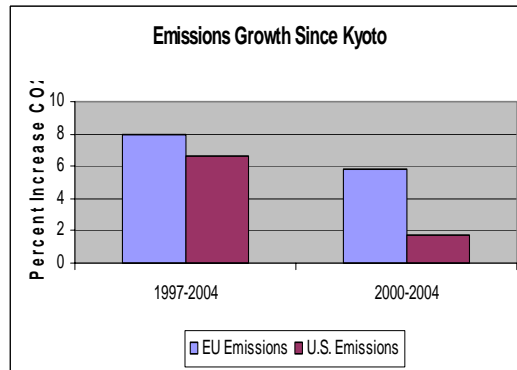


XIX. Climate Policy

AIT: “The European Union has adopted this U.S. innovation [emissions trading] and is making it work effectively there.” (AIT, p. 252)

Comment: What does “effectively” mean in this context? Gore doesn’t say. If “effectively” means effective in reducing CO₂ emissions, then the statement is incorrect. Since 1997, the year the Kyoto Protocol was negotiated, EU emissions have increased. What is more, EU emissions are increasing faster than U.S. emissions.

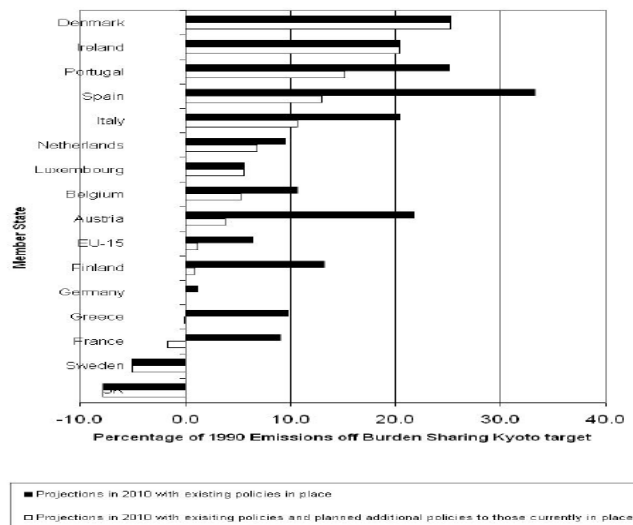


U.S. and EU emissions growth since Kyoto

Source: EIA data¹

EU emissions are rising so rapidly that most EU countries are not on track to meet their Kyoto targets.² See the Figure below.

Projected deviation from Kyoto target for each of the 15 countries in the EU burden sharing agreement



NB. A negative value indicates a country will more than meet its Kyoto target.

Source: Institute for Public Policy Research, Traffic Lights Report (Dec. 27, 2005)

Open Europe, a British think tank, notes several “serious problems” with the EU Emission Trading Scheme (ETS):³

- **Most countries game the system for competitive advantage.** The UK chose tough targets based on past emissions as a baseline while other members gave their firms generous allowances based on projected future emissions. During 2005-2007, the system will transfer nearly £1.5 billion from UK firms to competitors in countries with weaker controls.
- **The ETS is not reducing emissions.** “According to figures released in June 2006, member states handed out permits for 1,829 million tons of CO₂ in 2005, while emissions were only 1,785 million tons...In other words, at present the system is simply not limiting emissions. Only four out of the 25 member states had targets which were lower than their actual emissions.”
- **The ETS enables Big Oil to profit at the expense of hospitals and schools.** Instead of auctioning permits, member states handed out permits “free to individual firms based on a variety of rather sketchy criteria. This attempt at central planning has had all kinds of perverse results. For example NHS hospitals have been forced to spend a total of £1,300,000 buying up permits, and 18 UK universities are also net contributors. Ironically, large oil companies [e.g., British Petroleum] have made substantial profits under the scheme.”
- **Loose targets create an unstable market that discourages technological innovation.** When firms realized in April 2006 that member states had set lax targets, permit prices fell from €30.50 per ton to just €9.25 per ton in one week. This kind of instability undermines firms’ incentive to invest in carbon-reducing technologies.
- **The system is a red tape nightmare for small entities.** “Many small plants—for example the main boiler in a hospital—are covered by the scheme, and have to employ staff to conduct monitoring, compliance activities, and pay for official verification...such plants contribute little to total emissions.” Public and private organizations in the UK pay an estimated £62 million per year in administrative expenses.

