

## Climate Change Measure A.1.iii – Provide Incentives for Early Vehicle Retirement

### Description

Evaluate the impact of implementing a “Cash-for-Clunkers” program to remove older, higher emitting passenger vehicles (both cars and light-duty trucks such as SUVs) from the roads

### Analysis Approach

- Use spreadsheet analysis to calculate emissions reductions which result from the program implementation
- The “Drive a Clean Machine” program is being implemented in Texas (Dallas-Fort Worth, Austin, Houston-Galveston) to provide financial incentive to replace cars that are 10 years or older or have failed an emissions test. Some of the criteria for this analysis will be patterned after this program.

### Assumptions

- What is the minimum vehicle age and maximum fuel economy for eligibility? – **10 years or older**
- Should only vehicles that are driven a minimum number of miles each year (e.g. 10,000 miles) be eligible? – **12,000 miles/year**
- What should the minimum fuel economy requirement for the new vehicle (35 mpg or 45 mpg) purchased be or what should the minimum fuel economy improvement between the old vehicle and new vehicle be (10mpg or 15 mpg)? – **minimum 10 mpg improvement**
- What would the financial incentives be? - **\$ 1,000**
- How many vehicles would be eligible each year? – **100 vehicles** (this is a unit of eligible vehicles used for this analysis)
- How many years would the program last? – **5 year pilot**

### Impact

Travel – no travel impacts

#### Emissions

Annual and cumulative CO<sub>2</sub> emissions benefits for 10 years would be calculated using spread sheet calculators

#### Cost

Subsidy: \$100,000/year for five years  
Administrative costs: \$100,000/year for five years  
Marketing: \$100,000/year for the first two years  
\$50,000/year for the last three years

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**Cash for Clunkers Program**

Annual Miles = 12,000 mi/year  
 Highway Fuel Economy Improvement = 10 mi/gal  
 Fuel Savings = 1,200 gallons/year

Number of Vehicles = 100 vehicles  
 Total fuel saved per 100 vehicles in one year = 120,000 gallons

8,788 g CO2 produced by 1 gallon of gas  
 Total CO2 Emissions Reduced = 1,054,560,000 g CO2 saved each year

Total CO2 Emissions Reduced = **1,162 tons CO2 saved in one year for 100 vehicles replaced**

	Year					
	1	2	3	4	5	10
<b>Annual CO2 Benefits (tons)</b>	1,162	2,325	3,487	4,650	5,812	5,812
<b>Cumulative CO2 Benefits (tons)</b>	1,162	3,487	6,975	11,625	17,437	46,498
<b>Cumulative Cost of the Program</b>	\$ 300,000	\$ 600,000	\$ 850,000	\$ 1,100,000	\$ 1,350,000	\$ 1,350,000
<b>Cumulative Cost Effectiveness (\$/ton)</b>	\$ 258.07	\$ 172.05	\$ 121.87	\$ 94.63	\$ 77.42	\$ 29.03