- Volvo Cars: Volvo Cars produces and sells a variety of vehicles, which range to heavy-duty and mid-size trucks and buses, under their global brand name. The company has a mission of making its customers' lives easier, safer, and better through the design and sale of its vehicles. The contact for this company is Bert Hill, Director of EH&S.
- Asociación Nacional de Productores de Autobuses, Camiones y Tractocamiones, A.C. (ANPACT) (National Association of Bus, Truck and Tractor-trailer Manufacturers): ANPACT has the mandate to represent its national (Mexico) and international members on issues related to industrial and commercial activity. The association meets frequently to discuss and promote the harmonization, promotion and implementation of development strategies across the industry. The contact for this association is Miguel Elizalde Lizarraga, Executive Director.

Lessons Learned from Similar Partnerships

There are a number of lessons learned from experiences of similar EH&S and Sustainability collaborations. They include the following:

- Recognizing the importance of identifying leaders in the truck and bus business sector and then listening carefully to their ideas and thoughts about additional ways to provide value to their company and their business sector, in a constructive, “no idea is a bad idea” forum.
- Understanding that it cannot be assumed that individuals from the same business sector necessarily know or trust others who may be sitting at the sector table, or are willing to sit at the sector table. Relationships and credibility are two of the most important elements of collaboration.
- Recognizing that sustainability is a new objective and that, for many companies, sustainability goals are aspirational and not easily identified, understood or valued by some inside the companies. Therefore, conducting strategic discussions while not letting conversations lapse “into the weeds” is important.
- Never underestimating the need to prove the business value proposition for each company or organization and recognizing that those targets often move positively or negatively and sometimes very quickly as leaders and objectives change within organizations.
- Understanding that in large companies there are many entities responsible for sustainability. Smart managers may check along the way to make sure the “business managers” are onboard and supportive.
- Realizing that plant managers might not be in support of a program or initiative that was supported by headquarters. Each of the plant managers, unless their company is controlled centrally, is responsible for their own profit-and-loss statements, and sustainability may be viewed as “nice to have” but possibly not be a good enough justification for spending money.
- Realizing the importance of engaging small and medium-size enterprises, who potentially can bring technology and innovation to the table of the collaboration entity, valuable assets in the work to reach sustainability goals.

- Understanding that supporters want to know, upfront, what to expect (the role) of their governments and regulators.

Recommendations

- The approach for moving forward with this activity is to take small and steady steps forward. It appears clear that there is an opportunity to advance these discussions toward a strategic discussion among leaders.
- The CEC should identify the resources to fund a strategic planning discussion with the companies that have already been identified and create a vision, mission and activity plan for the effort, in a fashion similar to the process that was used for the creation of AVA, where CEC resources were key to the success of the effort. This strategic discussion should be targeted for September 2016 at a location that would accommodate the targeted group of companies previously interviewed. The estimated cost of inviting participants, holding a strategic discussion, and developing an action-oriented report would be US\$20,000 plus expenses estimated to be US\$4,000.
- Once that discussion has taken place and the strategic plan is developed and there is consensus agreement by the leadership companies that have been part of this effort to date, additional steps can be discussed and approved to move the effort forward and identify additional companies and the resources needed to support CEC's effort to improve the economic and environmental performance of the North American truck and bus manufacturing supply chain.

Appendix: Interviews

Bosch Rexroth

Name: Rodney Rusk, Automotive Industry Manager

Company: Bosch Rexroth

Date of Interview: 22 May 2015

Can you share with me how your company is presently addressing environmental and sustainability issues within your company and within the truck (or bus) sector supply chain and what are the areas of challenges and opportunities?

