



STATE OF CALIFORNIA

Vehicle Procurement Evaluation Methodology Passenger Car and Light Duty Vehicles

1.0 **Overview:**

In an attempt to reduce petroleum consumption, dependency on foreign oil, vehicle related emissions of criteria pollutants, greenhouse gas emissions and improve sustainability, the State of California has developed an evaluation methodology to factor in these values. In addition to a vehicle's purchase price and cost of fuel, this evaluation methodology will incorporate the following:

Air Pollution: The amount of criteria pollutants emitted by the vehicle.

Energy Impact: The number of equivalent barrels of petroleum the vehicle will consume.

Management Systems: Corporate policy to improve sustainability and reduce environmental impacts. Management systems include an Environmental Management System (EMS) and/or a Quality Management System for Auto Manufacturers (QMSAM).

Green House Gas (GHG) Emission: The amount of CO₂ emitted by the vehicle.

Indoor Air Quality: The determination of organic substances or allergens within the interior passenger compartment. Includes the efficiency to reduce these contaminants through air filter devices.

Service Plan: Service plan per Section 5.6.4, Service Plan.

Window Glazing: A material reducing solar energy penetration to reduce CO₂ emissions by reducing interior vehicle temperatures, thus reducing air conditioning operation, resulting in less fuel consumption.

The Projected Total Value for each vehicle will be the sum of the points assigned to the purchase price, and the points assigned to the cost of fuel, energy impact, GHG emission and air pollution when calculated over the vehicle's useful life. This Projected Total Value will be used to evaluate and select the vehicles achieving the best value to the State to own and operate over the life of the vehicle.

Proposed vehicles must be listed in the 2011 Fuel Economy Guide at the time of bid submittal.

<http://www.fueleconomy.gov/feg/feg2000.htm>

2.0 **Evaluation Factors and Assigned Points:**

The following table summarizes the Evaluation Factors and the maximum number of points assigned to each factor.



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Evaluation Factor	Points
1. Administrative Requirements (Mandatory)	Pass/Fail
2. Technical Requirements (Mandatory)	Pass/Fail
3. Purchase Price less Cash Discounts + Service Plan (Mandatory)	640
4. Cost of Fuel	200
5. Energy Impact* (-1 per barrel)	0
6. GHG Emission* (-2 per ton)	0
7. Air Pollution (10 times EPA Score)	100
8. Window Glazing (Non-Mandatory)	20
9. Indoor Air Quality (Non-Mandatory)	
a. Indoor Air Quality Tested	10
b. Allergen Tested	5
c. Air Cleaning Device	5
10. Management Systems (Non-Mandatory)	
a. ISO 14001	10
b. ISO/TS 16949	10
Maximum Possible Projected Total Value	1000

*Note: Energy Impact and GHG Emission scores are ranked as negative point values with a maximum zero points possible for vehicles rated at zero GHG emission and zero energy impact.

The State of California will evaluate each vehicle bid on each line item based on the Projected Total Value of the vehicle. Awards will be made by line item to the responsible bidder meeting specifications with the highest Projected Total Value. Small business preferences will be applied after the Projected Total Value has been calculated.

3.0 Definitions:

1. **Expected Vehicle Life:** The Department of General Services, Office of Fleet Administration, has determined the average expected vehicle life to be 7 years and 100,000 miles.
2. **Cost of Fuel:** Total cost of fuel over the expected vehicle life, based on fuel economy data as published by the Federal Environmental Protection Agency (EPA) using appropriate unit fuel pricing and EPA Combined MPG assuming 45% highway and 55% city driving.
3. **Unit Fuel Pricing:** Gasoline unit cost will be based on the price of regular unleaded gasoline as determined by the most recent 12 month average for the State of California as reported by the California Energy Commission. E85 unit cost will be based on the E85 National average retail price from U.S. Department of Energy, adjusted by the ratio of California gasoline price



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to national gasoline price as determined by the California Energy Commission. Compressed Natural Gas (CNG) unit cost is based on the price of CNG sold as a transportation fuel as determined by the California Energy Commission based on a 12-month average of prices charged by the two largest CNG retailers in California. Electricity unit cost is based data provided by the California electricity providers to the Energy Commission as determined by the most recent 12 month average.

Fuel costs exclude Federal Excise tax and the State sales tax that would otherwise be charged on the Federal Excise tax.

