

## Chapter 15

### U.S. Law and Policy: Transportation

#### I. Automobile Fuel Efficiency Standards (p. 716)

This section looks at the evolving case law regarding Corporate Average Fuel Economy (CAFE) standards. The Energy Policy and Conservation Act (EPCA) requires the National Highway Traffic Safety Administration (NHTSA) to set CAFE standards that represent the “maximum feasible average fuel economy level.” The EPCA does not define “maximum feasible.” Instead, it requires NHTSA to consider four factors when setting the maximum feasible fuel economy. These four factors look at technological feasibility, economic practicability, the effect of other federal motor vehicle standards on fuel economy, and the need of the nation to conserve energy. Despite the potential conflict between, for example, economic practicability and the need to conserve energy, Congress did not give NHTSA direction regarding how it was to weigh the four factors. Not surprisingly, NHTSA’s ultimate choices regarding how it would balance the four factors generated considerable litigation, particularly when “light trucks” became more prevalent in the U.S. automobile market.

For more than two decades, NHTSA’s decisions regarding appropriate CAFE standards received strong deference from the courts (usually the D.C. Circuit). In 2007, however, the Ninth Circuit reversed NHTSA’s most recent CAFE standards, which employed a new formula for setting fuel economy. The comparison of the earlier and recent caselaw provides the opportunity to discuss deference to agency decisions and to explore which court’s approach to deference would most likely withstand Supreme Court review. Beyond that, the cases provide students the opportunity to better understand NHTSA’s process for setting fuel economy standards and to evaluate the “Reformed CAFE” standards-setting process. Finally, the cases may invite a broader discussion of how and whether governments should set fuel economy requirements.

#### A. Early Case Law and Deference to NHTSA (p. 718)

This first case demonstrates the level of deference courts have typically given the NHTSA when it sets CAFE standards. In discussing this case, you may want to ensure that students understand the methodology employed by NHTSA, since this will provide a point of comparison when you discuss Reformed CAFE in the *Center for Biological Diversity* decision starting on page 726. As noted above, this case ultimately comes down to a question of the level of deference NHTSA should receive in interpreting its mandate under EPCA. However, it is fair to question whether NHTSA, and ultimately the court, properly included consumer demand within the factors of “technological feasibility” and “economic practicability.” Although the court makes clear that the agency could not allow consumer demand to serve as the sole factor affecting CAFE standards, it does allow consumer demand to serve as the primary justification for NHTSA’s relaxed standards. You may ask students whether the court’s explanation on pages 722–23 is consistent with the overall objectives of the CAFE program.

#### Questions and Discussion (pp. 722–725)

1. The court based its decision on deference to NHTSA and the ambiguity of the statute. As noted on page 719 of the text, NHTSA must base fuel economy on four factors, but the EPCA does not tell NHTSA how to weigh the factors. The court found that NHTSA properly concluded that “consumer demand” for larger trucks could fall under factors 1 and 2 (technological feasibility and economic practicability) and thus deferred to the agency’s decision.

It is possible to criticize the court’s decision on at least some grounds. The court seemed to assume that consumer demand resulted solely from lower fuel prices, rather than a combination of low fuel prices, automobile companies’ marketing strategies (which focused on light trucks and SUVs), and domestic companies’ failure to manufacture attractive and reliable small cars. By ignoring some of the well documented failures of the automobile companies to invest in their smaller cars, the court then readily accepted the companies’ claims that they have no choice but to either advocate for lower fuel efficiency standards or to produce fewer trucks.

It is unclear what other arguments the Center for Automotive Safety could have made at the time. As noted on page 721, the petitioners challenged the emphasis on consumer demand, the claims that Ford lacked the technology to increase their fuel savings, and the use of marketing strategies that were promoting larger vehicles. None of these arguments persuaded the court to reject NHTSA’s interpretation. Indeed, it would take more than two decades before a court would challenge NHTSA’s application of the EPCA.

It may not be fair to say that the agency or the court is hostage to consumer demands. The agency has an ambiguous statute to interpret, and it could fairly interpret the statute in a way that could lessen the importance of consumer desires. For example, the agency probably could have assessed the effectiveness in marketing strategies promoting fuel efficiency when determining whether increased fuel economy standards would be economically practical. NHTSA could also interpret the statute in a way that views consumer demand as an integral component of the “feasibility” and “practicability” of CAFE standards. Indeed, as Ford argued, a standard could not be considered economically practicable if it requires companies to build cars that no one would buy. Accepting Ford’s argument does not make the agency hostage to consumer demands, however. The agency retains the ability to interpret the ambiguous statute differently, so long as it justifies its interpretation.

