



30 September 2005

Senator Olympia Snowe
United States Senate
Committee on Commerce, Science, and Transportation
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Follow-up to Oral Testimony 'Hearing to Examine the Rise of Domestic Energy Prices'

Dear Senator Snowe:

As promised during Rocky Mountain Institute's testimony to your Committee on 21 September 2005, we are pleased to provide a list of measures each of which would have a significant effect of reducing U.S. demand (and therefore reducing prices) for conventional petroleum products, and to do so over a timeframe ranging from overnight to over the next several weeks and months and to generally do so with either a stimulative or a neutral effect on the economy. **Overall, the measures would add up to between a 5% and 9% reduction in the U.S. demand for conventional crude oil over the next year or so, and do so with little or no interruption of our way or quality of life. These immediate measures are listed in the following pages.**

A 5% to 9% reduction in U.S. crude oil demand may not sound like a lot. However, due to a current tightness in the market that is of historic proportions, this reduction would have a disproportionate effect in stabilizing the market price. This is because a reduction in U.S. demand of 5% to 9% would be sufficient to bring the global demand level down by some 1.0 to 1.8 million barrels per day, or some 1.2% to 2.1% of global oil consumption. This quantity is sufficient to give the fundamental global demand and supply oil system enough excess capacity to be able to absorb future price shocks caused by real risks such as terror- or weather-related interruptions, and thereby take a lot of air out of speculation as well. The fundamentals today are simply so tight that such shocks cannot be absorbed without severe price-rises. Excess capacity of some 3.0 to 3.5 million barrels a day is required for a stable fundamental demand and supply balance—in turn providing stable prices—yet only some 1.5 to 2.0 million barrels per day of excess capacity exists today. By removing roughly 1.0 to 1.8 million barrels of daily oil demand from the market, the reduction-measures suggested below would bring excess capacity back to a level of 2.5 to 3.8 million barrels per day and would therefore bring the currently high oil price levels and price volatility levels back to levels of a few years ago.

As important additional signaling measures, immediate and aggressive pursuit of commercialization of cellulosic ethanol and feedstock-neutral biodiesel would



immediately improve the situation, due to its signal to the world market that the U.S. is on course to diversify its mobility fuels. There are many longer-term measures that will take time before the real effect is felt, but whose signals will send strong messages that will also provide an immediate effect and stabilize the market. These are well elaborated on in the Policy section in our September 2004 book titled *Winning the Oil Endgame*, free at www.oilendgame.com, and would all work to signal a coherent policy intention that would address the root causes of a “U.S. oil problem” that extends well beyond U.S. borders, since the U.S. consumes 25% of global oil output.

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We now describe the short-term measures that would together reduce U.S. crude oil demand by between 5% and 9%, possibly more.

Part I: Immediate Measures to Reduce Consumption

I. Gasoline only: Eliminate about 4–8% of U.S. gasoline, or roughly 2–4% of crude

- Reduce speed limits for all non-Class 8 vehicles to 60 MPH in zones above this limit today on all roads under Federal (and, if possible, State) jurisdiction. Assuming about ½ of U.S. automobile gallons are burnt at speeds of 65 MPH or higher, a speed reduction from 65 to 60 MPH would save between 8% to 12% of those gallons, or some 4% to 6% of gasoline fuel usage, or roughly 2% to 3% of U.S. consumption of crude oil. While we understand that this may not be popular among all constituents, this fuel would be immediately saved (overnight). When mid-term measures kick in, it could be phased out if necessary.
- Provide Alternative Fuel Vehicle (AFV), hybrid, and all-electric vehicles access to HOV lanes and preferential parking. At the moment, only AFVs have this right, and EPA would need to change its definition to one based on fuel efficiency or emissions, not on the fuel used, to make the rules embrace hybrids on Federal highways. Some states are already trying to do so but need the EPA rule change.
- Give so-called double-tax-credit to state and local non-profit vehicle buyers, such as public safety agencies, for going to high-efficiency hybrids.
- Encourage improved pattern of use by enabling all citizens to deduct their yearly cost of mass transit on IRS Schedule A.
- Ensure that “parking cash-out” is approved, and consider requiring it for large employers, as long practiced in S. California. Under this system, employers must give their employees the option of cashing out of the free parking space they otherwise would have been able to claim (alternatively, employers cannot give free employee parking, but must charge fair market value and pay a “commuting allowance” of equal aftertax value to employees choosing to commute). This monetizes competition between all modes of getting to work (or not needing to, e.g. telecommuting); workers who choose any cheaper mode than driving their



