

Exhibit A
Manufacturers' Vehicle Attribute Survey and Analyses
Scope of Work

OBJECTIVE

The objective of this work is to update data available to the California Energy Commission for vehicle manufacturer makes and models from 1992 to 2010, as well as forecasted vehicle manufacturer makes and models from 2011 to 2030.

INTRODUCTION

The Energy Commission is directed by Public Resources Code Section 25301 to prepare a forecast of transportation fuel demand to assess the need for resource additions, efficiency, and conservation with consideration for all aspects of energy industries and markets essential for the state economy, general welfare, public health and safety, energy diversity, and protection of the environment.

The data collected through this contract will be used as inputs in the transportation demand models used by the Energy Commission.

For this project, the Energy Commission will select a Contractor to forecast the vehicle technology attributes of vehicles to be offered for sale in California. This work shall include the following seven tasks:

1. Task One: Kick-Off Meeting and Progress Reports;
2. Task Two: Market Analysis and Vehicle Technology Data Survey;
3. Task Three: Update Baseline Classes;
4. Task Four: Technology Lists and Descriptors;
5. Task Five: Forecasted Data for Vehicle Attributes and Baseline Vehicle Classes;
6. Task Six: Draft and Final Report; and
7. Task Seven: Final Meeting.

The Energy Commission will use the data and analysis from this contract to provide baseline data and analytical support for implementing state policy goals of reduced petroleum dependence, increased use of alternative and renewable fuels, and reduced emissions of greenhouse gases. The data and analysis will be used to estimate future responses to:

- Multiple fuel price cases;
- Vehicle fuel efficiency standards;
- Climate change and emission legislation; and
- Varying alternative fuel vehicle incentives.

The Contractor shall provide vehicle attributes for an assortment of price and policy scenarios. The Contractor shall provide vehicle attributes for a maximum of sixteen price and policy scenarios, which will be provided by the Commission Contract Manager (CCM). The Energy Commission will use these fuel price and legislative scenarios when forecasting transportation fuel demand for the 2011 Integrated Energy Policy Report (IEPR). Consequently, the Contractor shall produce forecasts using these same scenarios.

Current Corporate Average Fuel Economy (CAFE) standards shall serve as the reference regulatory case. The complete list of fuel economy regulations to be included will be finalized during the first weeks of the contract but will include, at a minimum, the Energy Independence and Security Act of 2007 and the May 2009 CAFE standard increase. The effects of recent fuel

economy regulation will be incorporated in vehicle attributes forecasts and detailed in the final report.

For purposes of this contract, the Energy Commission will provide the Contractor with the following:

- Updated Fuel Price Forecasts: An updated price forecast of all fuels used in this analysis.
- Department of Motor Vehicles (DMV) Guide File: A DMV guide file to ensure the development of vehicle characteristics that are consistent with other Energy Commission analyses.
- Demographic Data: Economic and Demographic information in support of the vehicle characteristic information.
- Current research, literature, and data from the most recent internal work done by the Energy Commission, and data from the previous contract.

SCOPE OF WORK

Task 1: Kick-Off Meeting and Progress Reports

The Contractor shall attend a kick-off meeting held on or after February 14, 2011, via WebEx (conference call), the CCM will notify the Contractor of the date once a date has been scheduled. An agenda will be prepared and distributed by the CCM. The Contractor shall provide a one page summary of the meeting. Subsequent meetings will be held via WebEx (conference call). At the discretion of the CCM, the meetings will be held monthly, as specified in the project deliverable due dates. These meetings will be approximately one hour in duration and will outline current findings, issues, or challenges as they emerge, and allow opportunities to resolve issues and develop contingency plans where needed.

On a monthly basis, the Contractor will provide a written progress report showing:

- Milestones met since previous progress meeting.
- Milestones to be met before next progress meeting.
- Issues arising since previous progress meeting.
- Proposed resolution of issues and discussion of impacts to project.

The contractor shall also submit status emails upon request from the CCM.