AIT: Gore reports that a Canadian company has “figured out how to make a new kind of ethanol from plant fiber—meaning that it’s cheaper and cleaner than regular ethanol.” He also reports that, “By one estimate, this new technology means that crop waste could create 25% of the energy needed for transportation. While ethanol from corn creates 29% less greenhouse gas than gasoline, ethanol from cellulose could cut gases by 85%.” (*AIT*, p. 137)

Comment: Ethanol as a motor fuel has been around for a long time. Henry Ford built his first car, the quadricycle, to run on pure ethanol. The federal government first began funding research on ethanol made from cellulose more than 30 years ago. However, reports the U.S. Energy Information Administration, “To this day, there is still not a

commercial plant using cellulose as the feedstock.”⁴ The key question for consumers is whether the Canadian company can make cellulosic ethanol that is more affordable than regular gasoline. *AIT* sheds no light on this matter.

What we do know is that corn-based ethanol—which has been available as motor fuel for decades—is more expensive than regular unleaded gasoline. For example, in June 2006, the per-gallon “rack” (wholesale) price of ethanol in corn-rich Nebraska was \$3.58 versus \$2.22 for unleaded gasoline—a difference of \$1.36 per gallon.⁵

Were it not for a 51-cent-per-gallon exemption from the federal motor fuels tax and other policy privileges, a national market for ethanol would not even exist.

AIT: “Unfortunately, the false choice posed between our economy and the environment affects our policies in harmful ways. One example is auto mileage standards. Japan has cars that are required by law to get more than 45 miles per gallon. Europe is not far behind, and has passed new laws designed to surpass Japanese standards... Yet the United States is dead last.” (*AIT*, p. 272)

Comment: Fuel economy standards restrict, not expand, the numbers and types of cars auto companies may legally produce and sell. A low fuel economy standard does not restrict production of high miles-per-gallon (mpg) vehicles. However, a high fuel economy standard does restrict production of low mpg vehicles. Therefore, to say that the United States is “dead last” in fuel economy regulation is to say that America is first in consumer choice.

AIT: “We’re told that we have to protect our automobile companies from competition in places like China where, it is said, their leaders don’t care about the environment. In fact, Chinese emissions standards have been raised and already far exceed our own. Ironically, we cannot sell cars made in America to China because we don’t meet their environmental standards.” (*AIT*, p. 272)

Comment: This is incorrect. U.S. fuel economy standards specify a fleet *average* mpg. Many U.S. cars exceed the *average*, and many meet China’s new standards. According to World Resources Institute, 100% of Ford’s 2003 sales already meet China’s Phase I (2005/2006) standards, and 72% of its 2003 sales meet the Phase II (2008) standards. Similarly, 42% of GM’s 2003 sales meet Phase I standards, and 32% meet the Phase II standards.⁶

Gore argues as if U.S. companies cannot sell a single car in China unless all U.S.-made cars comply with Beijing’s fuel economy standards—the equivalent of saying U.S. firms won’t be able to sell cars in India’s market until all U.S.-made cars are built to drive on the left side of the road.

