

**TOWARD A CLEAN, GREEN AND SMART  
WEST COAST TRANSPORTATION SYSTEM****An Update from the West Coast Corridor Coalition (WCCC)  
June 2011**

Since 2001, The West Coast Corridor Coalition has empowered state and metro area transportation leaders from Alaska to Mexico to develop mutual policies, share best practices, and target investments at a system rather than a project level. Financial support for the Coalition has come from the U.S. Department of Transportation (USDOT) and member state DOTs.

For the last five years, a priority of the Coalition has been to reduce the environmental and climate impacts of transportation by encouraging and facilitating adoption of post-petroleum technologies and efficient system operations. Through conferences and working committees we have become recognized as a convener of key West Coast players to coordinate and advance their “clean, green and smart” transportation efforts.

This docket filing updates two important areas of work related to the Coalition’s environmental initiatives. First is the West Coast “green highway” based on the I-5 corridor. Next is the Sustainable Freight Strategy for North America developed for the three-nation Commission on Environmental Cooperation by an advisory committee led by the WCCC’s Environment and ITS Committee chair Bruce Agnew..

**WEST COAST GREEN HIGHWAY**

U.S. Interstate 5 and Highway 99, its extension in Canada, are often described as the “Main Street” of the West Coast and the backbone that connects other major routes along the West Coast Corridor System. In the 21<sup>st</sup> century, multiple efforts have been launched and are underway to make I-5 a model of environmental compatibility and economic efficiency, based on West Coast leadership in advanced transportation and energy technology, environmental stewardship as a mainstay of West Coast public values, and the small number of state and provincial jurisdictions that define the region and facilitate cooperation.

**Pacific Coast Collaborative (PCC)**

In 2004 the Pacific Coast Collaborative (PCC) was established the Governors of California, Oregon and Washington and the Premier of British Columbia. Since then the PCC has identified policy goals and signed specific agreements to develop U.S. Interstate 5 / Canada 99 as an alternative fuels corridor. Several Memoranda of Understanding (MOUs) addressing these goals have been signed by the four elected chief executives of member jurisdictions.

The PCC Action Plan calls for sharing standards and best practices, including consistent design and performance metrics, for alt fuels infrastructure; investment by public-private partnerships to build and operate facilities; applying university and private-sector research to commercialization of hydrogen, next-generation bio-fuels and other alt fuel technologies; concerted policies on purchase of alt fuel vehicles by government fleets; and coordination of efforts to provide consistent signage for alt fuel facilities along the corridor.

### **West Coast Collaborative (WCC)**

Spearheaded by U.S. EPA Regions 9 and 10, the Smart Way program provides both advice and awards to freight operators for efficient system operations that reduce congestion, pollution and operator costs.

Major West Coast ports located adjacent to urban centers have become actively involved with the WCC through the federal Diesel Emission Reduction Program (DERA), which funds replacement and retrofit of older, more polluting trucks with newer diesel technology.

The outstanding individual practitioner of cleaner diesel is Cascade Sierra Solutions, headquartered in Eugene, Oregon, with outreach centers in the Northwest and California. CSS is in the lead perfecting a model that responds to the goals of the West Coast Collaborative. CSS President Sharon Banks outlines the following areas of effort:

1. Diesel engine upgrades. The limiting factor is the amount of money available in the loan fund truckers. CSS has recruited socially responsible investors to become limited partners in a fund that guarantees as 7.5% return. The money will be used both for full truck replacement and aftermarket upgrades. The CSS follow-on plan has drawn interest from major banks, generating a level of capital that allows the money to be put in a bond that vastly expands funding through the asset-backed securities market.
2. DERA. The timing on CSS' independent funding strategy may be crucial because the 2012 federal budget proposal from the administration does not include funding for DERA, which drove markets and companies to develop a hybrid truck thanks to purchase incentives. DERA has also helped create jobs in conversions that benefited the environment and reduced oil dependence,
3. Electrification of truck stops. Government funding provides support but a barrier is the inability to locate plug-in facilities at rest areas where truckers stop over night. This would require an exception to rules restricting commercialization of public sites, which has been opposed by operators of private truck stops. But to make electrification work, it needs to be everywhere truckers stop.

