



**California  
Natural Gas Vehicle  
Coalition**

<b>DOCKET</b> 08-ALT-1	
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California Energy Commission  
Dockets Office, MS-4  
Re: Docket No. 08-ALT-1  
1516 Ninth Street  
Sacramento, CA 95814-5512

To Whom it May Concern:

The California Natural Gas Vehicle Coalition (CNGVC) is pleased to submit its proposed investment plan in conjunction with the California Energy Commission's implementation of AB 118. The CNGVC believes that AB 118 presents a unique opportunity for its members and the natural gas vehicle (NGV) industry as a whole to increase the penetration of NGV's in the California market and to advance the vehicle and infrastructure technologies they represent.

One of the most cost-effective activities that the state of California can pursue under AB 118 is a substantial increase in the use of NGVs. As compared to petroleum fueled vehicles, NGVs produce less criteria pollutant emissions, produce fewer greenhouse gas emissions, and reduce the state's dependence on petroleum. Abundant domestic natural gas, supplanted with increasing supplies of bio-methane can fuel substantial numbers of both on-road and off-road vehicles in the very near future. The good news is, the technology for advancing the penetration of NGVs is in place today. With petroleum fuel prices over \$4.50 per gallon in California the opportunity to employ real, near term criteria pollutant, GHG and petroleum independence solutions through the increased use of natural gas as a transportation fuel has never been better.

The attached document outlines a host of very effective AB 118 investments for the near term (initial two years) which can have a substantial impact on the alternative fuel market transformation which needs to occur both in California, and nation-wide to achieve our goals. While this document does not propose specific projects these are areas which represent where AB 118 funds can be most cost-effectively utilized to show both immediate and significant benefits. We will continue to refine these ideas and look forward to working with CEC staff to clarify our ideas.

We welcome the opportunity to present this plan in greater detail to the AB 118 Advisory Committee and/or to the Commission's Transportation Committee. Any questions about this document can be directed to me on behalf of the Coalition.

Thank you for the opportunity to participate in this process.

Sincerely,

  
William A. Zobel  
Chairman

## ATTACHMENT 1

### DRAFT AB 118 INVESTMENT PLAN FOR NATURAL GAS VEHICLE TECHNOLOGIES

In this document the CNGVC presents its priorities for AB 118 investments for the 2009 to 2011 timeframe.

#### **1. Vehicle Incentives/Buydowns**

One of the obstacles to the greater market penetration of natural gas vehicles (NGV's) remains the incremental cost of the natural gas fuel system. This can range from \$5,000 to more than \$40,000, depending on the vehicle. Federal tax credits and incentives are helpful but the process is often cumbersome for smaller fleets and individuals. A simplified incremental cost buydown of an amount up to the full incremental cost would remove that obstacle and make the process of purchasing an NGV similar to that of a gasoline or diesel vehicle.

We foresee a system that mimics the federal tax credit. The amount would be determined by weight class (flat amount by weight class) and could be paid either directly to the dealer at the time of purchase (to make the process invisible to the buyer) or to the buyer upon receipt of an application. A rebate that is clearly reflected in the purchase price would most likely have the most benefit to the fleet or the individual and would be the easiest to administer.

We have heard reports that the CARB AFV incentive process is often slow and the total amount of available funds is severely limited. A process that is quick and simple would provide the most benefit to the buyer.

This incentive could start with fleets that have already demonstrated a commitment to NGV's and alternative fuels. If successful, it could expand in later years to the general public and other fleets.

#### *Potential Investments & Outcomes*

A \$50 million incentive program could cover approximately 1,250 heavy-duty vehicles. Another potential outcome is the potential for new vehicle models in the market. A number of the larger OEM's are already selling dedicated natural gas vehicle models overseas that are not available in California. For example, Mercedes sells the Sprinter van overseas as an NGV. Volvo and Ford also offer NGV's overseas. Building the NGV market through incentives may help convince these OEM's to offer these vehicles here. Another strategy could be direct incentives to OEM's that agree to bring their foreign NGV models to California.