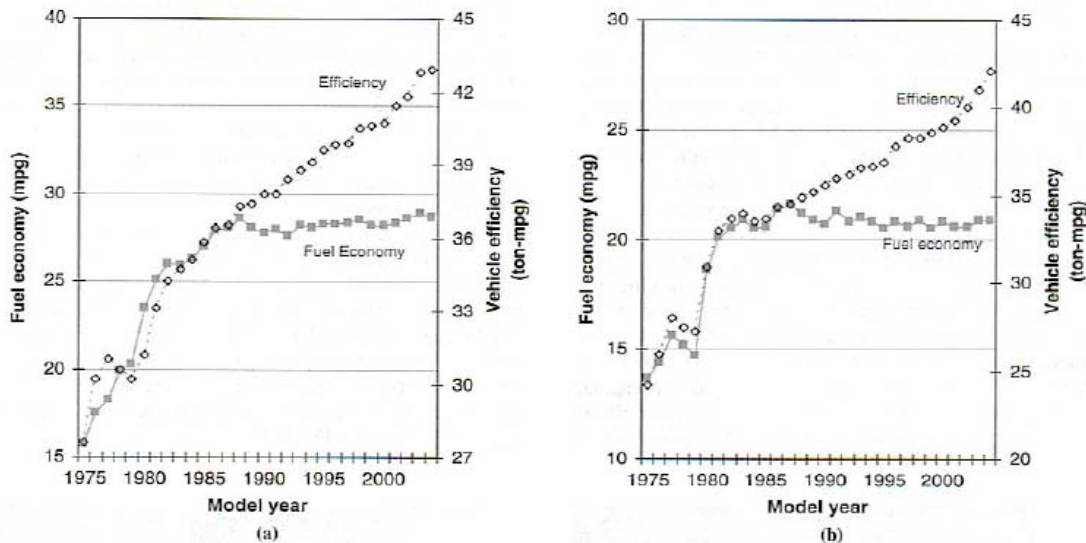
AIT: “But the auto companies are suing California to prevent this state law from going into effect—because it would mean that, *10 years from now*, they would have to manufacture cars for California that are almost as efficient as China is

making today.” (AIT, p. 273)

Comment: Gore misrepresents the auto companies’ position. They are suing because the California law, which sets CO₂ emission standards for new cars and trucks, would establish de facto fuel economy standards for new vehicles sold in California,⁷ and the Energy Policy and Conservation Act prohibits states from adopting laws or regulations “related to” fuel economy.⁸ Congress enacted the prohibition to prevent states from fragmenting the U.S. auto market.

AIT: “Our outdated environmental standards are based on faulty thinking about the relationship between the economy and the environment...as the chart makes clear, it’s the companies building more efficient cars that are doing well. The U.S. companies are in deep trouble.” (AIT, p. 273)

Comment: Gore confuses fuel economy (the number of miles per gallon) with fuel efficiency (the amount of work per unit of fuel). Today’s cars and light trucks are much more efficient than their counterparts of 30 years ago. However, consistent with consumer preferences, most of the efficiency gains of the past 20 years have been used to increase vehicle acceleration, towing capacity, size, and weight rather than fuel economy.⁹ See the Figures below.



Trends in fuel efficiency and fuel economy for passenger cars (a) and light duty trucks (b)

Source: Lutsey and Sperling (2005)

Japanese and European car makers have higher corporate average fuel economy (CAFE) ratings not because their cars are more efficient but because they make a larger proportion of small vehicles.

AIT: “And they’re [the Big Three] still redoubling their efforts to sell large,

inefficient gas-guzzlers even though the marketplace is sending them the same message that the environment is sending them.” (*AIT* p. 273)

Comment: Much of their recent advertising push is for SUV “crossovers,” which are smaller than conventional SUVs and get better gas mileage.

AIT: Gore’s chart on page 273 shows that, during Feb.-Nov. 2005, market capitalization increased at Toyota (+11.86%) and Honda (+3.28%) and fell dramatically at Ford (-33.20%) and GM (-35.84%).