Task 1 Deliverables:

1. One-page summary document of Kick-Off meeting
2. Progress Reports
3. Status e-mails

Task 2: Market Analysis and Vehicle Technology Data Survey

The Contractor shall obtain the following information by surveying vehicle manufacturers or using equivalent methods to obtain the following:

1. Plans to incorporate current and new vehicle technologies from 2011 to 2030, and
2. Anticipated vehicle classes and models that manufacturers will sell from 2011 to 2030

The CCM will provide the Contractor with the current research, literature, and data from the vehicle attribute projections and forecasts performed in 2009. Additionally, the CCM will provide

the research, literature, and data from the 2007 vehicle attribute projections and forecasts if desired.

The Contractor shall report the results of its research to the Energy Commission in a Draft Market Analysis Worksheet, which shall describe the survey methodology, results, recommendations, data sources, and data. All information shall be provided in Microsoft Word or Microsoft Excel format.

The Contractor shall submit the Draft Market Analysis Worksheet to the Energy Commission for review and comment. The Energy Commission shall provide a minimum of two business days for the Contractor to submit revisions after receiving comments and feedback on the draft deliverable. The Contractor shall incorporate all comments and feedback in the Final Market Analysis Worksheet.

Task 2 Deliverables:

1. Draft Market Analysis Worksheet
2. Final Market Analysis Worksheet

Task 3: Update Baseline Classes

For approximately 15 vehicle classes referenced in Appendix A, the Contractor shall use the information obtained from vehicle manufacturer research and other sources of research to perform a baseline evaluation from 1992 to 2010, and a forecast for the years 2011 to 2030, of each of the following technologies or fuel types:

- Gasoline
- Gasoline Electric Hybrids
- Diesel
- Plug-in Electric Gasoline Hybrids
- Flexible Fuel (fueled solely by E85, a blend of 85% ethanol and 15% gasoline)
- Flexible Fuel (fueled solely by gasoline)
- Compressed Natural Gas (CNG)
- Full Electric, and
- Hydrogen Vehicles

The Contractor shall develop a historical baseline of vehicle technology attributes from 1992 to 2010 for gasoline, diesel, and hybrid classes. In addition, the Contractor shall forecast vehicle technology attributes from 2011 to 2030 for gasoline, gasoline electric hybrid, diesel, plug-in electric gasoline hybrid, flexible fuel, CNG, full electric, and hydrogen classes. Both the baseline and the forecast shall describe the mix of vehicles and classes available for sale in California. The attributes for the baseline and the forecast shall include, but are not limited to:

- Model year of vehicle
- Vehicle class of vehicle
- Number of individual makes and models
- Manufacturer suggested retail price (MSRP) of a new car expressed in 2009 U.S. dollars
- Fuel economy (on-road miles per gallon (mpg), or gasoline gallon equivalents (gge)
- Acceleration (seconds to 60 miles per hour)
- Annual new car maintenance cost in 2009 dollars, including fees for oil changes and regular maintenance
- Gradability (speed vehicle could maintain while climbing a 20-mile mountainous grade with full load)
- Range

The Contractor shall identify and include in the baseline evaluation any additional vehicle or fuel attributes that would enhance the quality of the baseline evaluation and forecast.

The fuel economy estimates used by the Contractor must be consistent with the U.S. Environmental Protection Agency's revised methodology and must contain an explanation of the method used to estimate on-road mpg estimates.

The Contractor shall provide all details and assumptions regarding fuel economy estimates and duty cycles for vehicles using alternative fuels. For example, plug-in gasoline electric vehicles are able to run on both electricity and gasoline; the vehicle efficiency will depend on what portion of the time the vehicle uses electricity or gasoline. The Contractor shall provide details of the percentage of travel time the vehicle is using electricity only and the percentage of travel time the vehicle is using gasoline. The Contractor shall discuss whether and how the EPA's current testing of E15 gasoline will affect the forecasts. The Contractor shall also discuss the effect updated EPA methodology will have on plug-in electric hybrid vehicle fuel economy estimates. For both gasoline hybrid and plug-in electric hybrid vehicles, the Contractor shall discuss future battery range and cost assumptions.

