DELPHI

October 31, 2008

Mr. Lachlan Seward, Senior Advisor
To The Financial Assistant Secretary
Department of the Treasury
U.S. Department of Energy
1500 Pennsylvania Avenue, NW
Washington, D.C. 20220

Dear Mr. Seward:

Re: Commentary U.S. Department of Energy Automotive Loan Guarantee Program

Delphi Corporation appreciates the Department of Energy's (DOE) solicitation of comments on the development of the Automotive Loan Guarantee Program (the "Program"). We support a program that incorporates maximum technological and energy efficiency benefit, while retaining American jobs, especially those relating to current and future U.S. production of advanced technology vehicles. Delphi has many innovative products and technologies that will help vehicle manufacturers meet the 2007 Energy Independence and Security Act 's (EISA) requirement that the Corporate Average Fuel Economy (CAFE) standard reach **35** miles per gallon by 2020.

Delphi is a leading global supplier of mobile electronics and transportation systems, including powertrain, safety, steering, thermal, controls and security systems, electrical/electronic architecture, and in-car entertainment technologies. Engineered to meet and exceed the rigorous standards of the automotive industry, Delphi technology is also found in computing, communications, energy and medical applications.

Delphi has many products in its portfolio that can support the nation's fuel efficiency goals, and we will address areas that we believe could have the most impact on the development of the Program. If further clarification is needed on any point, or if the DOE seeks our input on any subject that is not addressed here, please feel free to contact me to discuss.

Delphi is also a member of the Motor and Equipment Manufacturers Association (MEMA) and we support the comments regarding the Program MEMA is submitting on behalf of the supplier industry.

Our comments address the lending process, financial issues including timing of loans and potential costs and/or fees, prudent technology evaluation criteria, NEPA applicability, expectations and requirements for prospective R&D, expected value stream, and financial viability of the borrowers.

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1. Urgent Need and Expedited Process

Delphi strongly supports DOE efforts to expedite the process to implement the Program so that loans can be available as quickly as possible. The imminent need for these loans has been demonstrated, and any delay in awarding them would significantly reduce the value to the automotive industry.

The industry is facing declining auto sales (recent data indicates the lowest sales in 25 years), tightening credit markets that, among other things, reduce consumers' ability to purchase vehicles, rising fuel costs, and commodity and raw materials cost increases. All are ultimately affecting U.S. manufacturing jobs and the livelihood of all American autoworkers. More than **3.5** million manufacturing jobs have been lost in the United States in the last seven years. During this same time, the industry is being challenged to meet aggressive new fuel economy standards. This will require enormous new investment in research and development, manufacturing integration and updating existing plants. The quick availability of these loans provided under the Program is essential to the automotive industry. If each automotive supplier job creates another 4.7 jobs (as recently reported in the January 2007 MEMA/CAR Study, "Contribution of the Motor Vehicle Supplier Sector to the Economies of the United States and its 50 States") in the economy, the swift awarding of these loans will positively impact the entire national economy.

2. Financial Issues - Timing, Industry Norms. Fees

While understanding DOE's need for cautious financial review and loan consideration, the very reason these loans have been authorized is to assist and strengthen a struggling industry in a time of unprecedented crisis. Delphi encourages the DOE to minimize or not impose fees (i.e. application fees, facility fees, and maintenance fees), since Congress has specifically allocated funds to administer the program. In fact, given the tenuous financial condition of many automotive suppliers, the requirement of large application fees would be detrimental to and disadvantage the very companies who are most in need of the loans.

Delphi recommends that loan applicants be given a minimum of 45-60 days to submit applications. Regarding loan approval timing, traditional loan applications are generally approved within a two week period. While this could likely be a very challenging time window for DOE, Delphi proposes review and approval as quickly as possible, and suggests a goal of 30-45 days to accommodate evaluation of the financial and technological merits of the loan application. The terms and conditions (including Intellectual Property rights) governing the loans should generally follow commercial lending standards for lending situations rather than being structured as funding for R&D activities.

3. Technology Evaluation Criteria

DOE will be faced with the difficult task of comparing alternative advanced technologies that may or may not be available currently on vehicles in the U.S. Additionally, since Congress specifically included supplier eligibility for this program, DOE has to evaluate the potential impact of supplier innovation and the potential real-world usage by the OEMs. Each OEM and supplier will advocate their own product technologies. DOE needs to establish an unbiased mechanism for examination of each of the individual energy efficiency and fuel economy improvement statements included in the loan application requests.