Comment: Hindsight, as the saying goes, is always 20/20. Anticipating major shifts in consumer preferences is seldom easy. For example, who in the year 2000 anticipated oil prices rising to \$70 a barrel? Gore overlooks two big points. First, U.S. automakers would probably not even exist today had they been “ahead of their time” and emphasized “climate-friendly” vehicles in the 1990s. Consider this excerpt from the April 2001 edition of *Harper’s Magazine*:

By the mid-1990s, the SUV had become among the most lucrative automotive categories in history. The profit margin on each vehicle ranged from \$6,500 for a compact model like Toyota’s RAV4 to \$17,000 for a luxury model like the Lincoln Navigator. On average, automakers made \$10,000 for each SUV sold, ten times the margin on a sedan or minivan, which, last year, generated a stunning \$18 billion in profits for the industry. For the first time in decades, the auto industry had a genuine cash cow, and they used it to fund a huge expansion campaign. In 1999, for example, with the profits from a single year’s production of Expeditions and Navigators, Ford was able to buy the Swedish company Volvo outright.¹⁰

Second, a big part of Detroit’s troubles comes from contracts the Big Three negotiated during the 1950s, 1960s, and 1970s with the United Auto Workers. Because of those agreements, GM, Ford, and Chrysler have been providing health care, pension, and “other post-employment benefits” (OPEB) far more generous than those offered by Japanese and European auto makers.¹¹

AIT: To debunk the notion that “we’re helpless to do anything” about global warming, Gore provides a chart forecasting increases in U.S. energy production from renewable sources (biomass, wind, solar, geothermal, and hydro). The chart shows U.S. renewable energy production increasing from about 7 quadrillion British thermal units (quads) in 1990 to 10 quads in 2005 to 22 quads in 2030. (*AIT*, p. 276)

Comment: Gore’s forecast is very bullish, and he cites no source for it. The U.S. Energy Information Administration (EIA) projects an increase in U.S. renewable energy production from 5.88 quads in 2005 to 9.02 quads in 2030—less than half the increase forecast by Gore. Moreover, in EIA’s analysis, renewable energy production as a share of

total consumption remains flat over the forecast period. Renewable energy contributes about 6% of total U.S. energy consumption in both 2005 (5.88 quads out of 101.27 quads) and 2030 (9.02 quads out of 133.88 quads).¹²

AIT: Continuing his pep talk about steps “we” can take now to mitigate global warming, Gore lauds Denmark’s wind farms, and provides a two-page photograph of an offshore wind farm at Copenhagen. (*AIT*, pp. 378-379)

Comment: Gore does not address any of the well-known drawbacks of wind power. These include cost (if wind electricity were competitive, governments would not need to subsidize and mandate it),¹³ intermittency (the turbines spin and generate power only when the wind blows), avian mortality,¹⁴ site depletion (places with suitable wind conditions are a finite resource), and scenic degradation (per kWh of electricity, wind farms consume far more land area than either fossil fuel or nuclear power plants). Gore concedes that 300-foot-tall wind towers “alter our skylines, but many find watching their spinning blades peaceful to look at” (p. 279). He should try telling that to Senator Ted Kennedy, who fought to block construction of a wind farm in Nantucket Sound about eight miles from his home in Hyannis Port.¹⁵



Remains of a Condor at Altamont Wind Farm

AIT: Gore quotes from a study by Princeton economists Robert Socolow and Stephen Pacala that, “Humanity already possesses the fundamental scientific, technical, and industrial know how to solve the carbon and climate problems for the next half century.” He claims that the policies Socolow and Pacala recommend, “all of which are based on already-existing, affordable technologies, can bring emissions down to a point below 1970s levels.” (*AIT*, pp. 280-281)

Comment: Gore cannot know the solutions are “affordable,” because the authors specifically say they are not going to estimate costs. The study basically shows that if political leaders can somehow coerce everybody to use less energy, and don’t care what it

costs, they can significantly reduce emissions by 2054. We needed Princeton professors to tell us that? Let's look at some of the strategies Socolow and Pacala (S&P) recommend.

