

## Appendix D: Pilot Projects

This section summarizes the three pilot project concepts the State agencies are considering recommending for further development and potential implementation within the next three years. While the State agencies do not have designated funding for these projects and cannot guarantee eventual implementation of the pilot project concepts, this section identifies actions the State agencies will explore to potentially support project implementation.

To help coordinate progress on each of the three project concepts below, the State agencies identified State agency leads for each project to oversee and coordinate State participation in the pilot project. Future efforts may include further research, convening and leading discussions with potential partners, identification of project funding through current funding options or new funding, development of work plans, helping to identify and implement other State support actions as appropriate, and tracking and reporting progress as part of the broader progress report on Action Plan implementation anticipated for July 2018.

### **A. Dairy Biomethane for Freight Vehicles**

Lead Agency: ARB

Location: San Joaquin Valley

Processing dairy biogas into biomethane for use in natural gas vehicles is a strategy with the potential to advance a number of State goals, including the potential to reduce emissions. The strategy provides a particular benefit by demonstrating a model for advancing the State's Short-Lived Climate Pollutant reduction goals from the dairy industry (see Appendix G for discussion of the State's Short-Lived Climate Pollutant Reduction Strategy). For example, there are a cluster of sixteen dairies within a six-mile radius in Kern County that are currently undertaking an ongoing effort to build digesters with fuel generation capabilities. This cluster of dairies could generate 1.5 to 2.5 million-diesel gasoline equivalents per year using these digesters. Developing economies of scale for digesters will first need pilot projects so that future projects can leverage demonstrated real-world data.

The State agencies can work with local partners to demonstrate a commercial-scale dairy biogas to biomethane project. The pilot may focus on distribution of dairy biomethane through pipeline injection and a local fueling station servicing freight and other vehicles in California. Proof of concept and successful operations can help with expansion of biomethane projects throughout the Central Valley and the rest of the State. Specific actions under consideration to advance progress include:

## **ARB**

- Provide technical assistance by evaluating appropriateness of project vehicle and equipment technology applications.
- Advise on testing, monitoring, and quantification of criteria and greenhouse gas emission impacts.
- Assist in identifying funding for zero and near-zero emission vehicles and equipment, as appropriate.
- Provide guidance on technology mitigation measures for project environmental impacts.
- Coordinate with the local air district and provide technical assistance with securing air quality permits, as appropriate.
- Assist with engaging local environmental justice interests as part of the project development process.
- Assist with engaging the U.S. Environmental Protection Agency AgSTAR program as part of the project development process.
- Assist with engaging the California Public Utilities Commission as part of the project development process.

## **Energy Commission**

- Consider for inclusion in future biofuels production facility solicitations through the Alternative and Renewable Fuel Vehicle Technology Program.
- Support usage of renewable natural gas in the Central Valley through the Alternative and Renewable Fuel Vehicle Technology Program's natural gas vehicle purchase incentives.
- Work with the California Department of Food and Agriculture and California Public Utilities Commission to coordinate the promotion of renewable natural gas in California.
- Identify research and development needs for renewable natural gas production and integrate into Natural Gas Research Roadmap.

## **Caltrans**

- Provide data and/or policy support for initial planning analysis.
- Assist with roadway access.
- Assist with development of roadway signage.

## **Governor's Office of Business and Economic Development**

- Coordinate public and private sector resources to establish fueling infrastructure for zero and near-zero emission vehicles.
- Collaborate with stakeholders to coordinate resources and strategies to better establish zero or near-zero emission vehicles in their fleets for freight operations.

- Develop a forum with the freight industry, State agencies, and local economic development organizations to discuss the status of, and opportunities to support, technology development appropriate to the freight industry.
- Develop and implement strategies that enable use of California's Innovation Hub network, California Workforce Investment Board, and other outside resources.