4. **Energy Impact:** The number of equivalent barrels of petroleum the vehicle will consume over the expected vehicle life based on fuel economy data as published by the Federal EPA assuming that it takes 1 barrel of oil to make 42 gallons of gasoline.
5. **GHG Emission:** A measure of the carbon footprint reported in tons of CO₂ emitted over the expected vehicle life based on data as published by the Federal EPA.
6. **Air Pollution:** A relative value reflecting the total health-damaging and/or smog-forming airborne criteria pollutants, including non-methane organic gases (NMOG) and oxides of nitrogen (NOx), emitted over the expected vehicle life based on data as published by the Federal EPA on a scale of 1 to 10 with 10 being the best.
7. **Air Cleaning Device:** a filter that is has a medium or high efficiency rating and is certified by California Air Resources Board and limits the level of allergens in interior passenger compartment. Allergens include dust mite, pollen, dander, chlorine, fungal and pollutants.
8. **Allergen Tested:** The testing of automotive interior textiles for known allergens per TUVus or cTUVus TOXPROOF standard. Testing conducted by an approved TUVus or cTUVus laboratory, resulting in compliance with TOXPROOF standard.
9. **Indoor Air Quality Tested:** The determination of organic substances as emitted from automotive interior products as measured using ASTM D5116 or VDA 276 (European ECA Report #8) performed by a facility that is ISO 17025 accredited, reported as Total VOC in mg/m³ and based on test data submitted at time of bid. Resulting in a measure of Total VOC less than 0.2 mg/m³.
10. **Window Glazing:** The Reflective properties of the vehicle's glass determined by ISO 13837 where windshield glass has a 50% maximum total solar transmission (Tts). Side and back window vision glass are a maximum of 60% (Tts) and non-vision glass/ privacy glass 40% maximum Tts.
11. **Environmental Management System:**
A formal environmental and/or sustainability policy that has set measurable goals in at least three areas, where performance is measured towards meeting established goals. EMS must meet ISO 14001 standard and be third-party certified...
12. **Quality Management System (QMSAM):** A formal quality management system specific for auto manufactures meeting ISO/TS 16949 standard and is third party certified.
13. **Service Plan:** Dealer or factory sponsored service plan meeting requirements of Section 5.6.4, Service Plan.
14. **Decimal Place:** Points will be awarded by rounding to the second decimal place (100.00)



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4.0 Evaluation Determinants:

Evaluation determinants are valid for use on the 2011 model year vehicles only. These determinants may change annually and will be readjusted for future vehicle analysis. Evaluation determinants for the 2011 model year vehicles are as follows:

Determinant	Value
Price of Gasoline (\$/gal)	\$2.85/gallon *
Price of Compressed Natural Gas (CNG) (\$/gge)	\$1.70/gge *
Price of E-85 (\$/gal)	2.49/gallon **
Price of Electricity (cents/kWh)	\$14.79 *
Total Miles Driven	100,000 miles
Useful Life	7 years
Vehicle Emissions Certification	10 times EPA Score
Energy Impact	-1 per barrel times 7 years
GHG Emission	-2 per ton times 7 years

* California Energy Commission 12-month average pricing for September 2009 to August 2010.

** California Energy Commission historical data from September 2009 through April 2010. May 2010 through August 2010 E85 prices are estimated by using historical gasoline to E85 price ratios.



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5.0 Example:

Following is an example illustrating the vehicle procurement evaluation methodology.

	Vehicle A	Vehicle B
Vehicle Classification	Compact Sedan	Compact Sedan
Purchase Price less Cash Discounts	\$14,000	\$15,000
Service Plan Price	\$1,295	\$1,325
Net Vehicle Price	\$15,295	\$16,325
Fuel Type	Gasoline	Gasoline
EPA Combined MPG	26	28
Calculated Cost of Fuel *	\$10,961.54	\$10,178.57
Energy Impact Score (Barrels of oil per year)	15.6	14.9
GHG Emission (tons of CO ₂ per year)	8.3	8.0
Air Pollution Score (1 to 10 where 10 is best)	7.0	9.5
Window Glazing (Yes or No)	Yes	No
Indoor Air Quality		
a. Indoor Air Quality met. (<0.20 mg/m ³ – Yes or No)	No	Yes
b. Allergen Tested completed	No	Yes
c. Air Cleaning Device offered	No	Yes
Management System (Yes or No)		
a. ISO 14001	Yes	Yes
b. ISO/TS 16949	Yes	Yes

* Cost of Fuel = {100,000 miles/(EPA Combined mpg)} x \$2.85/gal



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Based on the above information, the points earned are as follows:

	Vehicle A	Vehicle B
Net Purchase Price Points	640	599.62
Cost of Fuel Points	185.71	200
Energy Impact Points	-109.2	-104.3
GHG Emission Points	-116.2	-112
Air Pollution Points	70	95
Window Glazing Points	20	0
Indoor Air Quality Points		
a. Indoor Air Quality met:	0	10
b. Allergen Tested	0	5
c. Air Cleaning Device	0	5
Management System Points		
a. ISO 14001	10	10
b. ISO/TS 16949	10	10
Total Points	710.31	718.32
Ranking	2	1

Calculations:

- Vehicle B Price = $640 \times (\$15,295/\$16,325)$
- Vehicle A Fuel = $200 \times (\$10,178.57/\$10,961.54)$
- Energy Impact Points = $-1 \times \text{Energy Impact Score} \times 7 \text{ years}$
- GHG Emission Points = $-2 \times \text{GHG Emission Score} \times 7 \text{ years}$
- Air Pollution Points = $10 \times \text{Air pollution score}$
- Window Glazing Points = Yes: 20 points, No: 0 points
- Indoor Air Quality met= Yes: 10 points, No: 0 points
- Allergen Tested = Yes: 5 points, No: 0 points
- Air Cleaning Device= Yes: 5 points, No: 0 points
- ISO 14001 = Yes: 10 points, No: 0 points
- ISO/TS 16949 = Yes: 10 points, No: 0 points

Conclusion: In this example, Vehicle B has a higher Projected Total Value than Vehicle A.