S&P's Strategy No. 1 is to *double the fuel efficiency of 2 billion cars from 30 to 60 mpg*. However, the current fuel economy standard is 27.5 mpg for passenger cars and 21.6 mpg for light trucks.¹⁶ So S&P are really proposing an almost threefold increase in fuel economy for a large portion of the U.S. fleet. It is politically difficult to mandate even small fuel economy increases. Their proposal would drastically curtail production of large SUVs, pickups, and sedans—a declining but still significant portion of the U.S. auto market.

S&P's Strategy No. 2 is to *decrease the number of car miles traveled by half*. But the U.S. population could easily increase 50% or more by 2054.¹⁷ This strategy is tantamount to rationing cars—commuters and soccer moms should just love it.

S&P's Strategy No. 5 is to *replace 1,400 coal electric plants with natural gas-powered facilities*. But the USA already faces a natural gas supply crunch. This strategy would play havoc with consumer electricity bills and destroy tens of thousands more high-tech jobs in the chemical industry, which uses natural gas as a feedstock.

S&P's Strategy No. 9 is to *add double the current global nuclear capacity to replace coal-based electricity*. This proposal should go over big with the no-nukes environmental establishment. Note that Gore never mentions it in his summary of S&P's recommendations on page 281.

S&P's Strategy No. 10 is to *increase wind capacity by 50 times relative to today, for a total of 2 million large windmills*. The word boondoggle comes to mind, and in case S&P has not heard, there's a growing grassroots backlash against wind farms. Again, check with Sen. Kennedy on this.

S&P's Strategy No. 13 is to *increase ethanol production 50 times by creating biomass plantations with an area equal to 1/6th of world cropland*. This strategy is a prescription for decimating millions of acres of forest and other wildlife habitat.¹⁸

If *AIT* were a balanced presentation of issues, instead of a lawyer's brief for energy rationing, Gore would at least have mentioned Hoffert et al. (2002), the study to which S&P's study was a response.¹⁹

Martin Hoffert and his colleagues, a team of 18 energy experts, examined possible technology options that might be used in coming decades to stabilize atmospheric CO₂ concentrations. Such options include wind and solar energy, nuclear fission and fusion, biomass fuels, efficiency improvements, carbon sequestration, and hydrogen fuel cells. Hoffert et al. found that, "All these approaches currently have severe deficiencies that limit their ability to stabilize global climate." They specifically took issue with the U.N. Intergovernmental Panel on Climate Change's claim that, "known technological options

could achieve a broad range of atmospheric CO₂ stabilization levels, such as 550 ppm, 450 ppm or below over the next 100 years.” World energy demand could easily triple by 2050. Yet, Hoffert et al. point out, “Energy sources that can produce 100 to 300% of present world power consumption without greenhouse emissions do not exist operationally or as pilot plants.”

The bottom line: “CO₂ is a combustion product vital to how civilization is powered; it cannot be regulated away.” Without “drastic technological breakthroughs,” it is not possible to stabilize atmospheric CO₂ concentrations *and* meet current and projected global energy needs.

A report by the Pew Center on Global Climate Change, *U.S. Energy Scenarios for the 21st Century*, implicitly comes to the same conclusion.²⁰ The Pew report sketches out three scenarios—possible future development paths—of the U.S. energy supply system from 2000 through 2035, and the increase in carbon emissions under each scenario.

Pew’s analysis of one scenario in particular merits our attention. In “Technology Triumphs,” state policy interventions, technology breakthroughs, and changing consumer preferences converge to accelerate commercialization of high-efficiency, low-emission, and zero-emission energy technologies. In this scenario, state governments:

- Set “rigorous” efficiency standards for appliances, enact caps on CO₂ emissions from power plants, and introduce or expand renewable portfolio standards (policies requiring specified percentages of electricity to come from wind, solar, and biomass technologies).
- Enhance electric power generation and transmission efficiencies via tax preferences and other policies promoting investment in “combined heat and power” (on-site electric generating units that harness exhaust heat to support space and water heating, air conditioning, and various industrial processes) and “distributed generation” (small-scale units located at or near customer sites that avoid energy losses incident to long-range transmission).
- Subsidize fuel cell research and effectively raise federal fuel economy standards by requiring new cars, minivans, and light trucks to reduce emissions of CO₂ per mile traveled.