2. The use of penalties in the CAFE program has several interesting dynamics. The continued violations of the CAFE standards by European luxury car manufacturers suggest that CAFE standards need not apply to those wealthy enough to purchase luxury cars. Indeed, neither the CAFE standards nor the gas guzzler tax appear to have prompted automakers to increase fuel economy in their luxury, “high-performance” cars. The penalty per vehicle when spread out among the entire fleet is so low, compared to the price of a car, that it seems unlikely to affect the purchasing decisions of consumers.

Students may have different perspectives regarding the use of penalties and whether companies should be able to opt out of fuel economy standards by paying the per car penalty set by NHTSA. On the one hand, some students may take the view of the D.C. Circuit and find that consumer demand should be a factor underlying fuel economy standards; if consumers want to

buy inefficient cars, they should be able to do so. On the other hand, some students may argue for increased penalties and more vigorous standards. This could be the topic of an interesting discussion in your class.

3. This note is self-explanatory.

4. This note is self-explanatory.

5. This note is self-explanatory. The National Academy of Sciences (NAS) report is worth reading, for anyone interested in exploring these issues in greater detail.

## **B. Recent Developments in the CAFE Program: A New Era? (p. 725)**

### **1. Reformed CAFE and Light Trucks (p. 726)**

The NAS description of Reformed CAFE is important to understand. Under the traditional CAFE system, passenger vehicles were subject to the 27.5 mpg standard, and light trucks were subject to the 20.5 mpg standard. These standards apply on a fleet-wide basis. Thus, an automaker could produce 50 trucks with an average fuel economy of 10 mpg, so long as it produces another 50 with an average fuel economy of 31 mpg. While about half of the fleet would get quite good mileage, the other half could have particularly poor fuel economy. The only thing that matters is the fleet-wide average; a specific vehicle's fuel economy of 5 mpg, would be irrelevant if the average fleet fuel economy meets the CAFE standards.

Reformed CAFE tries to get at fuel economy on a model-by-model basis, rather than solely on a fleet-wide basis. Under Reformed CAFE, NHTSA would set each manufacturer's fuel economy level based on the attributes of each type of vehicle produced. While vehicles with a bigger footprint would be allowed to meet lower standards, the idea is that these vehicles would at least have mandatory standards. In other words, NHTSA could prohibit vehicles that achieve a fuel economy of only 10 mpg, if it determines that vehicles with similar attributes can achieve 20 mpg. In effect, Reformed CAFE allows NHTSA to set more targeted standards for each automaker and should enable NHTSA to prevent automakers from building cars with lower fuel economy than they can otherwise technologically achieve.

However, while Reformed CAFE allows NHTSA to engage in more targeted decision-making, and thereby to force improved fuel economy in some vehicles, it also creates a risk of a "race to the bottom." Each automobile manufacturer would have a specific CAFE standard based on the types of cars and trucks the manufacturer chooses to sell. If a company chooses to produce only large SUVs, its overall fuel economy requirements would be much lower than a company that chooses to produce light, fuel-efficient pick-ups. Whereas the traditional CAFE program required automobile manufacturers to compensate for production of inefficient vehicles by producing efficient ones, Reformed CAFE would not impose this requirement. In theory, then, a particular truck manufacturer could actually lower its average fuel economy simply by choosing to build bigger, heavier trucks. This issue arises in the *Center for Biological Diversity* decision, where the court discusses the "backstop" for Reformed CAFE on pages 730–31.

## Questions and Discussion (p. 733)

1. The costs of carbon dioxide emissions likely fall under the “economic practicability” factor. It is not entirely clear if NHTSA analyzed the costs under that factor, or whether the agency instead considered the costs generally as part of a cost-benefit analysis it conducted. As noted briefly on page 728, the court upheld NHTSA’s use of a cost-benefit analysis to set CAFE standards. The cost-benefit analysis did not look only at the economic practicability of the CAFE standards; it sought to analyze the technological feasibility of proposed standards and then compare the benefits of the technology-based standards against the costs associated with imposing them. In assessing the benefits, NHTSA considered other types of environmental improvements (to which it then assigned an economic value). Regarding carbon dioxide emissions, however, the agency concluded that it could not assign an economic value. The Ninth Circuit did not agree with this conclusion.