- own car can pocket the difference. Both Treasury and employers gain net revenue too. This was approved but we have not had time to check if it were superseded.
- Extend the Federal tax credit for AFV, hybrid, and all-electric vehicles to a significantly greater number of vehicles than the current 60,000 per manufacturer.
 - Fix >8500-lb loophole in current CAFE standard, so that the heavier light trucks (Class 2b) will have to comply with the MPG standards.
 - Clarify that NHTSA does have authority to extend to cars its 23 August 2005 proposed decision to base future CAFE light-truck rules on size, not weight.

II. Diesel only: Eliminate about 12–18% of diesel, or roughly 1–2% of crude

- Reduce heavy truck speed limit to 55 MPH on all roads under Federal (and, if possible, State) jurisdiction. Over a typical heavy truck driving cycle, this would save between 5% and 10% of heavy truck diesel savings, or roughly 3% to 6% diesel savings, translating to roughly 0.5% to 1.0% of crude savings. *Please note that as long as this applied to all Class 8 trucks across the nation, truckers would know that the playing field is level, and would be happy to take the saved fuel money.* The labor costs would go up marginally, but truckers and trucking fleets would prefer to get this through *provided it is applied uniformly across the country.*
- Introduce three measures to eliminate between 8% and possibly more than 12% of domestic heavy truck diesel, or some 5% to 7% of all diesel, and therefore about 1% of all U.S. crude oil use, via reduced number of trips and reduced fuel waste from upstream bottlenecks in international shipments (due to the lowest GWVR often occurring in the United States):
 - Raise federal Gross Vehicle Weight Rating (GWVR) to the European norm of 110,000 lbs, while leaving the per-axle weight requirements unchanged. Truckers would simply add one extra axle on trailers to allow rigs to carry more weight without increasing the pressure on the roadways. This should be accompanied by installation of sufficient braking power (optionally using better technologies, possibly disk brakes) so that braking power per pound of GWVR would at minimum remain constant. Since pressure on the road surface remains the same per axle and brake force per pound is easily retained or improved, this measure will not damage roads. Moreover, when combined with lower speed (above), safety would in all circumstances be better. Please note that there is no real reason not to do this; maintaining status quo will perpetuate U.S. lack of competitiveness. Please also carefully note that when combined with the speed-reduction measure, this GVWR measure will more than offset (by many whole-number multiples) any capacity losses to the U.S. stock of trucks. This point is very important.
 - Allow double and triple-trailer combinations nationwide (currently allowed in e.g. NY, AZ, UT, and other states). The fuel savings are simple and self-explanatory: one tractor pulling two 48-foot trailers will pull roughly double the load while reducing fuel economy from 6.5 mpg to



roughly 5.0 mpg. So this measure means pulling the second load at a 'penalty' of only about 1.5 mpg, *versus* today having to pull this second load with an altogether separate tractor at 6.5 mpg.

- Change federal regulation of tractor and trailer maximum height from 13.5 to 14 ft and trailer length from 53 to 59 ft (note that some states have already done this) to enable more cargo volume per trip for those loads that are cubed-out.

Some states permit the first two measures already (e.g., Michigan allows 160,000 lbs and triple-trailers). This measure would improve truckers' margins from three key factors: the 8–12% direct diesel savings, some 20–35% direct capital expenditure savings, and reduced cost by lowering the extremely high driver turnover in the industry. Since additional axles can be rapidly and safely retrofitted to generate an immediate effect, one suggestion would be to introduce a temporary waiver with immediate effect. Truckers will embrace this package so far. But please read on for more initiatives that truckers will embrace if implemented on a Federal level.