The CCM shall provide the Contractor with a DMV Guide File in order to ensure the development of vehicle characteristics that are consistent with other Energy Commission analyses. Vehicle classes by make and model shall follow guidelines set forth in the guide file and all documents provided to the Contractor. These guidelines are used by multiple sources; hence consistency in all baseline and forecast data is critical. The Contractor shall meet and/or correspond with Energy Commission staff and/or other contractors as necessary in order to ensure consistent vehicle class definitions, to reconcile model/vintage year in order to ensure consistent vehicle populations and classifications.

California law requires that gasoline sold in the state of California be blended with 10 percent ethanol by 2012. All estimated fuel efficiencies shall take the lower energy content of fuel into consideration when estimating on-road fuel economies. The Contractor shall incorporate an increased ethanol blend in the year 2012 for all gasoline vehicles.

The Contractor shall recommend new vehicle class definitions to establish an updated guide file and submit the guide file in Microsoft Excel format. This guide file will be used for allocating vehicles to the appropriate vehicle class in the DMV Vehicle Registration Database. Prior to using any new definitions, the Contractor will verify that they are acceptable to the CCM.

The Contractor shall provide current mean and standard deviations, for each vehicle class and fuel type, historical and forecasted values for:

- MSRP
- Fuel Economy
- Acceleration
- Number of Available Models, and
- Gradability

The Contractor shall develop a Baseline Historical Vehicle Class Data Worksheet of the historical baseline from 1992 to 2010 in Microsoft Excel. The worksheet shall contain five sections:

- Section 1: Historical Vehicle Class baseline from 1992 to 2010 aggregated by vehicle class.

- Section 2: Historical Vehicle Class baseline data disaggregated by vehicle make, year, and model.
- Section 3: Details and assumptions regarding fuel economy estimates and duty cycles for alternative fuels.
- Section 4: Details and assumptions explaining how disaggregated vehicle data is combined into vehicle classes.
- Section 5: Recommendations of new vehicle class definitions.

The Contractor shall develop a Forecast Vehicle Class Data Worksheet of the forecast from 2011 to 2030 in Microsoft Excel. The worksheet shall contain six sections:

- Section 1: Vehicle Class Data Forecast from 2011 to 2030 aggregated by vehicle class.
- Section 2: Vehicle Class Data Forecast from 2011 to 2030 disaggregated by vehicle make, year, and model.
- Section 3: Details and assumptions regarding fuel economy estimates and duty cycles for all alternative fuels, and of how data by vehicle make, model, and year is aggregated into data by vehicle class.
- Section 4: Recommendations of new vehicle class definitions.
- Section 5: Details and assumptions explaining how disaggregated vehicle data is combined into vehicle classes.
- Section 6: Fuel economy forecasts for flexible fuel vehicles (FFVs) assuming they are fueled solely by gasoline.

The Contractor shall submit the Draft Baseline Historical Vehicle Class Data Worksheet to the CCM for review and comment. The Contractor shall incorporate all feedback and comments in the Final Baseline Historical Vehicle Class Data Worksheet. Likewise, the Contractor shall submit the Draft Vehicle Class Forecast Data worksheet to the CCM for review and comment. The Contractor shall incorporate all feedback and comments in the Final Vehicle Class Forecast Data worksheet. The Energy Commission shall provide a minimum of two business days for the Contractor to submit revisions after receiving comments and feedback on the draft deliverable.

Data shall be formatted to expedite data entry; the CCM will provide a Microsoft Excel template within one week after the Kickoff Meeting.

Task 3 Deliverables:

- Updated Guide File
- Draft Baseline Historical Vehicle Class Data Worksheet
- Final Baseline Historical Vehicle Class Data Worksheet
- Draft Forecast Vehicle Class Data Worksheet
- Final Forecast Vehicle Class Data Worksheet

Task 4: Technology Lists and Descriptors

The Contractor shall provide the Energy Commission with a Draft Vehicle Technologies Worksheet containing an updated list of vehicle technologies and a description of the attributes of these vehicle technologies. The Draft Vehicle Technologies Worksheet shall specify all technology updates that will be incorporated into vehicle attribute forecasts.