4. Natural gas as an alternative truck fuel. CSS is not involved in NG conversions because they cost almost as much as a new diesel truck, but the fuel is cheap and emissions are lower. CSS believes the firm Omni-tech has developed a low-cost solution to NG conversion but needs EPA / CARB approval. Small companies sometimes lack capital to go through the certification process and as a result some great ideas never reach the market.
5. Propane as an alternative truck fuel. California provides significant assistance relative to the cost of propane conversions. Propane is more readily available for transportation than is natural gas. Propane distributors are everywhere and sites are easy to establish. If manufacturers made propane trucks from the ground up, they would cost no more than diesel. CSS believes OEM's need to be pressured to build a heavy propane truck.

## **Actions by West Coast States**

### ***Washington***

Washington State's Department of Transportation (WSDOT) is exploring opportunities with other public agencies and the private sector to establish and promote alternative refueling facilities along major highways, especially Interstate 5 between Seattle and Portland, which has been designated by the USDOT as a Corridor of the Future. WSDOT has identified specific geographic locations for facilities along I-5 and is working with partners on building alt fuels infrastructure at these sites.

WSDOT is also involved in development of "mobility hubs" – physical sites that draw on synergies between various projects to offer multiple "clean mobility" options and provide traveler information to make vehicle movements more efficient.

### ***Oregon***

The state is one of six nationally participating in the Ecotality-Nissan project to install electric vehicle (EV) power in the Portland-Eugene corridor, whose "main street" is I-5. Experience is developing regarding such crucial factors as consumer availability and purchase of EVs, rate of deployment of EV charging stations, and coordination between nationally-funded service providers and regional transportation authorities.

In October 2010 the Oregon Department of Transportation (ODOT) received \$2 million in highly-competitive TIGER II funding from USDOT to install charging stations in rural areas, along I-5 in Southern Oregon and on connectors to the Oregon coast and Cascade mountains from Willamette Valley urban centers.

In November 2010 Governor Kulongowski set up a Transportation Electrification Executive Council to guide the state's EV efforts. This followed the 2008 creation of the Governor's Alternative Fuel vehicle Infrastructure Working Group, charged with

developing policies and programs to attract EV automakers and infrastructure manufacturers to use Oregon as a test site – an effort that has proven outstandingly successful.

### ***Washington and Oregon***

An I-5 “green highway” has many aspects including uniform signage, heavy vehicle service, and public-private partnerships in siting facilities. Perhaps the most notable current news is that fast-charging stations, installed for \$50 - 100,000 each and spaced at intervals of 30 to 80 miles, are being installed to enable EV travel the entire length of I-5 in the Northwest.

Washington and Oregon both expect to have fast-charging infrastructure in place along I-5 by the end of October 2011. They count on metro areas to install urban stations and are concentrating on serving rural miles. The two states believe corridor fast-charging can be a revenue-generating business that attracts private investors and limits the state role to selecting a vendor, providing initial funding and contracting for the service.

Through Portland State University, Washington and Oregon are also coordinating metro area electrification on a bi-state basis for the metro Portland and Seattle deployment project funded by USDOE involving Nissan and Ecotality

### ***California***

Thanks to membership and geographic reach, the West Coast Corridor Coalition has maintained close contact with Oregon and Washington as their departments of transportation have moved toward this goal. The two states have repeatedly expressed the hope and desire for actions by California that will compliment their efforts.

In California, urban areas are advancing well but the connections between them on 600 rural miles of I-5 have received little attention. Based on the current experience of Washington and Oregon regarding facilities costs and location intervals, California could close this gap with fast-charging stations for a cost of about \$1 million.