## **2. Renewable Natural Gas for Vehicle Fuel**

Biogas from landfills, dairies, and wastewater treatment plants can be upgraded to pipeline standards and dispensed into vehicles as CNG or LNG (actually CBG or LBG). These technologies are already being used in Europe. In western Sweden, 50% of all transit buses run on biogas. What's required in California is a variety of projects that prove the efficiency and cost-effectiveness of biogas derived from different sources.

As an example, funding could be used for several large-scale (25,000 gallons per day) projects to convert landfill gas to LNG. Since it would be using landfill gas (almost entirely from biogenic sources) that is currently flared, there could be very large environmental benefits. Reductions in GHG emissions of about 60,000 tons per year per project plus annual NO<sub>x</sub> reductions of about 60 to 100 tons per facility and annual PM reductions of 2 tons per facility are possible as heavy-duty diesels are replaced with new natural gas trucks. Each facility should be able to offset about 4.4 million gallons of diesel fuel per year.

This subject area could also include renewable natural gas blends. For example, some natural gas fleets are interested in using 10, 20, or 30% renewable blends for a variety of economic and environmental reasons. We believe this is a viable offshoot of this subject area.

These projects would meet all of the AB 118 goals: renewability, reductions in criteria and greenhouse gas emissions, and significant petroleum reduction.

### *Potential Investments & Outcomes*

Projects in this area would probably need about \$5 to 10 million in grant funds per facility. Projects could be up and running within about 12 to 18 months.

## **3. Vehicle Certification**

The CNGVC constantly hears from stakeholders and others that the number of vehicle models that are available with dedicated natural gas engines is too limited. This is especially true in the light- and medium-duty vehicles markets. One reason that vehicle manufacturers cite for their reluctance to introduce new models is that the cost of certifying new engines in California is almost prohibitive. This fact hits small volume manufacturers the hardest.

Small volume manufacturers such as Baytech and BAF Technologies are already offering a range of light- and medium-duty NGV's in California. A less costly certification process will allow them to expand their offerings. A new small volume manufacturer, Natural Drive, recently received federal certification for a natural gas version of the Chevrolet Impala. This vehicle is ideal for taxi and municipal fleets due to its size and range. According to John Mitton, Managing Partner of Natural Drive, the cost of receiving CARB certification (which will also allow them to sell the vehicle in 15 other states) will be more than \$400,000.

The cost could be considerably reduced via the use of Alternative Durability Protocols. However it seems information on these ADP's is proprietary to the OEMs who supply their alternatives to CARB. So small volume manufacturers are forced to actually run vehicles on the highways up to 120,000 miles which is both costly and time-consuming.

The certification issue also affects manufacturers of heavy-duty natural gas engines. Westport Technologies has indicated that they are interested in bringing engines in the 12 to 15 liter size range to market. This engine size would be welcomed by over-the-road and drayage truck fleets. Part of the development cost hurdle is certification and an incentive could be packaged with other grants for new engine classes.

On a regulatory note, the CNGVC proposes a solution to the certification cost problems facing small volume manufacturers: we propose that CARB allow vehicles that have been EPA certified to be sold for a period of three years in California. During this time the manufacturers can evaluate the market potential of each model. If they judge the model to have a reasonable chance of market success, they can then go through the CARB certification process. This process could be a way to bring new models and manufacturers into the market in a quicker fashion.

#### *Potential Investments & Outcomes*

Potential projects under AB 118 could be organized as incentives to the entity certifying the NGV with higher incentives going to small volume manufacturers. A \$3 million project could result in 7-10 new vehicle models being certified. One potential incentive strategy in this area could be a system where small volume manufacturers receive a cost incentive of 50% for the certification of their first model. Subsequent models would then be eligible for only the incremental cost of certification (difference between the ADP cost and the non-lab cost).