Students may agree or disagree with the Ninth Circuit’s decision. The Ninth Circuit certainly afforded the agency far less deference than any of the D.C. Circuit’s decisions cited earlier in the textbook. To the extent the agency concluded, as a matter of scientific or technological expertise, that it could not adequately assign a value to the benefits of reduced carbon dioxide emissions, the Ninth Circuit’s lack of deference appears particularly inappropriate. On the other hand, the Ninth Circuit did not necessarily challenge the agency’s technical assessment; rather, the court said that the agency assigned a value of “zero” to the carbon dioxide benefits, even though the evidence in the record showed there was at least some value associated with reduced emissions. In other words, the court found that the record did not support the agency’s conclusions. Under the Administrative Procedure Act, this would be an appropriate basis for the court to set aside NHTSA’s decision and remand for further proceedings.

2. Environmental organizations would support Reformed CAFE because it allows the agency to set CAFE standards based on vehicle attributes. Traditional CAFE does not set attribute-specific standards; the only thing that matters is the fleet-wide average. However, without a backstop, the overall fleet average could decline. Thus, most environmental organizations support Reformed CAFE—which will set standards based on vehicle attributes and include a backstop to ensure that fleet averages stay high.

## 2. The Energy Independence and Security Act of 2007 (p. 734)

The 2007 amendments made three key changes to the EPCA. First, the amendments increase overall fuel economy standards and prevent NHTSA from setting standards that fall short of the statutory standards. Second, they redefine passenger automobiles to include most four-wheeled vehicles less than 10,000 pounds. Third, they authorize the use of Reformed CAFE standards. In addition, the standards allow NHTSA to set CAFE standards for new types of vehicles that were previously exempt from fuel economy requirements.

## Questions and Discussion (pp. 734–737)

1. EISA closes the SUV loophole in a few ways. First, it defines passenger cars to include most SUVs and trucks less than 10,000 pounds. 49 U.S.C. § 32901(a)(3). Second, for any SUVs that

would not qualify as “passenger vehicles,” EISA nonetheless sets a combined fuel economy standard that applies to both passenger and non-passenger vehicles. *Id.* at 32902(b)(2)(A). This standard, which must be at least 35 mpg by 2020, is much higher than previous fuel economy standards. Third, it allows the NHTSA to set standards based on vehicle attributes. *Id.* at 32902(b)(3).

It also establishes a backstop. If NHTSA sets standards based on vehicle attributes under section (b)(3), it must nonetheless impose a minimum standard of 27.5 mpg for all domestically manufactured passenger cars. *Id.* at 32902(b)(4)(A).

2. It may ultimately be difficult for Congress to set a floor that is immune from market fluctuations associated with the cost of gas. If consumers choose to purchase smaller cars, vehicle manufacturers may indeed end up easily meeting their fuel economy standards. On the other hand, the 35 mpg standard is a considerable improvement, even for many small cars. Congress could have established more categories of standards that would apply, for example, to smaller vehicles, mid-sized vehicles, large passenger vehicles, and non-passenger vehicles. This would have enabled Congress to ensure improved fuel efficiency across all classes of vehicles. But Congress may not be the best entity to set such standards, since it lacks technical expertise.

3. NHTSA still retains a great deal of discretion when it applies the four factors, but Congress limited that discretion under section (b)(2)(C), which requires NHTSA to prescribe average fuel economy standards “that increase the applicable average fuel economy standard ratably beginning with model year 2011 and ending with model year 2020.” 49 U.S.C. § 32902(b)(2)(C). In other words, contrary to past practice, NHTSA may not decrease the fuel economy standards between 2011 and 2020. After 2020, NHTSA has more discretion to set standards that are “the maximum feasible” for each fleet for each model year. 49 U.S.C. § 32902(b)(2)(B). In theory, NHTSA could retain the 35 mpg standard, but it would likely face a court challenge as technologies develop to make vehicles more fuel-efficient (or perhaps fuel-independent).