The California Department of Transportation (Caltrans) has an office of alternative fuel and vehicle technology but has been largely inactive in recent years due to a shortage of funding. Its place has been filled by the California Energy Commission (CEC), whose Transportation Division receives approximately \$100 million per year from funds dedicated to promote alt fuel use and reduce greenhouse gases.

CEC seeks to stimulate, seed and prompt projects by co-funding fuel stations and production infrastructure. Currently, funding is divided equally between EVs, hydrogen, and bio-fuels including ethanol. Recipients of EV infrastructure funding include Ecotality, Coulomb and Clipper Creek.

To date, station locations have been based on point of sale where users are clustered. In practice, this means nearly all funded sites are in urban areas. By contrast, extension of the I-5 Green Highway through California would focus on rural mileage from the Oregon border to Sacramento, and on I-5 in the San Joaquin Valley south of Stockton.

## **SUSTAINABLE FREIGHT STRATEGY**

### **North American Commission on Environmental Cooperation (NA-CEC)**

NA – CEC, a NAFTA-affiliated tri-national partnership, has as its goal to advance cross-border cooperation on improving the environmental performance of North America's freight system. The Secretariat of the CEC examines environmental matters arising as part of continental trade and makes recommendations to the governments of Canada, Mexico and the United States through the CEC Council, composed of cabinet-level (or equivalent) environmental authorities. U.S. participants report to USEPA Director Lisa Jackson.

A newly completed study for the Secretariat, "Destination Sustainability: Reducing Greenhouse Gas Emissions from Freight Transportation in North America," says tri-national cooperation is urgently needed not just to enhance environmental sustainability but to safeguard regional economic competitiveness,

Bruce Agnew, Chair of West Coast Corridor Coalition's Environment & ITS Committee, also chaired the NA – CEC advisory group that developed the freight strategy report. Agnew says, "This report is something of a roadmap to both sustainability and prosperity... In the freight transportation sector, the best policies and investments for reducing freight-related greenhouse gas emissions are also some of the most effective measures for achieving improvements in efficiency and competitiveness."

The CEC's new report looks at the continental freight transportation network, a key component of the transportation sector, which is the second-largest source of greenhouse gas (GHG) emissions in North America, exceeded only by electricity generation. The report, which focuses on road and rail transport, finds that emissions from light-duty vehicles are expected to drop by 12 percent by 2030 but heavy freight truck emissions are projected to increase by 20 percent.

The report considers the level of efficiency in the current system relative to aggressive investments by other trade blocs in new infrastructure and lower-carbon transportation—investments that may be outpacing efforts in North America.

In developing a strategy to improve efficiency and reduce emissions related to goods movement through the North American transportation system, a number of critical initiatives need to be developed. These include:

1. Carbon pricing. Canada, Mexico and the United States should consider putting a price on carbon to provide a clear signal that freight system operators should be investing in efficiency and low-carbon fuel alternatives.
2. Supply chain management. Businesses operating nationally and across international borders could reduce costs and GHG emissions by operating the freight system with greater efficiency through practices such as load management and multi-modal shipment over routes that are better served by rail, which has half the carbon emission per ton mile. Transportation agencies can support these practices.
3. Exchange of best measures and practices. A North American forum is needed to exchange techniques and tested practices that are in place and/or in a test stage. There is need to develop performance measures that establish metrics related to the flow of freight, and to establish an exchange among government stakeholders (national, regional and local) on regulatory practices, barriers and standards.

No single exercise could provide all the elements listed above. However, an opportunity exists to utilize existing trade and transportation corridors to create a representative forum of stakeholders. Not all “corridors” include the same groupings of stakeholders or have identical objectives. Nonetheless, all of North America shares a common vision and to improve the performance of the transportation system.

While corridor stakeholder groups were created in order to meet the “economic” challenges inherent in the growth of trade related to the NAFTA, they have since evolved into key partners to implement improvements in the flow of goods through the transportation infrastructure, which is highly integrated in support of a common North American supply chain.