- Mandate heavy truck manufacturers to install Auxiliary Power Units (APUs) on all *new* Class 8 tractors. This will represent a level playing field between manufacturers and between all customers, and this will eliminate ~8–9% of truck diesel fuel (4–5% of all diesel). This reduction is because of a reduction in diesel going to idling by ~90%, or about 0.5–0.7% of U.S. crude oil use when fully implemented, or about 0.03–0.07% after the first year. Please note that because this measure would affect new tractors, little to no lead-time is required. The other point to note is that the payback is very favorable, so it is a measure that trucking companies will be happy to take as mandatory if uniformly applied.
- Incentivize retrofits on *existing* trucks of APUs via a nationwide tax incentive (like for hybrid cars), for example a tax credit, phased down to reward early adopters and offset initially higher costs before volumes expands. This will also immediately eliminate the confusion that currently exists between state boundaries.
- Require installation of a digital fuel economy display to give real-time efficiency data to operators. This has been shown to result in increased efficiency through on-the-job learning about which driving regime gives high vs. low fuel economy.
- Require driver's ed for fuel economy by making efficiency training required for obtaining a Class A CDL.
- The trailer manufacturing sector today has nothing enforced on it: vendors build a big box that's not at all aerodynamic. This industry should be put under pressure by an independent rating system. This system should reward low-aerodynamic resistance trailers and should penalize high-aerodynamic resistance trailers.
- Rapidly mandate efficiency (coefficient-of-rolling-resistance) labeling for truck tires, so truckers can be informed.
- Examine the idea of disallowing passing on fuel surcharges among the mega-fleets. Currently, large for-hire mega-fleet purchasers of trucks need not absorb the high costs of fuel, as they simply add fuel surcharges to their customer's bills.



- If fuel surcharges are disallowed, these important large-scale fleets will immediately turn to the manufacturers and request from them mass-production trucks with significantly lower aerodynamic resistance, since aerodynamic resistance “eats” about 2/3 of all heavy truck diesel.
- Improve the EPA methods of regulating emissions from heavy trucks, by eliminating the current compromise between fuel economy and emissions regulations. This is probably too late for 2007, but should be understood and re-examined for the upcoming additional regulatory tightening that is due in 2010. This is a technical area but will be fruitful to discuss in depth with the EPA, as regulatory pathways different from the current one appear to be possible. One possibility is to ask EPA to phase-in NO_x regulations as technologies that don't sacrifice fuel economy come to market (the current Exhaust Gas Recirculation deployed by engine makers will cost truckers about 5% fuel economy as of 2007).
 - We recommend a CBO or GAO study or studies of the low-income affordable-personal-mobility financing options described in detail in our book, *Winning the Oil Endgame*. This is politically a very attractive and private-sector funded mechanism that would also be very attractive to Detroit. It should be politically attractive to show something is being done to relieve, in due course, \$3/gal gasoline's heavy burden on low-income Americans.

III. Gasoline and diesel: Eliminate about 4–6% of gasoline and diesel, or about 2–3% of crude

- Procure with immediate effect all federal road-based civilian vehicles, and state or local vehicles purchased with federal funds, including those of DoD, such that they are among the 5% most efficient vehicles in their sub-class. There are 6 sub-classes of automobiles (Class 1), 6 sub-classes of light trucks (Class 2a), and then there are Class 2b (8,501–10,000 lbs) and Classes 3 through 8 (up to 80,000 lbs GVW).
- Proper tire inflation pressure can give up to a 3 percent fuel economy benefit (some 0.4% per psi under-inflated). Owners will need strong encouragement that all individuals and, in particular, rental vehicle fleet companies go through their entire set of wheels and ensure that tire pressures are what each tire specifies as maximum pressure.
- Exert Federal pressure to improve timing of traffic lights on major streets in cities. The benefits are unequivocally positive, and include improved traffic flow, reduced oil use, and reduced pollution. It would not be hard to implement and it is surprising that this isn't more widely adopted. While the Federal government does not control this, it could commission studies of the potential savings from this action at (say) the state level, and experiments at the local level by placing funding for such studies. A few studies and experiments in some big states (California and Texas for example) would catalyze copycat activities in other states. Once the analysis shows the potential benefits and some localities report their results, others will soon follow. The Federal Highway Administration has a lot of expertise in this area. A useful carrot could be some encouragement or



incentive, while traffic-light timing is being adjusted, to retrofit the signals themselves with LED models that save energy, last longer, have better visibility, and last far longer. The saved maintenance cost can then pay for other costs, such as changing signal timing or introducing smarter on-ramp “metering” lights, that would otherwise burden state and local highway budgets.