4. This question asks whether Congress should have included fuel economy requirements in the bailout bill, and there is no right or wrong answer to this question. Since the publication of the text, President Obama announced his intention to establish fuel economy standards of 35.5 mpg by 2016. Press Release, The White House, Remarks of the President on National Fuel Efficiency Standards (May 19, 2009). The standards would mirror those established by California under its vehicle emissions standards program of the Clean Air Act (*see* Chapter 13), and EPA would apparently adopt the same standards as part of its federal vehicle emissions standards. *Id.* Automakers supported President Obama’s announcement. *Id.* It is still unclear how the standards would conform to both the EPCA and the Clean Air Act; we will keep our eyes out for proposed rulemaking to get a better understanding of how the agencies would develop and implement the standards under the two statutes.

5. The benefits of credit trading, as discussed in many other parts of the book, are the flexibility it provides to companies unable to meet the technology-based standards set under the EPCA. Trading also could provide an economic incentive for other companies to go beyond the CAFE standards so that they have credits available to trade. However, trading can stifle innovation (*see*

Professor Driesen’s excerpts from Chapter 2) and may be difficult to administer (*see* Chapter 11, discussing a proposed cap-and-trade program for the United States).

6. EPA’s reliance on EISA to support its waiver denial was probably not lawful. The standards of the waiver are covered in detail in Chapter 13 (beginning on page 553), but they do not suggest that CAFE standards can supplant vehicle emission standards. Instead, Section 209(b)(1) of the Clean Air Act requires EPA to waive the preemption bar “if the State determines that the State standards will be, in the aggregate, at least as protective of public health and welfare as applicable Federal standards,” unless (A) the determination is arbitrary and capricious, (B) the State does not need the standards for compelling and extraordinary conditions, or (C) the standards are inconsistent with the Clean Air Act. 42 U.S.C. § 7543(b)(1). Even if CAFE standards could factor into EPA’s waiver decision, the EISA standards will likely be less stringent than the California standards. You may want to cover this issue in greater detail when you discuss the California waiver request.

7. This note is self-explanatory.

## **II. Reforming the Transportation Infrastructure (p. 737)**

This section explores broader policy approaches to transportation design and planning in the United States. For the most part, we think students can understand this material without much in-class instruction. Rather than use this material for a class lecture, we think it may make sense to have this section (likely combined with Section III of Chapter 15, which reviews laws and policies regarding alternative fuels) contribute to student presentations or discussions regarding transportation policy. *See* below for some thoughts about student exercises you may want to use.

### **A. A Survey of Policies to Reduce Vehicle Miles Traveled (VMT) (p. 738)**

#### **Questions and Discussion (pp. 747–751)**

1. There are several ways governments could address suburb-to-suburb commuting. Most of the policies identified in the Federal Highway Administration excerpt, such as promoting bicycling and walking, constructing more HOV lanes, promoting telecommuting, and increasing fuel pricing, could be aimed at suburban commuting. However, these measures will likely have only minimal effects if commuters living in one suburb must commute several miles to another suburb for work. To address this, some cities have proposed to develop suburb-to-suburb public transit lines that would avoid city centers entirely. As with urban public transit systems, these suburban systems are often difficult to fund and build.

2. This note is self-explanatory.

3. This note is self-explanatory.

4. This note is self-explanatory.

5. This note is self-explanatory. One of the authors did see a UPS truck turn left recently, so the “right turn only” policy may not be absolute.

6. Professor Mann proposes to create an alternative to the existing home mortgage interest deduction. The alternative would provide home buyers with a tax credit—rather than a tax deduction—with two components. The first component would set the base amount of the tax credit. It would be available to all eligible home buyers regardless of the location of the house. Eligibility would depend on the buyers’ income level, much like current tax policy phases out deductions for the very wealthy. The second component, the location efficiency premium (LEP), would reward home owners with an additional credit if they buy properties located close to transit, shopping, and pedestrian accessibility.

It is unclear if the proposal would promote home ownership in urban centers or development of increased public transportation. On the one hand, home owners respond to the incentives in the home mortgage interest deduction and often consider this deduction when deciding whether to buy or rent a house. A tax credit would presumably provide a similar incentive, and if the LEP were high enough, could encourage more home ownership in urban centers. Cities interested in increasing their urban density, and their property taxes, would have incentive to develop or expand their public transportation systems to increase the value of the LEP available to would-be home owners. Thus, the economic incentives inherent in the LEP could yield the results Professor Mann anticipates.