Working Group Chair Bruce Agnew, in his role as ITS & Environment Chair for the West Coast Corridor Coalition, spoke in 2010 at the Federal Highways Administration / Transport Canada workshop on “Greening the Border” and was recruited by FHWA to organize a tri-national “green trade corridor” initiative.

Agnew summarizes the outlook as follows: “The West Coast is the continental leader in promoting metropolitan electrification, long haul alternative fuels, and low-carbon global logistics supply chains. Without sustained financing, however, we are challenged to connect all the crucial initiatives in a coordinated effort. With support from the California Energy Commission and other key entities, the West Coast could be the leader in breaking down the silos between transportation, climate impacts, and energy security.”

If funding is available for this work, Agnew anticipates sharing the results with other corridors at the “Clean Green, Smart and Fast” workshop to be held in the fall of 2012 in San Francisco. (note that “Fast” has been added to recognize Fast Freight that comes from ports that enhance operational efficiency and reduce the carbon footprint of their supply chains).

## **Filling the Gaps**

Despite many promising steps now underway, a fully integrated strategy is not in place to create a “seamless” green corridor. Gaps exist in several areas of policy and practice, including:

***Corridor geography between metro areas.*** West Coast population is heavily concentrated in a few large metro areas connected by long-distance corridors. The challenge is to develop infrastructure that supports deployment “green” technology in a single system. The CEC anticipates building out EV support from urban clusters into corridors, and welcomes rationale on which corridors should be priority.

***Integration of corridors with metro concentrations.*** Coordinated development of alt fuel infrastructure in metro areas and along corridors has proven to be a challenge. As noted above, California has focused on the former and Northwest states on the latter. Currently there is no effort to support EVs from the Oregon border to the Bay Area or along I-5 in California’s Central Valley.

***Inter-jurisdictional deployment issues.*** The Pacific Coast Collaborative has identified several areas where consistent policies and practices need to be developed among the three States and the Province including the role of public-private partnerships (P3s), design and performance standards, signage for alternative fuel facilities, use of public fleets policies to expand alt vehicle market share, and the role of research in commercialization.

***Heavy-duty vehicle fueling infrastructure.*** Because they provide a large platform, heavy trucks and buses are well suited to natural gas and propane. Deployment of alt fuel infrastructure involves a distinct set of mostly private-sector players and design issues but vehicle replacements, retrofits and conversions can be greatly expedited by public and non-profit financing. Electrification also has a role at truck stops in powering on-board units to prevent the idling of engines while vehicles are parked.

***Public information and its integration between jurisdictions.*** “Smart travel” can be empowered by intelligent transportation systems that deliver on-board real time information. Integration of 511 systems is required to maximize this benefit. Uniform alt fuel signage is also important so travelers can consistently recognize facilities throughout the West Coast region.

## **West Coast Corridor Coalition Role**

Nearly a decade ago, in November 2001, transportation policy leaders and officials from California, Oregon, Washington and Alaska formed the West Coast Corridor Coalition. The WCCC brought together member states’ Departments of Transportation (DOTs) and

Metropolitan Planning Organizations (MPOs) in a working relationship of equal partners that was and remains unique among corridor coalitions in the U.S.

For the first five years, the WCCC focused its efforts on the challenge of a more efficient, less disruptive goods movement system. The goal was to keep pace with demands placed on the West Coast transportation system by world trade and domestic travel and to minimize conflicts between metro area traffic and long-distance freight, especially as related to the region's large marine ports.

In 2005, the WCCC added a second major focus to its program: reducing the environmental footprint of transportation by making it not only cleaner through alternative fuels and other green technologies but making it smarter through application of information technologies that allow goods movement and personal travel routes and timing that involve reduce congestion and pollution.

### **“Clean, Green and Smart” Work Program**

#### ***Best Practices Manual***

In June 2009, the WCCC issued a manual of Best Practices based on in-depth interviews with practitioners whose work focused on environmental technology and policy related to transportation. The Manual described four-dozen cutting edge practices and technologies developed by West Coast state DOTs, university-based transportation research centers, and private industry. The Best Practices Manual has been distributed in hard copy and is posted on the WCCC website.