These actions, combined with breakthroughs in solar photovoltaic manufacturing and a shift in consumer preference from “sprawling” to compact residential development, slow the growth of vehicle miles traveled, expand markets for hybrid cars, accelerate power sector fuel switching from coal to natural gas, and lay the building blocks of a hydrogen economy.

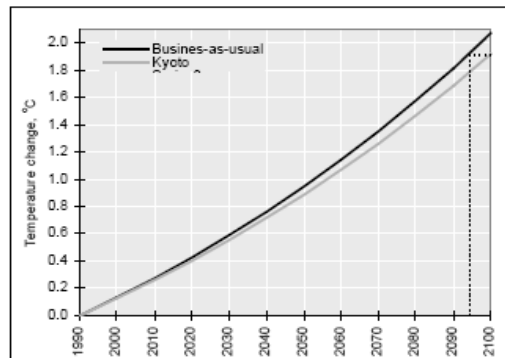
“Technology Triumphs” is really a “Politics Triumphs” scenario with state governments implementing a wide array of “technology forcing” schemes to “green” U.S. energy markets. These are the very types of measures S&P advocate in their study and which Gore claims would create wealth while reducing emissions.

But the Pew report inadvertently pours cold water on Gore’s Kyoto-without-tears assessment. In the “Technology Triumphs” scenario, U.S. carbon emissions “rise 15 percent above the year 2000 levels by 2035”—about 35 percent above the U.S. Kyoto target—despite multi-state regulation of CO₂ emissions from vehicles and power plants, mature markets for hybrid cars, widespread efficiency upgrades in the power sector, a successful launch of the hydrogen economy, and the proliferation of “energy smart” communities and houses.

The Pew report concludes that, “In the absence of a mandatory [national] carbon cap, none of the base case scenarios examined in this study achieves a reduction in U.S. carbon dioxide emissions by 2035 relative to current levels.” And it emphasizes, “This is true even in the scenario with the most optimistic assumptions about the future cost and performance of energy technologies.” In other words, to reduce emissions, it is necessary to force people to use less energy than they need—a lot less. That is a prescription for recession and worse.

It is also unclear what environmental benefit the P&S program could accomplish. P&S aim at reducing U.S. emissions to 1970 levels by 2054. But even if by some miracle *global* emissions fell to 1970 levels *tomorrow*, carbon dioxide levels in the atmosphere would continue to rise. Mankind would still be emitting about 4.5 billion tons of carbon equivalent emissions annually.²¹

AIT never confronts the most obvious objection to regulatory climate policy. The main regulatory policies debated in Congress today—the Kyoto Protocol, McCain-Lieberman,²² the Bingaman-Domenici initiative²³—would have no discernible impact on global warming. The Kyoto Protocol, for example, would avert only 0.07°C of global warming by 2050.²⁴ It would postpone the arrival of a 2°C warming by six years—from 2094 to 2100. See the Figure below.

