

Commission for Environmental Cooperation (CEC)

*Project on Improving the Economic and Environmental Performance
of the North American Automotive Industry Supply Chain*

Environmental Assistance Programs and Resources for Automotive Original Equipment Manufacturers (OEMs) and Suppliers Workshop

*September 7, 2011
Spring Hill, Tennessee, United States*

Workshop Report

Mr. Benjamin Teitelbaum, Special Projects' Coordinator, Commission for Environmental Cooperation (CEC) opened the meeting at 1:00pm CDT.

Mr. Teitelbaum discussed North America's role in world passenger car production and the significant increase in motor vehicle production in Mexico, Canada and the United States (US) in recent years. He noted that Mexico is now the 9th largest vehicle producer in the world and the largest exporter of auto parts to the US. He added that in Canada, production of motor vehicles increased by 22.3% in 2010 and that in the 1st half of 2010, Canada's manufacturers saw revenue increase 61.5%.

Mr. Teitelbaum provided an overview of CEC's project on "Improving the Economic and Environmental Performance of the North American Automotive Industry Supply Chain" and announced that the project will re-engage key automotive companies for the development and implementation of green automotive supply-chain programs across North America. He noted that the project will allow both Canada and Mexico to benefit from initial efforts experienced in the United States and build trilateral cooperation, as well as support the sharing of information and practices that will enhance the environmental and economic performance of the North American automotive supply chain.

Mr. Teitelbaum reviewed the project's environmental vision to "reduce environmental impacts of the automotive manufacturing supply chain while enhancing competitiveness through engaging experts to facilitate the development and implementation of formalized Automotive Green Supply Chain programs in Canada, Mexico and the United States."

Mr. Teitelbaum reported that the short-term goal for the project will be to organize a core of automotive manufacturers and suppliers to green their supply chains within Canada and Mexico and enable the exchange of resources, information, and tools within the sector towards greening the supply chain. He noted that moving in to 2012 and beyond, the project would expect to create and expand business-driven self-supported auto supplier partnerships in North America and reduce environmental impacts and improve economic capacity through activities adopted by these auto supplier partnership programs.

United States

Mr. Teitelbaum introduced a panel of representatives to discuss voluntary environmental programs in the United States. The panel included:

- Tom Murray, Chief, Prevention Analysis Branch, US Environmental Protection Agency (EPA)
- Ben Vickery, Senior Technical Analyst, Department of Commerce, National Institute of Standards & Technology (NIST), Manufacturing Extension Partnership (MEP) Program
- Lynn Lane, Human Resources Manager, Electricfil Corporation

Mr. Ben Vickery, NIST MEP, provided an overview of [NIST's MEP program](#) which works with small and mid-sized U.S. manufacturers to help them create and retain jobs, increase profits, and save time and money. He noted that the MEP is a national network with centers located in all 50 states, which include 60 centers with over 370 field locations.

Mr. Vickery noted that MEP Centers focus on meeting manufacturer's short term needs, but in the context of their overall company strategy. He reviewed MEP Center areas of common strength, including:

Engineering Services for products and processes; Growth Services – new or expanded market opportunities; Lean Manufacturing; Quality Systems; Sustainability; and, Workforce Development.

Mr. Vickery described the MEP’s process of working with manufacturers, which includes:

- **Initial contact** – group sessions, referral
- **Assessment** – informal walk-through, detailed company analysis
- **Identify** potential issues, define proposed project and approach for solving it
- **Negotiate** with company and sign project contract with fee paid to center
- **Project execution** – center staff, partner organization, and/or third party consultants

He noted that after completion, centers follow-up on the project to assure customer satisfaction and explore further project opportunities and that project impact data is collected by the contractor for NIST for approximately 6 months.

Mr. Vickery noted that MEP Centers reach over 34,000 manufacturing firms and complete over 10,000 projects per year based on FY2009 MEP Center reported performance data, and noted that these projects have resulted in significant business growth. (See Figure 1)



Figure 1

Mr. Vickery then introduced NIST MEP’s next generation strategy of increasing manufacturers’ capacity for innovation resulting in profitable sales growth and reviewed the five key areas of the next generation strategy: Continuous Improvement, Technology Acceleration, Supply Chain, Sustainability and Workforce.