#### **4. Natural Gas Blends**

Significant reductions of criteria and greenhouse gas emissions are possible by blending natural gas with hydrogen. Projects in this area would focus on transit buses as operators strive to meet the "beyond 2010" standards. By 2014, transit operators will be required to have 15% of their new purchases be zero emission vehicles. Initial cost estimates for compliance with these mandates are approximately \$1.5 billion. This is due to the requirement of using high-priced fuel cells. In the alternative, transit properties currently using CNG may achieve near-zero emissions (50% to 95% reductions from 2010 standards) through the use of CNG-hydrogen blends at a much lower cost (approximately \$500 million). Projects would be focused on retrofitting legacy engines and developing new HCNG engines.

For example, current production natural gas engines that are retrofitted to perform on HCNG may be termed a Zero Emission Enabling or "transition" technology by CARB if they can achieve a 50% reduction over 2010 EPA standards. This project would involve research into retrofit configurations and post-2010 engines, and investments in the appropriate HCNG infrastructure. A group of Southern California transit properties are

already focusing on this area and would welcome additional resources to further their work.

#### *Potential Investments & Outcomes*

Projects in this area would include business case and environmental assessments, legacy engine demonstrations, beyond-2010 engine demonstrations, and CARB certifications. These activities could cost \$5 million to \$10 million over two years. A longer-term outcome of these projects would be that these transit properties would be stepping stones on the hydrogen highway.

### **5. Natural Gas Hybrid Vehicles**

The popularity of light-duty hybrid vehicles is undeniable. However, the benefits of hybridization—reduced fuel use, smaller engine size, lower criteria and greenhouse gas emissions—could be enhanced if the hybrid drive system is used in an NGV. Early applications of NGV hybrids such as transit buses could be built upon and transferred to other end-uses. In the heavy-duty market, buses and refuse trucks would be ideal platforms for early demonstrations of hybrid drive technologies. Another candidate platform would be delivery vehicles (class 5 or 6) operated by companies such as UPS or Fedex. There is the potential to demonstrate a variety of hybrid technologies including plug-ins and systems that power hydraulic auxiliaries.

#### *Potential Investments & Outcomes*

Since this technology application is still in its early stage, the best use of AB 118 funds would be for intensive vehicle demonstrations where operating and emissions results could be closely monitored and disseminated. Five different vehicles could be demonstrated and evaluated in a project worth \$3 million.

### **6. NGV Infrastructure Incentives**

Similar to the vehicle incentives, an infrastructure incentive program could bring more fueling stations to fleets and the public. This incentive could be structured similar to the federal alternative fuels credit where station owners are reimbursed \$0.50 for each gasoline gallon equivalent of natural gas they dispense. Since the federal tax credit may expire in the near future, this incentive would prove timely.

The incentive could be structured as an immediate reduction in the price at the pump (with the owner/operator responsible for applying on a regular basis) or as an arrangement strictly between the owner and the agency offering the grant.

Another possibility would be capital cost incentives for station owners at the time of construction. If a fleet decides to own and operate its own station, an incentive could be paid based on the station's potential output or the size of the captured fleet.

#### *Potential Investments & Outcomes*

A \$5 million project could result in a \$0.50 per gallon price reduction that covered up to 10,000,000 gallons of natural gas. In the alternative, a \$50,000 per station capital cost incentive would reduce the capital costs of up to 100 new natural gas dispensing stations.

#### **Additional Areas for Consideration**

The following subject areas are also worthy of additional consideration in either the mid- or long-term:

- LNG-powered generators for off-shore power (cold ironing)
- Integration of high-pressure direct injection fuel systems into new and more heavy-duty chassis designs
- Development of a CNG system for HPDI engines
- Development of a HPDI fuel system for 11-13 liter engines
- Maintain and enhance NGV safety through the support for efforts that continue to improve the codes and standards applicable to NGVs and fueling infrastructure. This may include programs to ensure that CNG vehicle fuel systems are properly inspected for safety every three years or 36,000 miles; scholarships to encourage the training and certification of CNG fuel system safety inspectors; and the collection of data on NGV "incidents," objective investigation of select incidents and assuring that lessons learned from these incidents are included in future codes and standards for vehicles and fueling infrastructure
- Modular small-scale liquefiers