## **B. Advanced Technology for Truck Corridors**

Lead: Caltrans

Location: Southern California

Facilities such as Interstates 710, 10, and 15, State Route 60, and other freight corridors in California provide key connections between intermodal freight facilities and the rest of California's transportation system. The highways often operate under congested conditions as a result of heavy truck volumes as freight moves in and out of ports and across the State. These highways will have to adapt to accommodate additional freight vehicle demand expected over the next 20 years.

Innovative projects that address truck travel in critical locations must remain options to reduce freight congestion with less impact on nearby communities. Innovative solutions to explore further include the use of dedicated heavy-duty truck facilities, advanced traveler information systems, connected vehicle technology, incentives for the use of zero and near-zero emission vehicles and renewable fuels, and short haul rail.

The State agencies can work with partners to promote new technologies that increase efficiencies and encourage zero and near-zero emission vehicles on primary freight corridors. Multiple partners can explore options for intelligent transportation systems, connected and semi-autonomous vehicles technologies, collaborative logistics, and potential incentives for zero and near-zero emission trucks. The pilot may focus on freight signal priority, traveler information systems, and communication systems infrastructure on arterial roads, as well as integrated corridor management on highways. Specific actions under consideration to advance progress on this include:

### **Caltrans**

- Explore options for demonstrating the following intelligent transportation system applications, depending on the nature and location of the proposed project:
  - Freight Signal Priority.
  - Freight Advanced Traveler Information System: Freight-specific dynamic travel planning and performance and drayage optimization.
  - Eco-Freight Advanced Traveler Information System: Eco-routing.
  - Probe enabled traffic monitoring.

- Identify location of potential project and review existing system and regional plans for relevant concepts.
- Continue discussions with appropriate regional and local partners.
- Provide data or policy support for initial planning analysis.
- Provide input and project oversight for improvements to the State highway system.
- Explore the need for regulatory or legislative changes.

## **ARB**

- Provide input on incentives for zero and near-zero emission trucks.
- Advise on testing, monitoring, and quantification of project criteria and greenhouse gas emission impacts.
- Assist in identifying funding for zero and near-zero emission vehicles and equipment, as appropriate.
- Provide guidance on technology mitigation measures for project environmental impacts.
- Coordinate with local air district and provide technical assistance with securing air quality permits, as appropriate.
- Assist with engaging local environmental justice interests as part of the project development process.

## **Energy Commission**

- Explore opportunities for installing zero-emission infrastructure that can support light-, medium-, and heavy-duty vehicles.
- Identify opportunities for renewable electricity resources and daytime over-generation to fuel medium- and heavy-duty zero-emission vehicles.
- Research improvements to medium- and heavy-duty zero-emission vehicle infrastructure through technology, equipment optimization, and scalability.
- Consider eligible activities in future solicitation for advanced truck technology demonstrations, deployments, renewable fuel production, intelligent transportation systems, and other freight technologies.

## **Governor's Office of Business and Economic Development**

- Engage with California ports and partner State agencies to demonstrate a large addressable market for new zero and near-zero emission technology.
- Collaborate with stakeholders to coordinate resources and strategies to better establish zero or near-zero emission vehicles in their fleets for freight operations.
- Develop a forum with the freight industry, State agencies, and local economic development organizations to discuss the status of, and opportunities to support, technology development appropriate to the freight industry.

- Develop and implement strategies that enable use of California’s Innovation Hub network, California Workforce Investment Board, and other outside resources.

**C. Advanced Technology Corridors at Border Ports of Entry**

Lead: Caltrans

Location: California-Mexico Border

With insufficient capacity at cross-border facilities and surrounding roadways, 1.6 million trucks crossing per year have resulted in severely congested border entry facilities, subsequently generating significant delays for trucks crossing the international border. The current border infrastructure between the U.S. and Mexico will be inadequate for projected binational commerce growth in the coming decades. Technological and operational advances in development at the planned Otay Mesa East and Calexico Ports of Entry for state of the art intelligent transportation systems, data collection and sharing, and connectivity to the international highway network have the potential to improve border operations, lower trade-related emissions, reduce congestion, and minimize border wait-times.