The issue of technology evaluation is further complicated by the requirement for a 25% improvement in fuel economy. This requirement, along with the necessary participation of suppliers, will require that the Program incorporate the advanced technology, fuel efficient components that, by themselves, cannot meet the 25% threshold. Many of the expected supplier technologies will most likely have smaller, individual fuel savings improvements, but these technologies will collectively provide the significant fuel efficiency improvements that are sought.

Powertrain technologies will be a significant contributor to improved fuel economy. Hybrid vehicles also will clearly play an important part. Improvements to internal combustion engines are also critical. For gasoline engines, OEMs rely on suppliers to provide advanced valve train systems and gasoline direct injection (GDi) systems for high value fuel economy solutions. Diesel engines can also deliver substantial efficiency improvements.

Delphi's current valve train systems, such as selective cylinder deactivation and variable valve lift (with cam phasing), can offer approximately 6-8% improvement in fuel economy by themselves. Valve train systems properly configured with today's gasoline direct injection systems in downsized, boosted engines or lean-stratified engines can deliver 11-20% fuel economy improvement. The results of recent efforts show a path to further increase fuel economy with these technologies, such as enabling increased levels of engine boost for greater engine downsizing. Other enabling Delphi technologies include exhaust recovery systems that offer estimated fuel economy improvement of 1-3% and emission control systems of fuel tank vapors for Hybrids with an up to estimated 10% fuel economy improvement. In addition, electric power steering technology can offer fuel economy improvement of up to 4%.

Significant R&D is required at the system, sub-system, and component level for requirements' definition and optimization of GDi fuel systems, valve train components, ignition systems, turbochargers, controllers and control algorithms to fully exploit their potential for improved fuel economy.

Advanced transmissions are another key powertrain technology that can offer fuel economy improvements compared to today's levels. Automatic transmissions with a greater number of speeds can increase final drive ratio without compromising vehicle driveability. This is a key enabler for additional engine efficiency improvements through engine down-speeding. Additionally, dual clutch transmissions offer decreased parasitic losses through the transmission for efficiencies greater than today's manual gearboxes. OEMs rely on some suppliers to build transmissions themselves. Others, such as Delphi, provide transmission control units and management systems for these advanced transmissions. Transmission-focused R&D efforts at Delphi comprise system and component programs for requirements' definition and optimization of transmission control units and management systems.

Energy efficient air conditioning systems also can provide fuel economy improvements. Air conditioning *(NC)* is installed on approximately 99% of all new passenger cars and light duty trucks sold in the United States. A 2004 NREL Report concluded that *NC* consumes **5.5% of** the fuel used in vehicles or 31 gallons per year per vehicle. There are a variety of *NC* technologies available that will save 5 to 15 gallons on average per vehicle per year. Delphi NC technologies can offer 1-3% improvement in fuel economy.

Reducing weight is clearly recognized as a key to increasing fuel economy. To help take weight out of vehicles, Delphi also offers enabling products such as aluminum cabling and miniaturized connectors, as well as wide range of other lightweight components.

The above are just some Delphi examples of how joint OEM/supplier vehicle development can help meet EISA goals. Suppliers are responsible for a significant share of the effort to develop new vehicles. DOE funding of suppliers offers an excellent return on investment in R&D to deliver technologies for improved vehicle fuel economy.

References for Consideration

Since DOE must develop a model(s) or algorithm(s) to fully assess the contribution value of supplier components and technologies, Delphi suggests some references to aid in this objective. Since the technologies are expected to have unique characteristics, it will be difficult for DOE to do an effective comparison of the efficiencies gained through each technology. Our recommendations include using existing sources to allow independent assessment of the associated fuel efficiency improvements.

Our first recommendation is to examine the use of models like the Powertrain System Analysis Toolkit (PSAT), developed by Argonne National Laboratory and DOE. It is useful for answering the DOE's question about the fuel economy value of different components and strategies. PSAT evaluates advanced vehicle technologies by simulating fuel economy and performance in a realistic manner. It can assess different configurations - e.g. conventional, electric, fuel cell, series hybrid, parallel hybrid, etc.