Mr. Vickery discussed the Sustainability component of MEP’s next generation strategy, which MEP defines as “helping manufacturers gain a competitive edge, maintain profitability and job creating growth while increasing energy efficiency and reducing environmental impacts”. He then discussed MEP’s focus and current efforts on sustainability, such as collaboration with US EPA on the Green Suppliers Network, collaboration with the US Department of Energy on Industrial Assessment Centers and participation in the E3 program.

Mr. Tom Murray, US EPA, opened his presentation on *Lean and Green Tools and Training* with an overview of the [Green Suppliers Network](#), a collaborative effort between the US EPA and the US Department of Commerce’s NIST MEP that partners with suppliers to identify lean and clean improvement opportunities in their facilities.

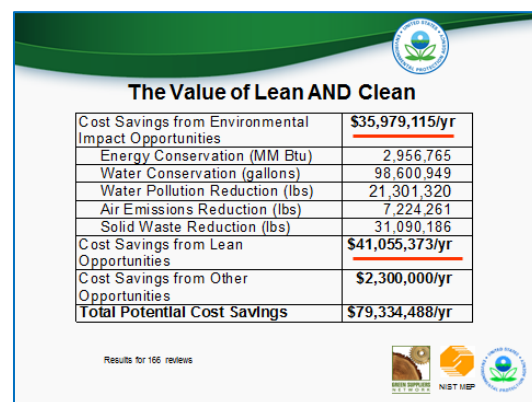


Figure 2

Mr. Murray explained that GSN expands the lean definition of waste to also include environmental considerations. He noted that a traditional lean review eliminates: Defects, Overproduction, Waiting, Non-utilized resources, Transportation, Inventory, Motion and Extra processing. A clean review includes Full use of Raw Material; Energy Efficiency; Water conservation; Eliminating Toxic Material; and, Reduction of: Packaging Wastes, Emissions to Air and Water, Solid & Hazardous Wastes, and Regulatory obligations and risks. Mr. Murray noted that in addition to the potential environmental reductions of a clean review, the potential annual cost savings opportunities nearly double when combining lean and clean assessments versus considering lean alone. (See Figure 2)

Mr. Murray discussed several tools that have been developed through GSN which are available online at no cost. These tools include:

- [Green Suppliers Network Online Training Course](#)
- [EPA Lean and Environment Toolkit / \[Spanish Version\]](#)
- [EPA Lean and Energy Toolkit](#)
- [EPA Lean and Chemicals Toolkit](#)
- [EPA Environmental Professional's Guide to Lean and Six Sigma](#)

Mr. Murray reported that on October 27-29, 2008, CEC in collaboration with Monterrey Tech, the US EPA and Ford Motor Company Mexico conducted a Lean and Clean training workshop in Chihuahua, Mexico focused on the Green Suppliers Network program. Representatives from the NIST MEP program conducted the training, which was held at the Ford engine plant in Chihuahua. Participants learned about the basics of lean manufacturing and opportunities for their companies, and about 25 manufacturers and technical assistance providers in and around the state of Chihuahua attended the workshop.

Mr. Murray then provided an overview of [E3: Economy, Energy, and Environment](#), a collaboration among several US federal agency programs including: the NIST MEP; Department of Energy (DOE) Industrial Technologies Programs and Industrial Assessment Centers (IAC); MEP/EPA Green Suppliers Network; EPA Pollution Prevention and Climate Leaders Programs; Department of Labor (DOL) Employment and Training; and, the Small Business Administration (SBA) and its Small Business Development Centers. Mr. Murray noted that E3 is a model for collaboration among manufacturers, utilities, local government, and federal resources intended to: invest in local communities, address energy and sustainability challenges, provide valuable technical training and assessments and enable economic growth and job creation. In addition, he noted that E3 is a great framework to build on in Mexico and Canada.

Mr. Murray noted that the E3 model takes advantage of each the collaborating federal agency programs to expand on the GSN technical assessment process, as well as add implementation support. This includes:

E3 Technical Assessment

- A **Lean Review** which leads to increased productivity and reduced costs
- A **Clean Review** resulting in water and energy conservation, reduced emissions, and additional cost savings
- A **Greenhouse Gas (GHG) Evaluation** that teaches manufacturers how to calculate GHG emissions and evaluate reduction strategies
- **Post-Assessment Recommendations** that guide each facility toward improvements in overall efficiency, reduced waste, more efficient use of resources including energy and water, and cost savings