Response: *Bosch Rexroth pursues a Go Green mentality within our overall structure. This Go Green mentality is reflected in our For Energy Efficiency Methodology (4EE) for Industrial Manufacturing Automation Equipment and for On-Board Vehicle Products.*

We believe that the starting point for any Environmentally Friendly (least negative impact), Energy Efficiency and Sustainability Strategy starts at the concept stage for any of our products or manufacturing facilities. Thus our various design teams start with the core concept that anything we build should be built starting on those key points of Environmentally Friendly, Energy Efficient and Sustainability for the entire li[f]e cycle. We have Go Green champions in each of our Manufacturing facilities. For example, find attached below a general overview of our 4EE Methodology and an example of how we take our products, apply them in beneficial ways to provide one or more benefits in the key areas of Environment, Energy and Sustainability.

Is there presently a forum where you and your peers meet, work together and collaborate with representatives from the tiers of your supply chain to address environmental and sustainability issues?

Response: *Currently Bosch Rexroth has a number of internal collaboration rooms available that link our country units and out business units together in live forums. As for Tier collaborations, this will need to be investigated further, as I am unaware of any existing mechanism in place. Bosch Rexroth is a member of SP.*

Who do you consider to be the key company OEM and supply chain leaders in your sector?

Response: *I have forwarded this question to others inside Bosch Rexroth but I do not know personally.*

If there were an opportunity to meet together with your peers and peers from your supply chain to address environmental and sustainability issues, would or could such a forum provide value to you and your company?

Response: *I believe there would be an interest, if a mechanism is not already in place.*

Would you anticipate that other management leaders in your company might also participate in those discussions?

Response: *I believe there would be an interest, if an existing mechanism is not already in place.*

One of the things that the CEC is sensitive to is not duplicating efforts of others; are you aware of any other organization or effort within your sector that provides a forum for OEMs and suppliers to meet together and identify specific projects that will enhance the environmental and sustainability efforts of the truck (or bus) sector?

Response: *I am not aware of a duplication of efforts but it is possible that the Association for Manufacturing Technology (AMT), Society of Manufacturing Engineers (SME) and United States Council for Automotive Research (USCAR) may have some type of working group in place.*

If there were an opportunity to meet with your peers and key suppliers to discuss ways to work together to constructively address environmental and sustainability issues, would you and your company participate?

Response: *I believe there would be an interest, if an existing mechanism is not already in place.*

Daimler Trucks and Buses

Name: Sandra Carter, Corporate EH&S, Daimler Trucks (Detroit Diesel, Freightliner, Thomas Built buses and Western Star); Alice Wiselman, Company EH&S, Thomas Built Buses

Company: Daimler Trucks (Detroit Diesel, Freightliner, Thomas Built Buses and Western Star)

Date of Interview: 1 June 2015

Can you share with me how your company is presently addressing environmental and sustainability issues within your company and within the truck (or bus) sector supply chain and what are the areas of challenges and opportunities?

Response: *Daimler has major sustainability programs in place at the headquarters level in Germany. We need to know more about the objectives of this effort, how confidential information will be handled. This may be very good, but we also need to know what type of staff and resources bandwidth will be needed to support the effort.*

Is there presently a forum where you and your peers meet, work together and collaborate with representatives from the tiers of your supply chain to address environmental and sustainability issues?

Response: *Presently we participate in the Truck Engine Manufacturers Association (EMA), National Association of Environmental Managers, the Bus Association, and the North Carolina Manufacturers Association. But the EMA is more focused on emissions and the Bus Association is more focused on safety.*

Who do you consider to be the key company OEM and supply chain leaders in your sector?

Response: *Volvo Trucks, BASF, PPG, and key leaders in light weighting of steel and aluminum.*

If there were an opportunity to meet together with your peers and peers from your supply chain to address environmental and sustainability issues, would or could such a forum provide value to you and your company?

Response: *We would need to know more about the effort but yes, we would probably participate at least in a strategic scoping exercise with other OEMs and Tier 1 suppliers.*

Would you anticipate that other management leaders in your company might also participate in those discussions?

Response: *Yes, it is possible as we know more about the effort.*

One of the things that the CEC is sensitive to is not duplicating efforts of others; are you aware of any other organization or effort within your sector that provides a forum for OEMs and suppliers to meet together and identify specific projects that will enhance the environmental and sustainability efforts of the truck (or bus) sector?