On the other hand, home owners do not consider transportation or costs only when deciding where to buy houses. Schools, safety, the size of the house, and the quality of the house all factor into the decision-making process, and it is unclear if a LEP could compel home buyers to rank access to public transportation above these other factors.

7. These questions ask students to consider whether mortgage deductions and credits provide the right incentives to would-be home buyers. A LEM would allow home buyers to purchase a more expensive house than they could otherwise buy if they lived away from public transportation and other services. Critics of current mortgage deductions note that consumers who buy more expensive homes, and thus presumably have greater wealth, receive larger deductions. See Edward L. Glaeser, *Killing (or Maiming) a Sacred Cow: Home Mortgage Deductions*, NY TIMES, ECONOMIX, Feb. 24, 2009, <http://economix.blogs.nytimes.com/2009/02/24/killing-or-maiming-a-sacred-cow-home-mortgage-deductions/>. The LEM does not clearly change this dynamic. The LEP, in contrast, does not seem to reward home buyers for taking out a more expensive mortgage. Instead, it would reward consumers for their location-efficient purchases, regardless of the value of the mortgage.

It is unclear how the IRS would calculate the LEP. One option would be to calculate a LEP based on reduced carbon dioxide emissions and anticipated costs of carbon credits. Another would be to assign set values for the efficiency factors identified by Professor Mann. For example, buying a home in a dense urban neighborhood would be worth \$100, buying in a moderately dense neighborhood would be worth \$50, and so forth. You may ask your students to think of other ways they would structure the LEP to encourage home ownership in efficient locations.

8. This note is self-explanatory.

9. Many planners believe that the best option is to increase suburb-to-suburb public transportation, so that lower-income employees can afford to commute to suburban workplaces. Local governments could also shift the burden onto the employers by requiring them to provide transportation for their employees, but many local governments would resist doing this for fear of driving the employers to other areas. Therefore, it appears that increased public transportation provides the most viable solution.

## **B. The Role of the Federal Government in Transportation Policies (p. 751)**

### **Questions and Discussion (pp. 752–753)**

1. There are no right answers to the questions regarding which level of government should have primary responsibility for transportation planning. Those who favor greater federal control point to the fact that federal funds account for a significant portion of transportation funding. In their view, states should be willing to agree to more federal control if they are going to rely so heavily on federal dollars. In addition, the federal government has the potential to adopt and implement comprehensive travel plans which could provide a way to significantly reform our current transportation system. Finally, advocates of federal control note that many congested transportation corridors cross state lines and therefore require greater federal oversight. *See* ROBERT PUENTES, THE BROOKINGS INSTITUTION, *A BRIDGE TO SOMEWHERE: RETHINKING AMERICAN TRANSPORTATION FOR THE 21ST CENTURY* (June 12, 2008).

On the other end of the spectrum, some transportation planners favor an enhanced role for local governments in transportation planning. In urban areas, in particular, they believe that local planners have a greater understanding of their transportation systems, and a greater capacity to develop effective solutions, than either state or federal governments. They view transportation planning as an integral component of land-use planning, over which local governments retain control. They believe the current system—in which the federal government gives money to states for transportation projects—unfairly eliminates local governments from decisions that go hand-in-hand with land use decisions.

2. Earlier this year, Secretary of Transportation Ray LaHood acknowledged that the highway trust fund would run out of money due to reduced driving and stagnant tax rates. Press Release, U.S. Department of Transportation, Statement from U.S. Transportation Secretary Ray LaHood on the Highway Trust Fund (June 17, 2009). Therefore, it seems likely that Congress will soon need to consider alternative funding mechanisms other than the gas tax. Recent congressional hearings suggest Congress may consider competitive grants, in which states and local governments would need to submit comprehensive plans for integrating and improving transportation, land use, and “livability” planning to reduce vehicle miles traveled. *See* Robert Puentes & Adie Tomer, *Congress Plans a Transportation Overhaul*, THE VINE, THE NEW REPUBLIC, June 19, 2009, <http://blogs.tnr.com/tnr/blogs/environmentandenergy/default.aspx?PageIndex=6>. To provide highway funding, economists favor charging drivers based on their vehicle miles traveled, which

would ensure that those who drive the most would pay a greater share. In addition to VMT-based rates, transportation planners advocate additional congestion fees, tolls, and other use-based charges. See Robert Puentes & Adie Tomer, *Untangling Transportation Funding*, THE BROOKINGS INSTITUTION Feb. 26, 2009, [http://www.brookings.edu/opinions/2009/0226\\_vehicle\\_miles\\_traveled\\_puentes.aspx](http://www.brookings.edu/opinions/2009/0226_vehicle_miles_traveled_puentes.aspx). Of course, these changes could reduce total VMT in the future, at which point another highway funding mechanism will be necessary.