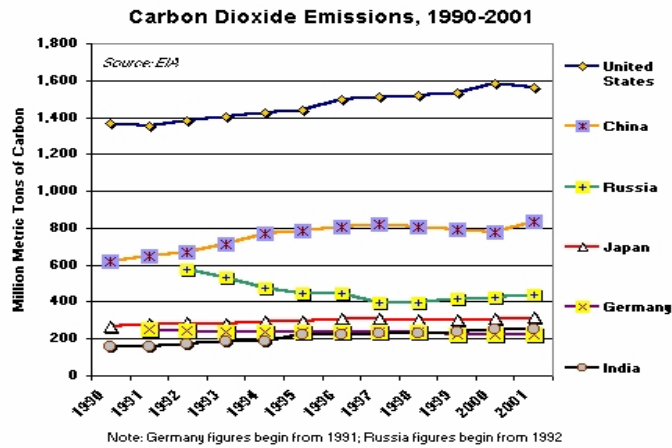


Kyoto postpones the arrival of a 2°C warming by six years—from 2094 to 2100

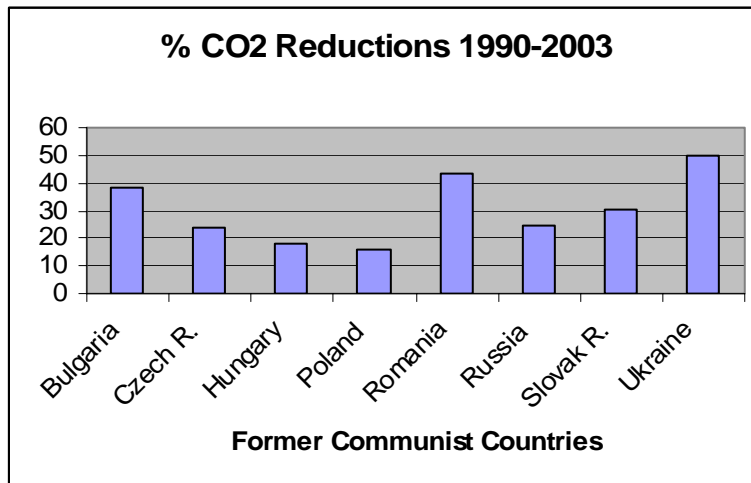
Source: Bjorn Lomborg²⁵

However, although Kyoto would have no measurable effect on global warming, it could cost the U.S. economy tens to hundreds of billions of dollars in higher energy prices, lost jobs, and lower GDP.²⁶ Alas, the only proven “method” for making deep emission cuts is that of the former Soviet Union and Eastern Europe: economic collapse. See the Figures

below.



Of the six countries, only Russia's emissions declined
Source: EIA²⁷



Percent CO₂ emission reductions of seven former communist countries, 1990-2003
Source: International Energy Agency data²⁸

Regulatory climate policies are either all economic pain for no environmental gain or a “cure” worse than the alleged disease.

¹ <http://www.eia.doe.gov/pub/international/iel/tableh1co2.xls>, July 2006

² Institute for Public Policy Research, 27 December 2005, <http://www.ippr.org.uk/uploadedFiles/pressreleases/2005/trafficlights.pdf>.

³ Open Europe, *The High Price of Hot Air: Why the EU Emissions Trading Scheme is an environmental and economic failure*, 2006, <http://www.openeurope.org.uk/research/ets.pdf>.

⁴ Energy Information Administration, “Energy Kid’s Page,” <http://www.eia.doe.gov/kids/history/timelines/ethanol.html>.

