

EXECUTIVE SUMMARY

Conserve, NOW!

**Reducing Greenhouse Gas Emissions and Other Environmental Costs
by Offering Financial Incentives that Reward Less Driving, Flying and
Home Energy Use**

By

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Reducing Greenhouse Gas Emissions Using Financial Incentives to Encourage Less Driving, Less Flying and Less Home Energy Use

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Summary

This paper provides the framework for offering positive financial incentives for reducing automobile driving, airplane travel, and annual home energy use.

Approximately one third of the greenhouse gas emissions generated in developed countries such as the United States comes from fossil fuel burning in transportation, mostly by cars, trucks and airplanes. Significant greenhouse gas emissions are also generated from fuel burning in homes and from power plants that supply electricity to homes.

This paper identifies a strategy for reducing greenhouse gas emissions generated in driving, flying and home energy use by suggesting that Government offer individuals and families financial incentives to drive less, fly less and use less energy in homes, on any annual basis. Governments would create programs that pay financial incentives to households or individuals who can verify at the end of a year that they have driven, flown or used less energy than pre-established thresholds, set for each particular activity. Here is how the program would work:

Car Travel

A family of four voluntarily enrolls in the program by driving its car(s) into the local Department of Motor Vehicles office, paying \$30 in administrative fees, and getting the mileage on their vehicle's odometer(s) officially recorded.

After a year goes by, (based on participant's day of choice), the participant(s) would receive a \$400 check if the participant's odometer(s) showed less than 13,500 miles for the preceding year (Table 1). If the family participant managed to lower the household vehicle mileage traveled to 9,000 miles over the year, they would earn \$1,200.

The fewer miles the family drives in a year, the more money it could earn as a reward for "driving less" for that year. Households not owning or driving personally registered cars would be eligible to receive a maximum of \$2,000 for that year, as a payment, (or reward), for not contributing to the financial, social, or environmental costs of automobile driving borne by everybody.

The methodology used for computing the financial incentives for low annual vehicle miles traveled (VMT) is as follows:

Total Household Mileage Threshold/Year

$$= x + Dx + Px$$

Where $x = 1,000$ (1...6) household vehicle(s) miles;

$D =$ Number of Additional Drivers $(.75)^1$

$P =$ Number of Persons in Household $(.25)^2$

A 25% reduction in vehicular travel is postulated with full implementation of the plan.

After 10 years of awarding the financial incentives, the program could be ended, since the behavioral change resulting in reduced driving will have become permanent, eliminating the need to continue offering the incentives.

By offering financial incentives to households who record low annual motor vehicle miles traveled in a year, this transportation alternative would encourage people to make more informed choices about where to live relative to where they need to travel. When they do need to travel, the financial incentives would encourage them to choose more environmentally friendly means of travel (bicycling, walking, taking a bus, carpooling) over driving environmentally harmful and greenhouse gas emitting automobiles.

Funding for Reduced Driving

The main source of funding for the financial incentives for reducing driving would be the savings in user fee revenue generated by not having to build the additional highway capacity to accommodate the otherwise increasing traffic levels. The money saved by not having to build multi million dollar highway expansions would be used to pay the financial rewards to people who limit their use of highways, thereby reducing congestion and the need to expand the facilities. Government could generate additional revenue for the program by raising fuel taxes and/or vehicle license registration fee, as needed.

Another potential revenue source might be the adoption of a "transportation tax" on raw materials and products requiring transportation over a certain distance. This might also lead to reductions in the amount of energy used in transporting products, the reason being that the added transport costs would theoretically be reflected in the price of those products, thereby providing encouragement for consumers to buy products that are grown or manufactured closer to home.

¹The reason a full credit is not suggested for the second driver is to account for the ease of ride sharing among the two drivers.

² A 25% credit is provided for each additional person living in the household who is not a driver. The reason is that the driver usually has to provide rides for the nondrivers in the family, but things like shopping can all be done at once, so full credit would not be justified for each person living in the household.

Air Travel

Any person over 18 years of age who chooses to enroll in the “fly less” program would need to file a one-time application with their government along with a nominal administrative fee. That person would then be registered for the program for life, and therefore eligible for annual rewards each year that he or she commercially flies less than the amount of threshold miles specified in Table 2.

The government would require that each commercial airline document the annual mileage flown by all registered participants using its service. Each airline service would be required to prepare and forward individual mileage summaries for each registered participant to the government by the end of the calendar year. The government would summarize the total annual miles flown for each participant and issue the incentive payments.