- Push rapid adoption of both electronic toll taking technologies and “urban box” congestion charges. Based on experience from London, Oslo, and other cities, significant local savings of oil will result from lowered congestion and improved traffic flow. Consider subsidized adoption or withholding federal funds from states that don't make it a priority. Compatibility should be encouraged between regions and privacy concerns should be addressed.
- Encourage proper engine tuning.
- Encourage proper air filter replacement.
- All of EPA’s gas mileage tips may be good to widely publicize, such as "Driving more efficiently." See EPA sites for more information: <http://www.fueleconomy.gov/feg/maintain.shtml>, and <http://www.fueleconomy.gov/feg/drive.shtml>
- Ask NHTSA to clarify that dealers and vendors of hybrid cars are allowed to give advice on how to drive these cars for maximum fuel efficiency, as lawyers currently argue that this would be illegal since it goes beyond, and adds a gloss to, the EPA-required MPG-label. This is important for hybrids because *Consumer Reports*, *N.Y. Times*, and others use a standard test method that disadvantages hybrids, creating a false public impression that hybrids inherently fall short of their EPA-rated mpg by more than non-hybrids do—yet automakers can’t educate testers or customers about how to drive hybrids optimally.

IV. Jet A: Eliminate about 1% of Jet A in first year, or roughly 0.1% of crude

- Have FAA mandate idling on one engine only when aircraft is on ground-hold (i.e. sitting on tarmac awaiting take-off).
- Introduce loan guarantees (offset by equity warrants so there’s no actuarial net cost to Treasury) for airlines wishing to scrap and replace parked and inefficient with efficient planes such as the new Boeing 787 *Dreamliner*. Note condition of scrapping. A minimum proven efficiency gain (e.g. 20%) per passenger mile should be a condition. An even better instrument would be to offer loan guarantees whose amount depended on the difference in fuel economy between what is being scrapped and the new aircraft. This would align the incentive with the desired outcome—saved fuel. This would allow airlines to trade-up to more efficient airplanes by either scrapping one of their older planes or buying one off the market to be scrapped, replacing it with a more efficient plane that meets certain specifications.
- Introduce a phased-down tax-credit to airlines that replace heavy interior parts with lightweight materials (e.g. seats, tray tables, etc, all being easily retrofittable). A useful number to know is that for a typical midsize passenger jet, taking out one lb of weight saves 124 lbs of fuel per year.



Part II: Increase in Supply

- Require federal government procurement agency [GSA] to sign long-term contracts for biofuel blends E85 for up to 30% of their fuel requirements. A major issue preventing increased biofuel capacity is the inability to finance plants due to lack of long-term fuel-purchase contracts. Use government procurement to address this bottleneck.
- Expand the renewable fuel loan guarantee in Section 1511 of the 2005 Energy Policy Act to allow for more than 50 projects rather than the current 4.
- Encourage automakers to go total-flex. Over half of all Brazil's new cars are now total flex (heading for 85% in the next few years). Other countries are introducing this, e.g. Sweden (www.baff.info). Total-flex technology, pioneered by GM and VW in Brazil, lets a car burn anything from pure gasoline to pure ethanol. Since no specific fuel or blend is required, and the cars adjust on the fly, there are no captive customers; when you pull up to the pump, you can buy whatever fuel or blend is cheapest that day. This has been the most important reason Brazilian ethanol now competes robustly against gasoline without subsidy. As a result, Brazil has already replaced over one-fourth of its gasoline with sugar-cane ethanol; has recovered its initial ethanol subsidies 50 times over from oil savings; and lands ethanol in New York for \$1.10/gallon after paying 100% duty.
- Propose a DARPA fly-off between 10 competing cellulosic ethanol plants: pay to build each, and protect intellectual property rights while gaining transparency in data.

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Senator, should you have any questions about this list, please do not hesitate to get in touch. Thank you.

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