E3 Implementation Support

- **SBA** and its **Small Business Development Centers (SBDCs)** provide business excellence counseling services and financing through guaranteed loan programs
- **DOL** and its **Workforce Investment Boards** provide green job and skills training and apprenticeships supported by workforce development and training grants
- **Local and Regional E3 Team** provides additional resources and support such as utility incentives, state recognition, internship programs and local funding and grant opportunities

Mr. Murray noted that while the EPA's Climate Leaders partnership program has been phased out, the tools developed by the program are still available and being used as part of the E3 model. More information on Climate Leaders tools and resources is available at <http://www.epa.gov/climateleaders/>. Mr. Murray reviewed the metrics employed by the E3 model, which include economic, energy and environment metrics. He then discussed the Alabama E3 program, in which several automotive companies have participated through the Alabama Automotive Manufacturers Association (AAMA).

Ms. Lynn Lane, Human Resources Manager with Electricfil Corporation, a manufacturer of automotive ignition systems including engine and transmission sensors, then gave a presentation on Electricfil Corporation's Participation in Alabama's E3 Program. Ms. Lane is responsible for the company's Human Resources, Environmental and Safety functions.

Ms. Lane noted that in early 2010, Electricfil worked with E3 partner and local MEP Center, Alabama Technology Network (ATN), on a Practical Energy Assessment of their operation. This involved a detailed review of their facility and daily work practices coupled with brainstorming sessions geared at identifying key improvement areas. Following this assessment, the company was given a list of recommended improvements along with potential energy and cost savings.

ATN representatives lead two 5-day long Kaizen events at the facility. The first event was focused on reducing tooling changeover times at the company's over molding presses and the second event was focused on modifications to its resin potting and curing processes. Both events targeted process improvements that would ultimately result in time savings, cost savings and energy reductions.

Ms. Lane noted that as a result of participation in the Alabama E3 Initiative Electricfil Corporation has reduced its energy consumption by 25% or approximately \$40,000 annually. The company was also awarded TVA VII-E 5 year utilities credits for energy conservation and investment and another incentive for participation in their CEAI energy efficiency program. The estimated value of these utility services, payments, and credits is \$45,000. In addition, Electricfil Corporation reduced landfill bound waste from nearly 40 yards to less than 4 yards per week through recycling of nearly all production scrap and general waste products.

Mexico

Mr. Teitelbaum introduced Mr. Alejandro Sosa, Director, Navista Mexico, to give an Overview of Voluntary Environmental Programs in Mexico. Mr. Sosa explained that Profepa's (La Procuraduría Federal de Protección al Ambiente) objective is to improve environmental performance in economic sectors to go beyond compliance. He discussed Profepa's three voluntary environmental mechanisms: the Environmental Excellence Award (Excelencia Ambiental), the National Audit Program (Programa Nacional de Auditoría Ambiental) and the Environmental Leadership for Competitiveness Program (Liderazgo Ambiental para la Competitividad).

Mr. Sosa explained that the [National Audit Program](#), also known as the Clean Industry Program, is a voluntary certification program targeted at large and medium sized manufacturing and heavy industry companies. The program provides a certificate, valid for 2 years with the possibility for renewal, and a green seal for use by certified companies, as well as certain tax incentives. Companies are evaluated against a set of key performance indicators to achieve certification. Mr. Sosa reported that 12 automotive companies are participating in the Audit Program, including Ford, General Motors, Nissan, VW, Honda and Chrysler. He reported that to date companies have saved over 6 million m³ of water and 860 million kWh of energy as a result of participation in the National Audit Program.

Mr. Sosa explained that the [Environmental Leadership for Competitiveness Program](#) (PLAC) is a cooperative effort between industry, business support institutions, local governments and federal government through Profepa and Semarnat (Secretaría de Medio Ambiente y Recursos Naturales). The program includes suppliers of large manufacturing companies as well as some service providers. The PLAC program is free to participate in and requires no binding commitments on behalf of the participating company.

Mr. Sosa explained that through a process of learning by doing and using simple tools, participants are able to identify continuous improvement opportunities and develop projects to improve economic and environmental performance. Mr. Sosa noted that companies may receive official recognition for their participation in the PLAC program. He reported that more than 1,500 companies have participated in the PLAC program, including 38 automotive facilities. He reported that through participation in the PLAC

program automotive companies have saved more than 73,000 m³ of water, 9.7 million kWh of energy, 8,800 ton CO₂ per year and \$3.3 million dollars to date.