Response: *Not really, much of our efforts now are focused in Mexico and North America on emission reductions.*

If there were an opportunity to meet with your peers and key suppliers to discuss ways to work together to constructively address environmental and sustainability issues, would you and your company participate?

Response: *Yes, if we can further define the value proposition.*

ERA Environmental Management

Name: Gary Vegh, Director of Research & Development

Company: ERA Environmental Management, Quebec

Date of Interview: 29 May 2015

Can you share with me how your company is presently addressing environmental and sustainability issues within your company and within the truck (or bus) sector supply chain and what are the areas of challenges and opportunities?

Response: *We presently provide environmental and sustainability management services to a large number of OEMs and Tier 1s in the truck and bus sector through ERA's Transportation Module. Key issues for the truck and bus sectors include traditional environmental management systems, pollution prevention, sustainable manufacturing, and water and waste /material efficiency.*

Is there presently a forum where you and your peers meet, work together and collaborate with representatives from the tiers of your supply chain to address environmental and sustainability issues?

Response: *I am not aware of any forum in the truck and bus sector.*

Who do you consider to be the key company OEM and supply chain leaders in your sector?

Response: *Oshkosh, Daimler, Paccar, DuPont, PPG, Cummins, J.B. Poindexter, Navistar, Phil Shaw (step vans).*

If there were an opportunity to meet together with your peers and peers from your supply chain to address environmental and sustainability issues, would or could such a forum provide value to you and your company?

Response: *Absolutely.*

Would you anticipate that other management leaders in your company might also participate in those discussions?

Response: *This activity would have a long reach from Canada, the US and Mexico, so yes.*

One of the things that the CEC is sensitive to is not duplicating efforts of others; are you aware of any other organization or effort within your sector that provides a forum for OEMs and suppliers to meet together and identify specific projects that will enhance the environmental and sustainability efforts of the truck (or bus) sector?

Response: *This effort would not duplicate any other effort that I am aware of it; it is “safe space.”*

If there were an opportunity to meet with your peers and key suppliers to discuss ways to work together to constructively address environmental and sustainability issues, would you and your company participate?

Response: *I believe there would be an interest and the effort can also be directed toward environmental risk management and other common challenges for the sector.*

General Motors Company

Name: Amanda Kurzman, Manager, Facility Sustainability Initiatives

Company: General Motors Company (GM)

Date of Interview: 2 June 2015

Can you share with me how your company is presently addressing environmental and sustainability issues within your company and within the truck (or bus) sector supply chain and what are the areas of challenges and opportunities?

Response: *Recognizing GM is in the truck business, we are not in the heavy-duty truck business but the suppliers to both businesses are very similar and we have a very large commitment to sustainability and to efficiency within the transportation sector.*

Is there presently a forum where you and your peers meet, work together and collaborate with representatives from the tiers of your supply chain to address environmental and sustainability issues?

Response: *We rely on the Automotive Industry Action Group (AIAG) for training and specific projects such as greenhouse gas reduction programs in the supply chain and conflict minerals. We are an active participant in EPA's Smartway program that addresses both large and small trucks, the Carbon Disclosure Project (CDP), and EPA's Energy Star program.*

Who do you consider to be the key company OEM and supply chain leaders in your sector?

Response: *Ford, UPS, Fed-Ex.*

If there were an opportunity to meet together with your peers and peers from your supply chain to address environmental and sustainability issues, would or could such a forum provide value to you and your company?

Response: *Yes, we believe it could be of value and incorporating it as a Work Group of SP should be considered.*

Would you anticipate that other management leaders in your company might also participate in those discussions?

Response: *Yes, if the project were expanded to mid-sized trucks because the supply chains are very similar.*

One of the things that the CEC is sensitive to is not duplicating efforts of others; are you aware of any other organization or effort within your sector that provides a forum for OEMs

and suppliers to meet together and identify specific projects that will enhance the environmental and sustainability efforts of the truck (or bus) sector?