The Draft Vehicle Technologies Worksheet shall reflect recent technological advances, changes to California-specific market conditions, changes in applicable state or federal law or regulations, and shall use the most current California DMV and vehicle manufacturer data. The Draft Vehicle Technologies Worksheet shall also be consistent with recent California policy assessments and reports. The vehicle technology updates shall serve to improve the reliability

and defensibility of the task 5 forecasts by documenting recent technological changes to be incorporated in the forecasts.

The worksheet shall include the different vehicle technologies appropriate for California's unique emission requirements. The worksheet shall include vehicle technology updates for each of the following fuel types:

- Gasoline
- Gasoline Electric Hybrids
- Diesel
- Plug-in Electric Gasoline Hybrids
- Flexible Fuel (fueled by E85)
- Compressed Natural Gas (CNG)
- Full Electric, and
- Hydrogen Vehicles

The Contractor shall submit a Draft Vehicle Technologies Worksheet to the CCM in Microsoft Excel format for review and comment and the Contractor shall incorporate all feedback and comments in the Final Vehicle Technologies Worksheet. The Energy Commission shall provide a minimum of two business days for the Contractor to submit revisions after receiving comments and feedback on the draft deliverable.

Task 4 Deliverables:

- Draft Vehicle Technologies Worksheet
- Final Vehicle Technologies Worksheet

Task 5: Forecasted Data for Vehicle Attributes and Baseline Vehicle Classes

The Contractor shall provide vehicle attribute data, as defined in Task 2, for all cases provided to the Contractor from 2011 to 2030 to facilitate their use in the model. The Contractor shall project the number of models by class with special attention to the plans of manufacturers for hybrid, diesel, FFVs, CNG, full electric, and hydrogen vehicles. The Energy Commission will provide the economic input data necessary to execute each case. The Contractor shall complete all scenarios and cases. The contractor shall provide a Microsoft Excel worksheet that includes, but is not limited to:

- All vehicle attribute data for all scenarios
- Forecasts of models by vehicle class.
- Forecasts disaggregated by vehicle year, make, and model

The Contractor shall estimate growth rates for future makes and models for each vehicle class evaluated.

The Contractor shall submit a Draft Vehicle Attribute Worksheet to the CCM for review and comment and the Contractor shall incorporate all feedback and comments into the Final Vehicle Attribute Worksheet. The Energy Commission shall provide a minimum of two business days for the Contractor to submit revisions after receiving comments and feedback on the draft deliverable.

Data shall be formatted to expedite data entry; the CCM will provide a Microsoft Excel template within one week after the Kickoff Meeting.

Task 5 Deliverables:

- Draft Vehicle Attribute Worksheet
- Final Vehicle Attribute Worksheet

Task 6: Draft and Final Report

The Contractor shall prepare a Draft Report including the projected cost and fuel economy, improvement of technologies and an overview of expected availability and market penetration schedules of hybrid, plug-in hybrid, flex-fuel, diesel, CNG, full electric, and hydrogen vehicles. The Draft Report shall also document how vehicle attribute data is aggregated from the make, model, and year level to the vehicle class level. Tasks 2 through 5 will be the basis of the Draft Report. The report shall be prepared in language easily understood by the public or by a layperson with a limited technical background. The report shall document and explain all assumptions and data sources used to complete the survey and forecasts.

The Draft Report will follow the Energy Commission report format as specified by the CCM. The CCM will review the Draft Report, provide comments, and request changes as needed. The Contractor will then revise the Draft and submit a Final Report as directed by the CCM.

After review and approval of the Final Report by the CCM, the Contractor shall deliver an electronic copy of the report to the CCM. The Contractor shall provide one bound paper copy and one unbound paper copy to the CCM. The Contractor shall deliver an electronic copy (CD ROM or memory stick) of the full study text in Microsoft Word, which shall be consistent with Energy Commission standards. The Energy Commission shall maintain but may not necessarily exercise all ownership rights to the final report including but not limited to possession, distribution, use, reproduction, and publication.