### **III. Alternative Fuels (p. 753)**

#### **A. An Overview of Alternative Fuel Production and Use (p. 754)**

##### **1. Agricultural Sources of Fuels (p. 754)**

#### **Questions and Discussion (pp. 757–761)**

1. In addition to the approaches identified in response to question 3, below, policymakers have also used “equivalence values” (*see* text page 772) or other multipliers to calculate the climate change benefits of given fuels. These multipliers are similar to global warming potential, in that they seek to compare different substances based on their carbon reduction potential. An alternative fuel that has very little potential would have a low equivalence value.

2. This note is self-explanatory.

3. Policymakers have several options they can pursue to respond to the recent studies. First, they can ignore the studies and promote an alternative fuels policy that disregards indirect effects. Although this may seem short-sighted, it is nonetheless a policy that many politicians and lobbyists have supported (and to date employed). Second, they can attempt to develop a policy that promotes the use of alternative fuels that qualify as “low carbon” fuels based on their direct and indirect emissions. California’s Low Carbon Fuel Standard (*see* text p. 774 n.2) provides an example of this policy. Third, they can limit the use of those alternative fuels that do not provide significant carbon reduction benefits. Congress moved toward this approach, in part, in the Energy Independence and Security Act (EISA), when it required advanced biofuels to meet the increased renewable fuel standards starting in 2016. *See* text p. 772. Although EISA does not phase out ethanol, it sets the stage for advanced fuels to dominate the alternative fuel market in the future. Last, Congress can prohibit or phase out the use of alternative fuels that do not provide net carbon reduction benefits. This would resemble the phase-out provisions under the Montreal Protocol on Ozone-Depleting Substances, which has gradually phased out the use of many compounds. *See* Chapter 10, pp. 384–92.

4. Balancing biofuels production with food production has presented policymakers with difficult choices. Some food policy experts advocate banning crop production for biofuels on lands that would otherwise grow food. Others believe a balance can exist between food production and fuel production, but have called for greater financial and technological assistance to enable developing countries to grow their own foods. Some agricultural companies believe that biotechnology will resolve the issue and allow for increased production of both food and fuel.

5. This note is self-explanatory.

6. This note is self-explanatory.

7. This note is self-explanatory.

8. This note is self-explanatory.

**2. Natural Gas (p. 761)**

**3. Hydrogen Fuel Cells (p. 762)**

**Questions and Discussion (p. 766)**

1. This note is self-explanatory.

2. This note is self-explanatory.

**B. The Legal Framework Regulating Alternative Fuels (p. 766)**

**1. Tax Incentives and Subsidies (p. 766)**

**Questions and Discussion (p. 770)**

1. The subsidies under the Farm Bill and EISA are likely inconsistent, at least so far as climate change mitigation is concerned. While EISA places limits on subsidies based on their lifecycle greenhouse gas emissions, the Farm Bill continues to provide a significant tax incentive for corn ethanol, regardless of its emissions. Moreover, EISA conditions the subsidies for *advanced* biofuels—which many experts believe will have great promise in reducing lifecycle emissions—and thereby makes it more difficult for farmers to get subsidies for superior fuels.

At the same time, in terms of the precautionary principle and development of a sustainable alternative fuel policy, EISA is likely the better approach, because it bases the subsidies on demonstrated benefits. The Farm Bill’s subsidies, in contrast, are based on politics and lobbying.

2. This note is self-explanatory.

**2. Renewable Fuel Standards (p. 771)**

**Questions and Discussion (pp. 773–775)**

1. It may be possible for a state to demonstrate it is entitled to a waiver if it could show that direct compliance with the RFS through purchasing renewable fuels or trading credits would “severely harm the economy” of the state. *See* 42 U.S.C. § 7545(o)(7)(A)(i). In other words, if the direct costs of compliance were too high, a state may be able to meet EPA’s threshold.