The State agencies can work with partners to implement information technology management systems, innovative operation techniques, and enhanced traffic management technology. In addition, partner with federal and local stakeholders to incent zero and near-zero emission truck crossings at international ports of entry facilities. The pilot may focus on building capacity for technological means of traffic management, such as Bluetooth sensors in the roadway, Global Positioning System readers, variable messaging, and a specialized border wait time application. Specific actions under consideration to advance progress on this include:

**Caltrans**

- Explore options for demonstrating the following intelligent transportation system applications, which could vary depending on the nature and location of the proposed project:
  - Freight Signal Priority.
  - Freight Advanced Traveler Information System: Freight-specific dynamic travel planning and performance and drayage optimization.
  - Eco-Freight Advanced Traveler Information System: Eco-routing.
  - Probe enabled traffic monitoring.
- Assist with planning studies and initiatives.
- Explore options for funding, which could vary depending on the nature and location of the proposed project.
- Assist with coordinating transportation planning efforts between California and Mexico.
- Provide input and present briefings on border transportation issues.

- Coordinate with U.S. Department of Homeland Security on programs related to border movement.
- Explore the need for regulatory or legislative changes.

## **ARB**

- Provide input on incentive provisions for zero and near-zero emission trucks.
- Advise on testing, monitoring, and quantification, of project criteria and greenhouse gas emission impacts.
- Provide guidance on technology mitigation measures for project environmental impacts.
- Coordinate with the local air district and provide technical assistance with securing air quality permits for the project, as appropriate.
- Assist with engaging local environmental justice interests as part of the project development process.

## **Energy Commission**

- Explore opportunities for installing zero-emission vehicle infrastructure that can support light-, medium-, and heavy-duty vehicles.

## **Governor's Office of Business and Economic Development**

- Collaborate with stakeholders to coordinate resources and strategies to better establish zero or near-zero emission vehicles in their fleets for freight operations.
- Develop a forum with the freight industry, State agencies, and local economic development organizations to discuss the status of, and opportunities to support, technology development appropriate to the freight industry.
- Develop and implement strategies that enable use of California's Innovation Hub network, California Workforce Investment Board, and other outside resources.

## **D. Process**

Ideas from the State agencies' research and stakeholder engagement efforts provided the starting point for identification of the pilot project concepts. The State agencies received over 50 ideas in November 2015. The State agencies reviewed each idea against the objectives set by Executive Order B-32-15: projects should be corridor level and within the State's primary trade corridors; integrate advanced technologies, fuels, infrastructure, and local economic development; have potential to achieve measureable progress toward the freight targets; provide system transformation and innovative potential; provide the opportunity to integrate State agency support, and have potential to scale up implementation across the State.

Based on these objectives, the State agencies presented the following five pilot projects concepts, consisting of modifications and combinations of the submitted ideas, for public comment at the public workshops and webinar in January and February 2016:

- Food Consolidation and Distribution Hub (Northern California): An agricultural consolidation and distribution center to promote a more efficient delivery system using clean trucks and rail service.
- Urban Delivery (Bay Area): A combination of strategies to address urban freight congestion and emissions: off-peak delivery, truck parking and charging, collaborative logistics, cargo bicycles, and local workforce development.
- Dairy Biogas for Freight Vehicles (San Joaquin Valley): A biomethane production cluster and fueling infrastructure for trucks.
- Advanced Technology Truck Only Lane (Southern California): A dedicated truck lane with options for intelligent transportation systems, connected vehicle technologies, collaborative logistics, zero and near-zero emission trucks, and truck platooning.
- Advanced Technology Truck Fast Lane (Border): A dedicated clean truck lane with intelligent transportation systems and connected vehicle technologies to allow for faster inspection and processing of truck crossing at the border.

After the workshops, the State agencies gathered additional information on each project concept and collectively assessed available resources, funding options, partnerships, and other opportunities to support these project types. As a result of the State agencies' review of this information and comments collected through public outreach events, the State agencies are continuing to consider the three pilot project concepts discussed above.

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