Next, we suggest as a guide for the creation of evaluation criteria the 2002 National Research Council (NRC) "Assessment of Technologies for Improving Light-Duty Vehicle Fuel Economy". It is currently being revised to provide updated estimates of the cost and potential efficiency improvements that might be employed over the next 15 years to increase the fuel economy of various light-duty vehicle classes. There are two ways to measure the effectiveness with which fuel is used in a vehicle: fuel consumption and fuel economy. These reports include both calculations. Also, the updated version is intended to identify and assess computer models to project fuel economy, develop cost/potential efficiency improvement curves, etc.

Delphi also suggests reliance on a study by Energy and Environmental Analysis, Inc. presented to the National Academies in 2007 that is entitled `Technologies to Improve Light-Duty Vehicle Fuel Economy". It evaluated a wide range of technologies and tried to estimate Retail Price Equivalent (RPE). A Delphi table summarizing some results is provided below. This information should be balanced against similar data from other reports and sources to provide a comprehensive perspective.

			4 cylinder (RPE		6 cylinder (RPE!	
	Min °0FE	Mal °%FE	$ Min Cost	$ Matt o st	$ Min Cost	$ Max cost
Dual Cam Phaser iDCP.	1.8	2.6	76	$4	175	190
Dual Cam Phaser and 2-step lift ' 2 valve OW	5.$	8.6	158	178	29.4	330
Cylinder Eleactivation ('_• ylinder only	5.6	7.6			I62	178
Camless vat;es 0electroma·:1neticl	12.5	I S	46Q	540	640	760
DI homogeneous + Dual Cam Phasers	4.9	8.3	221	239	371	397
DI homogeneous + DCP + Turbo + downsi e	13.1	15.5	Si!1	759	421	507
Engine Friction Reduction	1.5	3	63	77	80	96
I o weight reduction icost for 1500 kg car.	6.2	6.6	363	3663		
I c tire loss reduction	I .3	I .7	18	22		
I c drag reduction	18	2.2	23	33		
EPS	1.8	2.2	75	$5		
Transmissions bas, is 4 speed automatic.						
6 se-:1 automatic	4.2	4.8	190	22i~		
8 sl a<I automat.:	6.5	7.5	285	325		
6 sr ed &n onrat.d manual	65	7.5	195	225		
C'v'T'engine less than 2.8 L.	6.5	66.5	225	255		
Hybrids: min and ma=: refer to 20100 to 2015						
BAS (Belt'Riven Alternator Saner.	6.5	6.5	660	800		
ISG .Integrated Starter Generator·	53.6	55.8	2100	2525		
Full hybrid .2 motors.	65	70. I	3 300	$900		
Diesels						
Diesel but without meeting Tier2BinS emissions	33	43	1600	1600	2425	2425
Tier2Binf aftenreltment'CR DPF			530	710		

Finally, we recommend the NRC/FreedomCAR and Fuel Research Program Phase 2 Report. It is intended to review government and industry goals and timetables on integrated systems analysis, fuel cell power systems, hydrogen systems, codes and standards, electric propulsion systems, electric energy storage technologies, advanced combustion and emission control systems for internal combustion engines (ICEs). The final version of the FreedomCAR report is expected to be released soon, so the data will be very current and provide a good resource to evaluate the state of technology in the automotive industry.

The reports provide an unbiased, objective and independent perspective, and are expected to be an assessment tool for current and future technology - rather than a sales or advertisement from any one supplier. Reliance on existing impartial analysis offers a unique opportunity to act quickly rather than DOE having to invest time and resources to establish this criterion.

4.

NEPA Applicability

The potential of an additional requirement of a National Environmental Policy Act (NEPA) Environmental Assessment (EA) would slow down the award timeline, and add additional administrative costs to the process that would be incurred by both the DOE and potential applicants.

Delphi recognizes the importance of assessing the potential environmental and human health impacts of new and proposed changes to existing manufacturing processes that may be included in applicant submissions. We believe that most applicants manufacturing operations will be governed not only by EPA and OSHA regulations, but state and local requirements all designed to accomplish the objectives of NEPA's EA. A separate DOE requirement would be redundant, and would probably fall back to the EPA (and state) permitting activities for final review and approval. We strongly recommend that the DOE provide exemptions for additional NEPA EA submissions for those applicant technologies and manufacturing operations that are already regulated and permitted under EPA authority.