However, EPA's interpretation of the waiver provision appears to prevent states from obtaining a waiver where they allege the RFS is indirectly contributing to economic hardship. EPA appears to want the RFS to be the sole or dominant cause of the alleged hardship, and it wants the waiver provision to provide a clear remedy for the harm. This test will be nearly impossible to meet in the case of ethanol, since subsidies play such a key role in promoting ethanol production and consumption.

2. This note is self-explanatory.

3. Addressing the issue of subsidies is relatively easy as a legal matter, but much more difficult as a political one: the government could lower subsidies for crop-based biofuels and increase them for cellulosic biofuels. Addressing the issue of demand is more complicated. While the RFS ensures some demand for biofuels, the actual amount of biofuel consumption required is very small compared to the amount of fossil fuels. Some cities have directed their buses and official vehicles to use biodiesel in place of diesel, and some states provide tax credits for drivers who buy alternative fuels. These measures increase consumption only incrementally, however.

The EISA waiver would likely not address concerns regarding inadequate demand, unless a petitioner could show (as mentioned in response to Question 1) a lack of demand that makes compliance with the RFS extremely difficult for a state.

4. Starting in 2016, all increased requirements in the RFS must be met with cellulosic biofuels and other advanced fuels. From 2008 until 2015, crop-based biofuels will supply the bulk of the fuels meeting the RFS requirements, and by 2015, 15 billion gallons of renewable fuels will come from these biofuels. After 2016, however, cellulosic fuels and advanced fuels must provide the additional fuels necessary to meet the RFS, which will increase to 36 billion gallons by 2022. EPA recently issued proposed regulations that would require cellulosic biofuels and advanced fuels to supply all of the fuels necessary to meet the RFS by 2022. *See* EPA, EPA Proposes New Regulations for the National Renewable Fuel Standard Program for 2010 and Beyond (May 2009), <http://www.epa.gov/OMS/renewablefuels/420f09023.htm#7>. In other words, while EISA seems to allow conventional biofuels to continue to supply up to 15 billion gallons of the RFS requirement after 2016, EPA has proposed to displace these crop-based fuels with cellulosic and advanced ones.

### **C. Are Hybrids and Plug-In Vehicles the Solution? (p. 775)**

#### **1. An Overview of PHEV Technology (p. 775)**

#### **Questions and Discussion (p. 777)**

1. This note is self-explanatory.

2. This note is self-explanatory.

3. This note is self-explanatory.

## 2. Policies Affected PHEV Use (p. 777)

### Questions and Discussion (pp. 778–779)

This note is self-explanatory.

### Questions and Discussion (pp. 780–781)

1. It is unclear whether tax credits reward people who do not necessarily need incentives to purchase “desirable” cars. This issue has arisen recently with the “Cash for Clunkers” program, which allows car owners who trade in vehicles that get less than 18 miles to the gallon (mpg) to receive a \$3,500 rebate if they buy cars with mileage improvements of at least 4 mpg (they can get a \$4,500 rebate for a mileage improvement of at least 10 mpg; there are other thresholds for trucks). The program has proven to be far more popular than anticipated; it blew through the first \$1 billion in available rebate money during its first week, and Congress recently appropriated another \$2 billion to support its continuance. Yet, many questions have accompanied the program, including whether car buyers were actually driving their “clunkers,” and whether they would have upgraded to more efficient vehicles at some point even without the incentives. See Matthew L. Wald, *Doing the Clunker Calculus*, NY TIMES, Aug. 8, 2009, at B3, available at <http://www.nytimes.com/2009/08/08/business/08clunker.html?ref=business>. It is unlikely that we will ever know the answers to these questions, since no control group exists to measure what would have happened absent the program.

2. This note is self-explanatory.

3. Tax credits have certainly proven to be a popular means of promoting the use of hybrid cars and encouraging consumers to improve their vehicle mileage under the “Cash for Clunkers” program. These programs tend to receive broad public support (although they are not without controversy) and to yield measurable results (although, as explained in the NY Times article above, the results are subject to dispute).

Other than tax credits, policymakers could: 1) employ public vehicle purchasing programs for government agencies (*see* page 778 for an explanation of how the Clean Air Act would preempt states from establishing purchasing requirements for private fleets operated for public purposes); 2) impose higher gas taxes to indirectly encourage the switch to PHEVs; 3) work with utilities to develop comprehensive programs that use PHEVs as part of an electricity storage/distributed generation program; or 4) develop other incentives, such as reserved or discounted parking, access to high-occupancy vehicle lanes, or discounted toll payments, for drivers of PHEVs. The last set of incentives, however, could conflict with other efforts to reduce overall vehicle miles traveled.