Response: *Other than our working relationships with the organizations above, there does not appear to be any focused forum on large, mid-sized and smaller trucks.*

If there were an opportunity to meet with your peers and key suppliers to discuss ways to work together to constructively address environmental and sustainability issues, would you and your company participate?

Response: *It would certainly be considered.*

The Goodyear Tire & Rubber Company

Name: David Woodyard, Global Manager, Environmental Sustainability & Product Stewardship

Company: The Goodyear Tire & Rubber Company

Date of Interview: 2 June 2015

Can you share with me how your company is presently addressing environmental and sustainability issues within your company and within the truck (or bus) sector supply chain and what are the areas of challenges and opportunities?

Response: *We track six drivers very closely and respond by investing resources where the issues are material to the business.*

Is there presently a forum where you and your peers meet, work together and collaborate with representatives from the tiers of your supply chain to address environmental and sustainability issues?

Response: *We have no such forum.*

Who do you consider to be the key company OEM and supply chain leaders in your sector?

Response: *We view both Michelin and Goodyear as leaders in our sector.*

If there were an opportunity to meet together with your peers and peers from your supply chain to address environmental and sustainability issues, would or could such a forum provide value to you and your company?

Response: *Yes, we believe it would be of value.*

Would you anticipate that other management leaders in your company might also participate in those discussions?

Response: *We have both interest within our commercial business and sustainability.*

One of the things that the CEC is sensitive to is not duplicating efforts of others; are you aware of any other organization or effort within your sector that provides a forum for OEMs and suppliers to meet together and identify specific projects that will enhance the environmental and sustainability efforts of the truck (or bus) sector?

Response: *We know of no other specific effort for the sector of heavy truck and bus. We are aware that the WBCSD has a sustainability mobility cluster with a focus on cities and there is sustainable ocean transport cluster within BSR.*

If there were an opportunity to meet with your peers and key suppliers to discuss ways to work together to constructively address environmental and sustainability issues, would you and your company participate?

Response: *We believe so, if it follows the effectiveness of SP.*

Magna

Name: Janet Haynes, Global Director, Environmental Health

Company: Magna

Date of Interview: 4 June 2015

Can you share with me how your company is presently addressing environmental and sustainability issues within your company and within the truck (or bus) sector supply chain and what are the areas of challenges and opportunities?

Response: *We are totally focused on environmental, health and safety and compliance; we don't have a sustainability group, although I think we have someone here who now has the title. I will tell you that a major issue for us is mandates that come from the OEMs that don't recognize how unique Magna is in the manufacturing area. We have 350 locations around the world and produce multiple products. So when an OEM says give me your energy data, we say relating to which product. It is frustrating for us, because we want to work with them but we are very unique and totally decentralized in our manufacturing.*

Is there presently a forum where you and your peers meet, work together and collaborate with representatives from the tiers of your supply chain to address environmental and sustainability issues?

Response: *My primary effort is with AIAG; we really stay focused on the company.*

Who do you consider to be the key company OEM and supply chain leaders in your sector?

Response: *We follow the auto OEMs very closely, we do what they are doing and what they would like us to do.*

If there were an opportunity to meet together with your peers and peers from your supply chain to address environmental and sustainability issues, would or could such a forum provide value to you and your company?

Response: *There is no group in the truck and bus sector providing the forum you are talking about. I would add the effort should include all sizes of trucks and buses, not just heavy-duty trucks.*

Would you anticipate that other management leaders in your company might also participate in those discussions?

Response: *Doubtful at this stage, I am the person.*

One of the things that the CEC is sensitive to is not duplicating efforts of others, are you aware of any other organization or effort within your sector that provides a forum for OEMs and suppliers to meet together and identify specific projects that will enhance the environmental and sustainability efforts of the truck (or bus) sector?

Response: *Other than AIAG that provides a relationship and discussion function, there is not group in this area.*

If there were an opportunity to meet with your peers and key suppliers to discuss ways to work together to constructively address environmental and sustainability issues, would you and your company participate?