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- ⁵ Official Nebraska Government Website, “Ethanol and Unleaded Gasoline Average Rack Prices,” <http://www.neo.state.ne.us/statshtml/66.html>.
- ⁶ World Resources Institute, *Taking the High (Fuel Economy) Road: What do the new Chinese Fuel Economy Standards Mean for Foreign Automakers*, November 2004, http://pdf.wri.org/china_the_high_road.pdf, cited by Johnston, “Falsehoods in Gore’s An Inconvenient Truth.”
- ⁷ “No technology currently exists or is under development that can capture and destroy or reduce emissions of CO₂, unlike other emissions from motor vehicle tailpipes. At present, the only practical way to reduce tailpipe emissions of CO₂ is to improve fuel economy.” EPA, Control of Emissions from New Highway Vehicles and Engines, *Federal Register* Vol. 68, No. 78, September 8, 2003, p. 52929.
- ⁸ U.S.C. 49, Sec. 32919(a).
- ⁹ Nicholas Lutsey and Daniel Sperling. 2005. Energy Efficiency, Fuel Economy, and Policy Implications. *Transportation Research Record*, No. 1941, Transportation Research Board of the National Academies, Washington, D.C. 2005, pp. 8-17.
- ¹⁰ Paul Roberts, “Bad Sports: Or how we learned to stop worrying and love the SUV,” *Harper’s Magazine*, April 1, 2001, <http://www.stayfreemagazine.org/suv/harpers.html>.
- ¹¹ Allan Sloan, “General Motors Getting Eaten Alive by a Free Lunch,” *Washington Post*, April 19, 2005, <http://www.washingtonpost.com/wp-dyn/articles/A64599-2005Apr18.html>.
- ¹² Energy Information Administration, *Annual Energy Outlook 2006 with Projections to 2030*, Table 1, Total Energy Supply and Disposition Summary, http://www.eia.doe.gov/oiaf/aeo/pdf/aeotab_1.pdf.
- ¹³ CEI, Press Release, “Wind Power: ‘Commercially Proven’ in Denmark, But Still Needing Subsidies in U.S.?” <http://www.cei.org/gencon/003.02613.cfm>.
- ¹⁴ <http://www.biologicaldiversity.org/swcbd/programs/bdes/altamont/altamont.html>.
- ¹⁵ NewsMax.Com, “Kennedy Wants Wind Mills Killed,” Feb. 27, 2006, <http://www.newsmax.com/archives/ic/2006/2/27/113830.shtml?s=ic>.
- ¹⁶ National Highway Traffic Safety Administration, CAFE Overview—Frequently Asked Questions, <http://www.nhtsa.dot.gov/cars/rules/cale/overview.htm>.
- ¹⁷ U.S. Census Bureau, National Population Projections, <http://www.census.gov/population/www/pop-profile/natproj.html>.
- ¹⁸ Dennis T. Avery, *Biofuels, Food, Wildlife? The Massive Land Costs of Ethanol*. Competitive Enterprise Institute, 21 September 2006, <http://www.cei.org/gencon/025.05532.cfm>.
- ¹⁹ Hoffert, M.I., K. Caldeira, G. Benford., D.R. Criswell, C. Green, H. Herzog, A.K. Jain, H.S. Kheshgi, K.S. Lackner, J.S. Leis, H.D. Lightfoot, W. Manheimer, J.C. Mankins, M.E. Mauel, L.J. Perkins, M.E. Schlesinger, T. Volk, T.M.L. Wigley. 2002. Advanced Technology Paths to Global Climate Stability: Energy for a Greenhouse Planet. *Science* 298: 981-987, <http://www.people.fas.harvard.edu/%7Ebielicki/HEJCAAttic/Papers/Hoffert.pdf>.
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- ²¹ Virtualglobe.org, Trend in World Carbon Dioxide Emissions, <http://www.virtualglobe.org/en/info/env/01/gw04.html>; UK Department of Trade & Industry, *Energy—its impact on the environment and society*, Annex 5A, Trends in international carbon dioxide emissions, <http://www.dti.gov.uk/files/file32554.pdf>.
- ²² <http://www.eia.doe.gov/oiaf/1605/climate.html>
- ²³ <http://www.eia.doe.gov/oiaf/servicerpt/bingaman/index.html>
- ²⁴ Wigley, T.M.L. 1998. The Kyoto Protocol: CO₂, CH₄ and Climate Implications. *Geophysical Research Letters* Vol. 25, No. 13, 2285-2288. This assumes a climate sensitivity of 2.5°C of warming for a doubling of CO₂ over pre-industrial levels.
- ²⁵ Bjorn Lomborg, “Global warming: Are we doing the right thing?” <http://image.guardian.co.uk/sys-files/Guardian/documents/2001/08/14/warming.pdf>.
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- ²⁷ Energy Information Administration, Russia—Environmental Issues, <http://www.eia.doe.gov/emeu/cabs/russenv.html>.

²⁸ International Energy Agency, *CO₂ Emissions from Fuel Combustion, Highlights, 1971-2003*, 2005 Edition, Table 2, p. 11.