Task 6 Deliverables:

- Draft Report
- Final Report

Task 7: Final Meeting

The Contractor shall meet with the CCM via WebEx (conference call) to present the findings, conclusions, and recommendations.

The purpose of this meeting is to review the project, the deliverables, and to discuss how similar future projects might be improved. Staff and contractor members participating in the final meeting will provide input and feedback as part of this process and share in the project successes. The Contractor shall provide a two-page summary document of the project, including a discussion of lessons learned, a list of unresolved project issues, and acknowledgment of project successes.

Both the Final Meeting and the Final Report must occur on or before the term end date of this Agreement.

Task 7 Deliverable:

- Two-page summary document of the project.

DELIVERABLES AND DUE DATES

Task	Deliverable	Due Date
1	Kick-off Meeting Summary	One day after Kick-off Meeting
	Status Emails (when requested)	With 1 week of request, unless otherwise specified
	Progress Meeting and Progress Report	March 16, 2011
	Progress Meeting and Progress Report	April 18, 2011
	Progress Meeting and Progress Report	May 16, 2011
2	Draft Market Analysis Worksheet	May 6, 2011
	Final Market Analysis Worksheet	May 13, 2011
3	Updated Guide File	March 16, 2011
	Draft Baseline Historical Vehicle Class Data Worksheet	March 16, 2011
	Final Baseline Historical Vehicle Class Data Worksheet	March 23, 2011
	Draft Forecast Vehicle Class Data Worksheet	April 4, 2011
	Final Forecast Vehicle Class Data Worksheet	April 11, 2011
4	Draft Vehicle Technologies Worksheet	March 16, 2011
	Final Vehicle Technologies Worksheet	March 23, 2011
5	Draft Vehicle Attribute Worksheet	April 25, 2011
	Final Vehicle Attribute Worksheet	May 2, 2011
6	Draft Final Report	May 25, 2011
	Final Report	June 6, 2011
7	Final Meeting and Presentation Summary	June 8, 2011

PAYMENTS AND INVOICING

- A) Payments will be made monthly, in arrears, for services satisfactorily rendered upon receipt and approval of invoice. All progress reports and deliverables due for the billing period shall be included with the invoice.
- B) The Energy Commission will accept computer generated or electronically transmitted invoices, provided the Contractor sends a paper copy the same day to the Energy Commission. The date of "invoice receipt" shall be the date the Energy Commission receives the paper copy.

Send invoices to: California Energy Commission
 Accounting Office, MS-2
 1516 Ninth Street
 Sacramento, California 95814

- C) A request for payment shall consist of, but not be limited to: unit number, quantity per unit, product or service description, unit price and extended item number.
- D) Final invoice must be received by the Energy Commission no later than 30 calendar days after the Agreement termination date.

RETENTION

The Energy Commission shall retain from each invoice ten per cent (10%) of that invoice, excluding equipment invoices, pursuant to Public Contract Code section 10346. The retained amount shall be held and released only upon approval that work has been satisfactorily completed and the Final Report (if required) has been received and approved. The Contractor must submit a separate invoice for the retained amount. Retained funds may be withheld by the Energy Commission to compensate or credit for amounts that were paid in error, or amounts that were paid but exceed the actual allowable incurred costs.

PAYMENT TERMS

The selected vendor will be compensated only for authorized and actual expenses incurred and work performed on this contract, which may not exceed the value quoted.

AMENDMENTS

This Agreement allows for amendments.

TRAVEL AND PER DIEM RATES

The Contractor shall be reimbursed for travel and per diem expenses using the Energy Commission Contractor Travel Rates. The Contractor must pay for travel in excess of these rates. The Contractor may obtain current rates from the Energy Commission's Web Site at: http://www.energy.ca.gov/contracts/TRAVEL_PER_DIEM.PDF.