Response: *Maybe, but I would really need to see the value and who was also at the table.*

Oshkosh Trucks

Name: Kevin Tubbs, Director, EH&S

Company: Oshkosh Trucks

Date of Interview: 1 June 2015

Can you share with me how your company is presently addressing environmental and sustainability issues within your company and within the truck (or bus) sector supply chain and what are the areas of challenges and opportunities?

Response: *Key areas of sustainability for us are internal and external. We are very focused on energy and waste to landfill. Water is not major to us yet. We are concerned about engine standards, rolling resistance, reducing weight, miles per gallon, the cost of heavy trucks, and listening to our customers.*

Is there presently a forum where you and your peers meet, work together and collaborate with representatives from the tiers of your supply chain to address environmental and sustainability issues?

Response: *Key organizations where we participate include the Automotive Industry Action Group (AIAG) and the Axle and Equipment Manufacturers Association. Also Supply Chain 50 but I am not directly involved in the supply chain activities.*

Who do you consider to be the key company OEM and supply chain leaders in your sector?

Response: *Haven't really thought about it that way, but we look to leadership from GM, Ford and Toyota.*

If there were an opportunity to meet together with your peers and peers from your supply chain to address environmental and sustainability issues, would or could such a forum provide value to you and your company?

Response: *We would consider engaging in some way for the value in getting together but we would have to look at the financial as well as staff time costs.*

Would you anticipate that other management leaders in your company might also participate in those discussions?

Response: *Yes if the value proposition can be better defined.*

One of the things that the CEC is sensitive to is not duplicating efforts of others, are you aware of any other organization or effort within your sector that provides a forum for OEMs and suppliers to meet together and identify specific projects that will enhance the environmental and sustainability efforts of the truck (or bus) sector?

Response: *Not really aware of anything in this area.*

If there were an opportunity to meet with your peers and key suppliers to discuss ways to work together to constructively address environmental and sustainability issues, would you and your company participate?

Response: *It would depend on who is around the table and what the focus of the effort would be.*

Volvo

Name: Bert Hill, Director, Manager, Environment, Health & Safety

Company: Volvo

Date of Interview: 3 June 2015

Can you share with me how your company is presently addressing environmental and sustainability issues within your company and within the truck (or bus) sector supply chain and what are the areas of challenges and opportunities?

Response: *We have many programs moving forward in Europe and North America. We are challenged on meeting our renewable energy goals and LCA and chemical requirements with our suppliers that are mandated by REACH in Europe. We are making progress there but not as much progress in the US.*

Is there presently a forum where you and your peers meet, work together and collaborate with representatives from the tiers of your supply chain to address environmental and sustainability issues?

Response: *We monitor and engage in some DOE meetings and participate in some monthly calls relating to EnergyStar. I heard at a recent meeting about an auto supply chain group but we don't participate in it. I met at a meeting of a group addressing trucks and buses in Indianapolis but got very little heads up on the meeting and then the discussions were at a very high technical, in the weeds level.*

Who do you consider to be the key company OEM and supply chain leaders in your sector?

Response: *N/A*

If there were an opportunity to meet together with your peers and peers from your supply chain to address environmental and sustainability issues, would or could such a forum provide value to you and your company?

Response: *Yes, if it helped us identify issues of importance to our customers so that we could be prepared.*

Would you anticipate that other management leaders in your company might also participate in those discussions?

Response: *Yes, if there was value and the discussions and action were meeting our needs to stay ahead of trends and issues like renewable energy, carbon reductions in manufacturing plants, LCA and chemicals.*

One of the things that the CEC is sensitive to is not duplicating efforts of others, are you aware of any other organization or effort within your sector that provides a forum for OEMs

and suppliers to meet together and identify specific projects that will enhance the environmental and sustainability efforts of the truck (or bus) sector?

Response: *I don't know of any group that is doing this.*

If there were an opportunity to meet with your peers and key suppliers to discuss ways to work together to constructively address environmental and sustainability issues, would you and your company participate?

Response: *Yes, at least for strategic discussion of need action with peers and our supply chain.*