#### ***Stanford Conference***

The WCCC organized a two-day conference on Climate Policy, Technology, and West Coast Transportation held at Stanford University in September 2010. This event drew 85 leaders including directors and key staff from U.S. EPA's national office on Transportation and Air Quality, EPA Region 9 and 10, the U.S. Department of Energy's Idaho National Laboratory, the alternative fuel corridor program managers from West Coast state DOTs, the California Air Resources Board, the California Energy Commission, the California Public Utilities Commission, the Bay Area Quality Management District, Ford Motor Company's new technology initiative, the Electrification Coalition, Plug-In America, CalCars, and public utilities in California, Oregon and Washington.

Conference outcomes focused on carrying forward several crucial themes: Building a sustainable foundation with broad-based public support for a clean energy future; developing public-private partnerships to carry out “green” programs; facilitating broad-based deployment of new transportation technologies to reduce unit costs and encourage market penetration; providing incentives to reduce the impact of the West Coast transportation system on the environment.



The conference concluded with statements of commitment by WCCC officers to follow through in pursuing these objectives, and responsive statements from leaders of federal and state agencies and private industry regarding their sustained participation in working with WCCC on the effort.

### ***Alt Fuels Corridor Work Tasks***

During the planning period for the Stanford conference, the WCCC was developing a detailed work plan to facilitate and accelerate deployment of a West Coast alternative fuels corridor. In the same timeframe, state DOTs and private technology companies were moving ahead with their own initiatives.

In response to events, the WCCC has continuously refined its work plan to support timely and efficient deployment of alt fuels corridor infrastructure. Current elements include:

1. Regularly convene a working group of state DOTs and MPOs, project partners, stakeholders, and technical experts to monitor progress.
2. Address interstate impediments to deployment caused by variations or conflicts in guidelines and requirements between states or other authorizing entities.
3. Identify funding barriers that constrain the pace and scope of alt fuel infrastructure deployment and prepare financing strategies to address them.
4. Identify issues vis-a-vis metropolitan and rural areas – nodes and networks, clusters and corridors – and develop tools to create an integrated capability.
5. Address the design of infrastructure that supports a full range of alternative fuels suitable for both light-duty and heavy-duty highway transport.
6. Manage a clearinghouse on policies and projects to assure that deployment of alt fuel corridor infrastructure is complementary and synergistic.
7. Post information on a continuously-updated Alt Fuels Corridor website covering policies, project activity and initiatives that have multi-state applicability.
8. Promote information technology (IT) network linkages connecting drivers, vehicles and energy sources including power grids.
9. Monitor research on market acceptability factors that affect the rate of adoption of alt fuel vehicles for personal, freight, and government transport.
10. Identify employment opportunities related to construction and operation of alt fuels infrastructure in rural and economically disadvantaged areas.

11. Convene public information workshops and other forms of outreach to enable all interested parties to discuss emergent issues and alternatives.
12. Based on the above tasks, develop an action plan to facilitate deployment of required infrastructure for a seamless West Coast alt fuels corridor.

### ***Alt Fuels Corridor Working Group***

In January 2011, the WCCC convened its Environment & ITS (Intelligent Transportation System) Committee and its Board of Directors to review developments since the Stanford conference. Per task 1 above, this well-attended gathering served as a working group that provided comprehensive updates from major West Coast state agencies as well as private sector service providers and technology vendors.

Bruce Agnew, chair of the WCCC ITS Environment & ITS Committee, summarized: “The California Energy Commission and the Northwest Governors have tried to connect transportation and energy, which speak different languages elsewhere in the U.S. The West Coast is a great laboratory but we need sustained support to move forward. The WCCC is dedicated to serving as a facilitator and convener to keep the parties current on each other’s efforts and to forge the kind of public-private partnerships that will expedite deployment of an optimal alt fuels infrastructure.”