Mr. Sosa then presented a manufacturer's perspective on participation in Voluntary Environmental Programs in Mexico, with a report from Ford Mexico. He reported that Ford Manufacturing facilities located in Hermosillo, Cuautitlán and Chihuahua joined the Voluntary Clean Industry Process in 1997 and since this time, all Ford facilities in Mexico have been evaluated on a regular basis, including the current year (2011). Mr. Sosa reported that the Clean Industry process has allowed Ford Mexico to evaluate and confirm its own environmental compliance assurance process and also to identify improvement opportunities to favorably impact its current environmental metrics. Mr. Sosa reported that Ford's Hermosillo and Chihuahua plants are participating in the PLAC program with their local suppliers and have identified significant potential savings. In addition, Ford's Cuautitlán plant is planned to join the program in the next year. (See Figure 3)

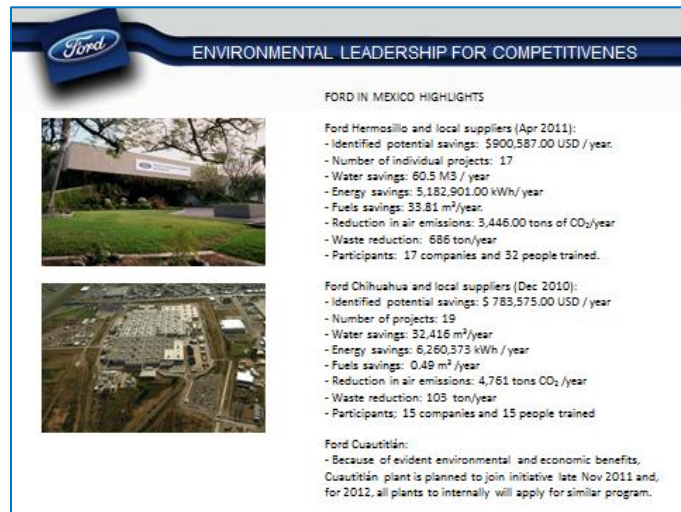


Figure 3

Canada

Mr. Teitelbaum introduced a panel of representatives to discuss Lean and Clean Opportunities in Canada. The panel included:

- Maria Petrou, Environmental Protection Operations, Environment Canada
- Rahul Naik, Principal In-Charge, ARCADIS

Ms. Maria Petrou, Environment Canada, noted that for the past three years, Environment Canada has been engaged in the activities of the Suppliers Partnership for the Environment (SP) in the United States. She reported that through the support of the CEC in Council Resolution 06-06, meetings were conducted in Canada in 2008 with automobile manufacturers and suppliers to begin organization of an SP Canada organization that would both improve the environment and the economic development of the automobile industry. Unfortunately, the efforts underway in Canada were postponed due to the economic crisis that impacted the auto industry and the global economy.

Ms. Petrou reported that discussions were held in November 2010 and January 2011 with the support of Environment Canada to re-engage the auto industry and its supply chain in Canada. She noted that an initial area of interest identified by the companies in Canada included activities relating to chemicals in products. She reported that before the end of the year the CEC will be hosting a meeting in Canada among auto manufacturers and their suppliers to continue discussion on issues impacting the automobile supply chain in Canada. She noted that the organization in Canada is in its infancy and companies have a real opportunity to provide input into the goals and design of the program in Canada. She noted that Environment Canada looks forward to being engaged in these discussions as a participant in this CEC project.

Mr. Rahul Naik, ARCADIS, provided an overview of ARCADIS, its Canadian offices, its automotive client base and its services in the areas of infrastructure, environment, buildings and water. Mr. Naik discussed opportunities for lean and clean processes within the value chain in the advisory, operations, products and supply chain areas and provided detailed reviews of the opportunities around energy/carbon management, global product regulatory compliance, and safety and environment.

Mr. Naik reviewed potential training needs for the automotive sector and ARCADIS' training capabilities and programs. Mr. Naik then shared several examples of the activities and examples of projects that ARCADIS has performed in Canada, Mexico and the US, and the results of the projects, including: Plant Environmental Compliance and Management System Onsite Support; Regulatory Training Webinars; Management Systems Implementation (ISO 14001); and, Water Reduction Assessments and Training for Automotive Facilities.