5. Impact and Importance of Supplier R&D on Automotive Industry

Because R&D spending is what ultimately drives innovation, such spending by auto suppliers should be viewed as an allowable cost under this Program. The domestic automotive industry is one of the single largest contributors to technological innovation in the U.S. The supplier industry accounts for at least half of the current R&D investment in the automotive industry. The suppliers' roles in innovation and development have continued to rise from approximately 40% in 2005 to estimates by some of more than 60% by 2010.

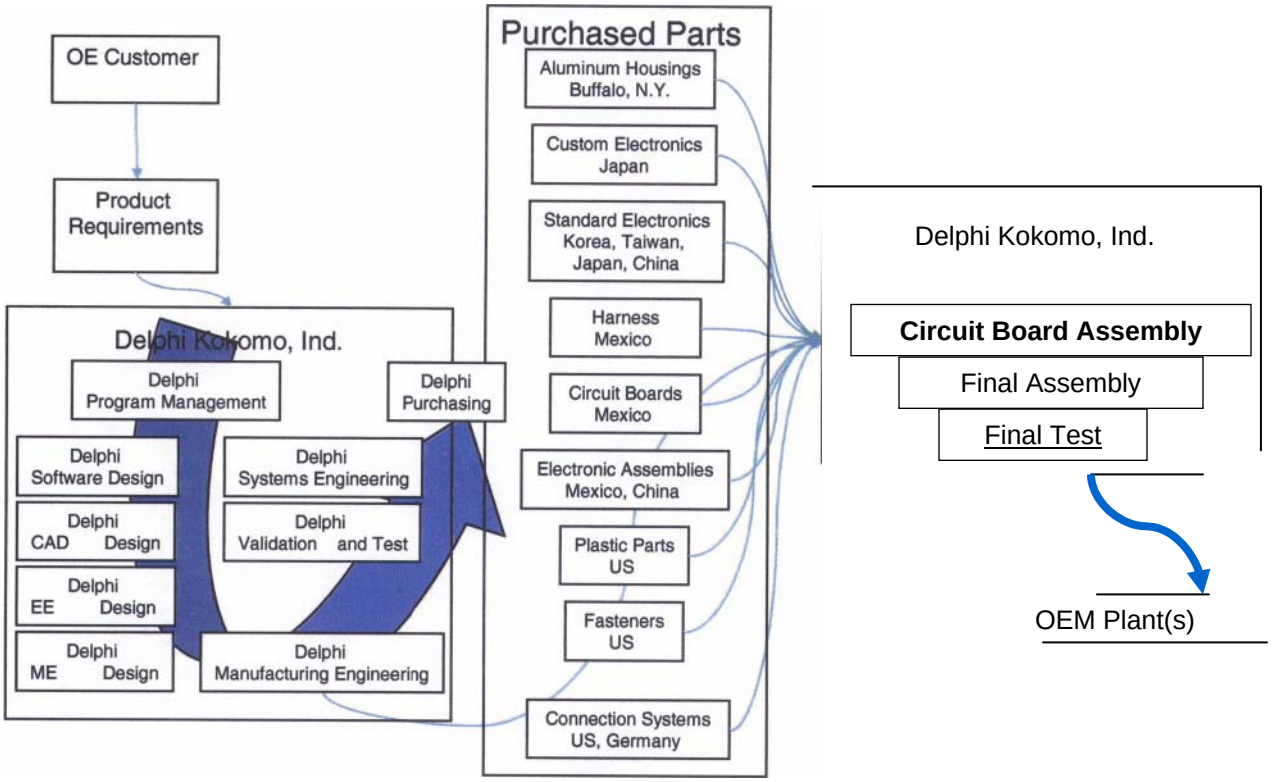
In NHTSA's Notice of Proposed Rulemaking for CAFE requirements for passenger cars and light trucks for model years 2011 - 2015, a 4.5% per year fuel economy improvement was proposed. This equates to a 25% improvement by 2015. Supplier technologies in development today can be available for OEM production in typically 3 to 5 years. With additional investment and OEM commitment, these technologies could be available for production within the model year 2011 - 2015 CAFE window.