4. The “Cash for Clunkers” program is one type of program that promotes greater efficiency by encouraging trade-ins of the least efficient vehicles. Some critics of the program have opposed the specific requirements of the program, however, arguing that Congress should have 1) limited participation to people who earn less than \$75,000 per year (or some other income cap), and 2) required participants to get greater mileage improvements to receive the rebates. Owners of

trucks, for example, could receive the \$3,500 rebate if they were to trade in a truck that gets 15 mpg for one that gets 16 mpg. Students may think there should be income caps and increased mileage improvements to trigger a rebate.

5. Most economists believe—and recent experiences with high gas prices seem to confirm—that high gas prices are necessary to trigger meaningful changes to Americans’ driving habits. Keeping gas prices elevated will likely require Congress and/or state legislatures to raise taxes, which, to date, they have been unwilling to do. A cap-and-trade program will also likely result in higher gas prices over time, although the price per gallon of gas may not increase significantly in the near-term. Other than price increases, the excerpts in the book identify a number of other policy approaches to reducing driving. As describe below, you may want to develop an in-class exercise that allows students to evaluate the effectiveness of these policies.

### Suggested Student Exercise

**Lobbying and legislative exercise.** Most of the material in this chapter explores different government policies designed to encourage or discourage various behaviors. We think one of the more effective ways to teach the material is to enable students to advocate in favor or against the policies. A mock legislative hearing regarding a comprehensive transportation plan provides a forum for students to develop and express their views. Under our model, students would prepare for the hearing for several weeks outside of class and then participate in the mock hearing for one or two class periods. You may want to tighten up the timeframes. Here are some general suggestions for setting up the exercise.

1. Divide the students into different groups. Depending upon the class size and number of students you want in each group, we recommend the following groups: members of the legislature, oil companies, agricultural companies (representing traditional, crop-based biofuel growers), major automobile companies with and without hybrid car lines, start-up companies invested in advanced biofuels and/or electric cars, municipalities affected by the proposed policy, food policy organizations (likely NGOs advocating for access to food in developing countries), environmentalists interested reducing greenhouse gas emissions, and land use planners favoring integrated transportation planning.

2. Members of the legislature should prepare a draft transportation plan, based on the materials in the book and additional materials they find through independent research. Due: 4 weeks before the “hearing.”

- To avoid having the students get bogged down in specific language, encourage the students to present their proposal using bullet points. But, to ensure students have developed a solid proposal, have the students support each element of the proposal with a brief explanation of the benefits of the proposal.
- If all of your students are likely to vote similarly regarding the legislative proposal, you may want to assign students to certain political positions or provide each student with a brief description of her/his political history (e.g., student A represents Detroit and received 55% of his campaign funding from GM and Ford during the last election;

student B represents the most liberal part of Portland, Oregon, and has advocated transportation reform for the past 20 years).

2. Each advocacy group should prepare a “position paper” regarding their views on the legislative proposal and distribute it to the other students. Due: 2 weeks before the “hearing.”

- Students in each advocacy group should prepare their position papers based on the materials in the textbook, as well as on independent research. The independent research will expose students to new ideas and to the politics underlying the groups’ advocacy.
- Encourage students to comment on the elements in the legislative proposal, as well as on elements not included in the proposal which they think should be.

3. Each advocacy group should prepare a response to the other policy proposals. Members of the legislature should review the policy proposals and develop a list of questions they would like the advocacy groups to address during the “hearing.” Due: 1 week before the “hearing.”

4. Hold a mock legislative hearing in class. Members of the legislature will conduct the hearing, at which each advocacy group should speak. Ideally, we think it would be best for each group to make a VERY brief opening statement, followed by questioning from the legislature, followed by a VERY brief closing statement or rebuttal.

- Time management will be key to make sure that the hearing is interesting and productive. If you remind the students that everyone has read all of the materials, you may avoid having students read verbatim their earlier drafts. (You may want to emphasize this point).
- Depending on the time available, you may want the hearing to last 2 classes.

5. Conclude the hearing (perhaps after a short recess for deliberation) with a brief straw poll of the members of the legislature regarding how each member plans to vote regarding the transportation policy.