Breakout Group Recommendations

Mr. Teitelbaum introduced Mr. Kellen Mahoney, Navista, to present the breakout group exercise. Mr. Mahoney noted that the day's presentations focused on existing voluntary programs and resources available to manufacturers in the US, Mexico and Canada to improve the environmental and economic sustainability of their manufacturing operations. He added that as CEC works to expand greening automotive supply chain programs in Mexico and Canada, the project aims to avoid duplication of efforts and develop efficiencies by building on the voluntary programs that are already in place in each country.

Mr. Mahoney requested the participants break out into working groups to discuss the following questions, which would provide essential feedback to the project as the CEC works to organize additional working sessions with manufacturers in Mexico and Canada:

1. What are the most important environmental challenges affecting companies in the automotive supply chain?
 - a. In the United States?
 - b. In Mexico?
 - c. In Canada?
2. Which techniques have your company found to be the most successful in engaging stakeholders (suppliers, plants, employees) in environmental activities in your country? Which have been less successful?
3. What environmental challenges are common to the US, Mexico and Canada?

In each of the breakout sessions, the participants determined that there are many environmental challenges that are common to manufacturers across North America as there were few challenges that were identified as issues limited to a particular country. The following environmental challenges were identified as potential opportunities for action through the project:

- Regulatory complexity –federal vs. state vs. local regulations, prescriptive vs. performance, conflicting regulations; opportunity for harmonization of regulations across North America
- Emerging chemical regulations / chemicals in products
- Inconsistencies in regulations across OEMs
- Gaining support of upper management / funding for environmental projects
- Bridging generations / cultural differences
- Gaining employee buy-in for environmental programs
- Customer quality / driven specs
- Communicating / driving small business environmental innovation to decision makers at OEMs and Tier 1 Suppliers
- Understanding of Return on Investment (ROI); business value of environmental projects
- Improved interaction with Mexico and Canada and better understanding of shared objectives
- Returnables
- Consistency
- Residential sorting
- US – political tactics
- Mexico – water, output performance
- Canada – mixed waste, standards, energy from waste

The following techniques were identified as being successful in engaging stakeholders in environmental activities:

- Incentives
- Recognition
- Benchmarking / metrics
- Area leaders / cascade training
- Communication / training
- Building into processes
- OEM involvement
- Voluntary government involvement
- Top level management support
- Bottom up approaches
- Collaboration
- Utilizing small suppliers
- Seeking out / tapping into creativity

The participants agreed that a technique that had not been successful in engaging stakeholders in environmental activities was policing.

Mr. Teitelbaum thanked the speakers for their presentations and the attendees for their participation in the Workshop. He reiterated the project and CEC's North American mission, remarking they are three countries but one environment. He noted that as the project progresses, there may be an opportunity to host a North American Suppliers Partnership Conference to hear perspectives from participants from the US, Mexico and Canada.

The meeting was adjourned at 5:00pm CDT.

Respectfully Submitted,

Kellen Mahoney
Navista Inc.

Attendees List

Adam	Westerdale	Aevitas Specialty Services
Susan	Landry	Albemarle Corporation
Rahul	Naik	ARCADIS
William	Allemon	ARCADIS
Patricia	Beattie	Arcalis Scientific
Timothy	Bent	Bridgestone Americas, Inc.
Benjamin	Teitelbaum	Commission for Environmental Cooperation (CEC)
David	Schroeder	Covanta Secure Services
Lynn	Lane	Electricfil Corporation
Maria	Petrou	Environment Canada
Scott	Quartier	Flex-N-Gate
Russell	Brynof	FTS Technologies
John	Bradburn	GM
Vickie	Mecsey	GM
Kathleen	Laird	Goodwill Industries of Greater Detroit
Jimmy	Gayle	Gayle Technologies
Derek	Kaiding	Haley & Aldrich, Inc.
John	Lang	Heritage Interactive Services
Joel	Tenney	ICL-IP
Bennie	Hayden	Marketing for Green, LLC
Scott	Baggett	Mercedes-Benz
Alejandro	Sosa	Navista Mexico
Ben	Vickery	National Institute of Standards & Technology (NIST)
Lauren	Leonard	Office of Recovery for Auto Communities and Workers, US DOL
Peter	Feamster	Peter Feamster & Associates, Inc.
Rick	Martinez	Peter Feamster & Associates, Inc.
Kellen	Mahoney	Navista / Suppliers Partnership for the Environment (SP)
Tom	Brewer	SCT Workforce / Tennessee Automotive Manufacturers Association (TAMA)
David	Lanzola	TestAmerica
Tom	Murray	US Environmental Protection Agency (EPA)