The methodology used for computing the financial incentives for low annual airplane miles traveled (AMT) is as follows:

Airplane Mileage Threshold/Year/Person

= y

Where y = 100 (1...6) miles flown in an airplane

No exclusions would be allowed for business trip mileage. This would provide added incentives for business to minimize employee air travel requirements.

Funding for Reduced Air Travel

Some of the money to fund the financial incentives would be available from the money saved by not having to build additional airport runways, taxiways, terminals, and to employ additional airport personal to service the otherwise projected increases in the number of flights. Environmental savings would result from reduced greenhouse gas emissions, reduced air pollution, reduced noise, less air traffic congestion, and less wildlife habitat and farmland losses from airport expansion projects.

The remainder of the funds would be provided from federal taxes levied on the price of aviation fuel. If one dollar in tax were charged for each gallon of aviation fuel used by airlines in the U.S., this would generate up to \$20 billion to help fund the program.

Household Energy Conservation

Just as positive incentives can be used to encourage reduced fossil fuel burning dependent automobile and airplane travel, so too can positive financial incentives encourage reduced energy use in homes. Government could offer financial incentives to encourage people to use less energy in heating, cooling and lighting their homes. This

would reduce cumulative power demands, reducing the need to build more power plants, transmission lines, fuel lines and other expenditures and environmental costs associated with increased capacity demands.

Financial incentives for encouraging energy conservation in homes would work similar to the systems used for encouraging people to reduce their driving and flying. That is, households using low annual per capita energy amounts could be eligible to receive monetary returns at the end of the year for conserving energy (Table 3).

The methodology used for computing the incentives for low energy use is as follows:

Total Household Energy Use Threshold/Year

$$= z + Rz$$

Where $z = 100$ (1...6) therms

$$R = \text{Number of Additional Residents} \times .25$$

Funding for Reduced Home Energy Use

Money to fund the financial incentives would be available from the money saved by not having to build additional power plants, transmission lines and power stations.

An additional method of funding household financial incentives for environmental conservation in homes would be the levying of an energy usage tax.

Conclusion

Scientists the world over are now claiming, with increasingly serious overtones, that major and significant worldwide action must be initiated, now, to reduce the volumes of greenhouse gases being emitted into the Earth's atmosphere. To do so will require a dramatic and abrupt reduction in humankind reliance on fossil fuel burning. Government provided positive financial incentives to reduce driving, flying and home energy use is an approach to accomplishing that, without instituting regulatory controls over people's everyday lives.

Table 1. Financial Incentives Thresholds – Automobile Driving

Household Size	<u>Financial Incentives (Annual Rewards)</u>		
	\$400	\$1,200	\$2,000
	Total Annual Miles	Total Annual Miles	Total Annual Miles
1 person	6,000	4,000	2,000
2 people, one drives	7,500	5,000	2,500
3 people, one drives	9,000	6,000	3,000
2 people, both drive	10,500	8,750	3,500
3 people, 2 drive	12,000	8,000	4,000
4 people, 2 drive	13,500	9,000	4,500
5 people, 2 drive	15,000	10,000	5,000

Table 2. Financial Incentives Thresholds - Flying

Payment (Per Person)	Yearly Threshold (Miles Traveled)
\$2,800	0
\$2,400	100
\$2,000	200
\$1,600	300
\$1,200	400
\$800	500
\$400	600

Table 3. Financial Incentive Thresholds – Home Energy Use

Payment	Number of Persons in Household	Yearly Energy Use Threshold (therms)
\$2,800	1	0
\$2,800	2	0
\$2,800	3	0
\$2,800	4	0
\$2,800	5	0
\$2,400	1	100
\$2,400	2	125
\$2,400	3	150
\$2,400	4	175
\$2,400	5	200
\$2,000	1	200
\$2,000	2	250
\$2,000	3	300
\$2,000	4	350
\$2,000	5	400
\$1,600	1	300
\$1,600	2	375
\$1,600	3	450
\$1,600	4	525
\$1,600	5	600
\$1,200	1	400
\$1,200	2	500
\$1,200	3	600
\$1,200	4	700
\$1,200	5	800
\$800	1	500
\$800	2	625
\$800	3	750
\$800	4	875
\$800	5	1,000
\$400	1	600
\$400	2	750
\$400	3	900
\$400	4	1,050
\$400	5	1,200