DOE should acknowledge that retention of manufacturing jobs in the U.S., a key objective of the Program, will be impossible without continued investment in advanced technology. In short, today's R&D investments are tomorrow's jobs.

6. Value Stream

The automotive industry strives to provide U.S. consumers with quality products in the most cost effective manner. This often includes employing a value stream that includes the production of certain components outside of the U.S., with final assembly by the OEM occurring within the U.S. Likewise, components (manufactured in the U.S.) are also supplied to OEMs for vehicles produced outside the U.S. but ultimately sold in the U.S. A specific, real world example is detailed below. The decisions about where some portions of the value stream production will occur are made by the Tier 1 supplier or are dictated by the OEMs. To keep consumer prices as low as possible, it is a reality of the current automotive industry and the nature of our global economy that every component is not made within the U.S. However, the U.S. end consumer receives additional value by certain components being produced outside of the U.S. often due to the prevalence of lower manufacturing costs.

Delphi Example of Real World Value Stream



The Program has been developed and created for aiding today's automotive industry. Activities where some of the total value stream production occurs outside of the United States should not be automatically excluded from the Program as this is the norm in the industry. The majority of the R&D efforts, engineering work, and customer support still all occur within the U.S. Even when a portion of that work occurs outside of the U.S (as demonstrated above), this still spurs the U.S. economy, and creates and supports U.S. automotive jobs in manufacturing, sales, R&D and engineering.

7. Determination of Financial Viability

In creating the Program, Congress recognized the need to aid the automotive industry during a period of unprecedented technological and marketplace challenges. Many auto companies and suppliers, find themselves with severely restricted access to internal and external capital due to the weakness in the current automotive market combined with the dislocation of the current credit markets. This is occurring at a time when the need to make investments to address the future needs of consumers and society is continuing and, in certain cases, is enhanced The twin pressures of a weak automotive market and combined with a dislocated credit market are occurring at a time when Congress has mandated the largest fuel efficiency improvement in history, requiring auto companies to reach a standard of 35 miles per gallon by 2020. In meeting this standard, suppliers must be the first to invest in new technology, re-tooling, manufacturing integration, and the like. Congress clearly anticipated this need in including suppliers in the Program.

If too much importance is given to a company's current credit rating or is a main decision criteria, auto companies and suppliers, that the program is intended to assist, would likely not qualify, thus dramatically reducing the intended benefit of the program. This is not a problem unique to Delphi; rather it is a problem that is plaguing the entire industry.

Congress designed the Program with a repayment period of 20-25 years. It therefore seems reasonable for DOE to use a long-term view in its determination of financial viability. Instead of focusing on a firm's current credit rating, DOE should also consider whether a company would generate sufficient cash flow from operating activities. The test should be this: excluding the projects for which the company is seeking support, does the firm have sufficient medium-term liquidity to bridge to the time when both the automotive and credit markets have improved, and the new technology investments resulting from the Program are being put into production. This measure of financial viability, while more detailed than simply reviewing the current credit rating of the company is more clearly aligned with Congress' intent to provide the necessary financial assistance to make the investments necessary to produce the next generation of cleaner, more fuel efficient automobiles. Most auto companies and suppliers, including Delphi, have long-term business plans which meet this test, notwithstanding an expectation of short-term business challenges due to factors mentioned above.

DOE has shown its ongoing confidence in Delphi's ability, both technical and financial, to meet it's commitments by awarding a 67% increase in the DOE cooperative agreement funding amounts since Delphi filed Chapter 11 in October of 2005, versus the three years prior to filing.

Clearly DOE and the US Department of Treasury have the responsibility to protect the taxpayer against loan defaults, but also to protect the U.S. economy by taking the needed steps to maintain auto industry jobs. At this time, 1 in 10 jobs in the United States is dependent on the auto industry. If these jobs were lost, the ripple effect on the communities, towns, and school districts where these automotive jobs are located would be catastrophic.

8. Scope of Costs

In order for DOE to compare applications effectively, Delphi proposes that clear guidelines be established regarding what costs can be included as part of the Program. For reasons cited earlier, cost coverage should include R&D related costs (product/manufacturing people costs, validation testing, prototype tooling) and facility costs (training, equipment costs, production tooling, and building improvements).

Thank you.

Sincerely,

Dr. Andrew Brown Jr., P.E., NAE
Executive Director and Chief
Technologist