- A. Travel that is included in Exhibit A, Attachment 1, Cost Worksheet, is not pre-approved. Travel shall require written authorization from the Commission Contract Manager prior to travel departure. The Energy Commission will reimburse travel expenses from the Contractor's office location.
- B. The Contractor must retain documentation of travel expenses in its financial records. The documentation must be listed by trip and include dates and times of departure and return. Travel receipts and documentation of travel expenses, including travel meals and incidentals, shall be submitted with invoices requesting reimbursement from the Energy Commission.

Appendix A

Numerical Class	Car Classes	Interior Volume Definition	Example Models
1	Subcompact (1-6000 lbs)	Less than 89 cu ft	Toyota Echo, Hyundai Accent, VW Golf
2	Compact (1-6000 lbs)	89 to 95 cu ft	Honda Civic, Chevy Cavalier, Ford Focus
3	Midsize (1-6000 lbs)	96 to 105 cu ft	Honda Accord, Ford Taurus, Toyota Camry
4	Large (1-6000 lbs)	Over 105 cu ft	Buick LeSabre, Ford Crown Victoria
5	Sport (1-6000 lbs)	Two door high performance subcompact cars (Wt/HP ratio less than 18)	Ford Mustang, Chevy Camaro, Toyota Celica
6	Cross Utility - Small (1-6000 lbs) (See Note 1)	Small Wagons (Passenger volume less than 95 cu ft) with flexible seating (Fold down rear seat to provide flat floor to front seat)	Chrysler PT Cruiser, Toyota Matrix
Light Truck Classes			
7	Cross Utility - Small (1-6000 lbs) (See Note 1)	Unibody SUV less than 140 cu ft	Toyota RAV4, Honda CRV, Ford Escape
8	Cross Utility - Midsize (1-6000 lbs)	Unibody SUV over 140 cu ft	Toyota Highlander, Honda Pilot, Lexus RX300
9	Sports Utility - Compact (1-6000 lbs)	Body on Frame SUV less than 140 cu ft	Chevy Blazer, Nissan Xterra, Isuzu Amigo
10	Sports Utility - Midsize (1-6000 lbs)	Body on Frame SUV 140 to 180 cu ft	GMC Envoy, Dodge Durango, Isuzu Trooper
11	Sports Utility - Large (6001 - 8500 lbs)	Body on Frame SUV over 180 cu ft	Chevy Tahoe, Toyota Sequoia, Ford Expedition
11	Sports Utility - Heavy (8501 - 10000 lbs)	Body on Frame SUV over 180 cu ft and 8501 to 10000 GVW	Chevy R2500 Suburban, Ford Excursion
12	Van - Compact (1-6000 lbs)	Less than 180 cu ft	Ford Windstar, Dodge Caravan, Honda Odyssey
13	Van - Large (6001-8500 lbs)	Over 180 cu ft	Ford Econoline, Chevy Express, Dodge RamVan
13	Van - Heavy (8501-10000 lbs)	Over 180 cu ft and 8501 to 10000 GVW	Chevy Express Van G30, Ford Comm Strip E350, Dodge Ram Van b350
14	Pickup - Compact (1-6000 lbs)	Inertia Wt less than 4250 lbs (2WD); IWT = curb wt + 350 lbs rounded to nearest 250 lbs)	Chevy S10, Ford Ranger, Nissan Frontier
15	Pickup - Standard (6001-8500 lbs)	Inertia Wt over 4250 lbs (2WD)	Ford F150, GMC Sierra, Toyota Tundra
15	Pickup - Heavy (8501-10000 lbs)	Inertia Wt over 4250 lbs (2WD) and 8501 to 10000 GVW	GMC Sierra C3500, Dodge D300/350, Ford F350
<p><i>Note 1:</i> Cross Utility - Small is bifurcated into "Car" and "Truck" due to CAFÉ differences. Manufacturers vary in their designation of "car" vs. "truck" for cross-utility vehicles to suit their particular CAFÉ needs. CAFÉ regulations apparently provide this latitude based on particular characteristics of the vehicle's floor slant.</p>			