

Resolved:
That, by 2040, the federal government
should mandate that all new
passenger vehicles and light trucks
sold in the United States be powered
by alternative fuels.

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Topic Analysis by Carol Green

Definition Analysis

The first things that need to be considered when looking at the topic are the terms. This is one of the longest Public Forum resolutions that has been proposed, so let's break it down into smaller parts.

“by 2040” – This number stems from several areas of literature that we will discuss in the Pro Topic Analysis, however the one thing that should be noted at this point in the game is that it does not say the plan should be implemented on 2040. It needs to be done on or before 2040. Con teams should steer away from “it needs to be done sooner” arguments since the resolution allows that to be Pro ground. Additionally, I would encourage students from debating over whether the resolution crafters meant January 1, 2040 or December 31, 2040 and instead to debate the larger issue. I can see the debate over the one year occurring, and it hurts my head to think of the poor judge who has to listen to 35 minutes of this line of argumentation.

“the federal government” – This is another part of the resolution that should be contextually defined and should not be up for debate. Since we are not in policy debate, the Pro team doesn't need to pick a specific agent within the federal government. Additionally, the government being referred to is clearly the United States, since other governments don't have the ability to regulate all commerce in America. That said, I could see debate teams attempting to define that the ____ government will regulate the cars built in their country but sold in the United States should be powered by alternative fuels. Confusing? Yes. Topical? In some distant corner of the universe, maybe. Should you do it? No. And how do you beat it? Common sense and predictability of the resolitional framework.

“should mandate” – Another part of the resolution that seems pretty straight up.

The resolution calls for some passing of legislation or implementation of a new regulation by the U.S. Department of Transportation or the Environmental Protection Agency. This is where the question of the resolution lies. Should this be done or shouldn't it? We will discuss how to address the question in the Decision Calculus section of this paper.

“all new” – This portion of the resolution opens up opportunities for the Con team to develop outlier arguments that may not be as foreseeable as others. Since the resolution calls specifically for new vehicles to comply, we will discuss what happens with older vehicles in the Con argument analysis section of this paper.

“passenger vehicles” and “light trucks” – These are both pretty straight-forward terms with most people having a base understanding. I can see teams trying to get shifty on definitions though, so according to the Environmental Protection Agency, an agency that would be a part of this specific regulation:

“Light-duty truck means any motor vehicle rated at 8,500 pounds GVWR or less which as a vehicle curb weight of 6,000 pounds or less and which has a basic vehicle frontal area of 45 square feet or less, which is:

- (1) Designed primarily for purposes of transportation of property or is a derivation of such a vehicle, or
- (2) Designed primarily for transportation of persons and has a capacity of more than 12 persons, or
- (3) Available with special features enabling off-street or off-highway operation and use.

Light-duty vehicle means a passenger car or passenger car derivative capable of seating 12 passengers or less.”¹

¹ U.S. Federal Government Printing Office. (2008, July 1). *Protection of the Environment: Chapter 1 – Environmental Protection Agency*. Code of Federal Regulations, Title 40, Volume 18, Page 238-242. Accessed December 19, 2008:

“sold in the United States” – One thing that should be noted here is that this does leave an economic loophole for the Pro team to utilize in defense of case. The resolution does not say that all cars produced in the United States need to run on alternative fuels, only that the ones sold in the United States do. However, this still leaves some flexibility in international trade arguments for the Con team to pursue.

“be powered by alternative fuels” – This is probably the area that needs the most clarification in the debate round. Because the resolution does not call for a specific alternative fuel to be utilized, the best approach for the Pro team is to over generalize in the resolution and thus allow for spike outs to various arguments within case based on the assumption that a variety of alternative fuels would be utilized. However, the Con team might want to ensure that they know the cons of a variety of these fuels. Arguing that one fuel is bad on the Con would just allow the Pro team to exclude that fuel from their case. Additionally, it is within this part of the resolution that I can see vagueness and shifty advocacy coming into play. While I encourage teams to not define down to a specific fuel advocacy, I would strongly urge teams to ask for specific fuel advocacy in the first crossfire if it is not defined in case. While many teams will avoid answering this question, by asking it early in the debate, you have done your part to prevent shifty advocacy in the end of the debate. While this format of debate does not lend itself to specific procedurals to be run (to clarify: it is not against the rules, but it is discouraged by judges), you will want to be prepared to run a contextual argument about the fairness and educational value of shifty definitions and how a lack of firm ground means you as the Pro or Con team could never win your

<http://frwebgate.access.gpo.gov/cgi-bin/get-cfr.cgi?YEAR=current&TITLE=40&PART=86&SECTION=082-2&SUBPART=&TYPE=TEXT>

arguments since the other team is essentially avoiding every argument you make instead of addressing them.

What are alternative fuels that could be used in an automobile? Technically, anything that is not a traditional fuel would count, however I would strongly encourage teams to find a government definition of alternative fuel to increase the educational value of the debate. I would direct teams specifically to the definitions prescribed by the Energy Policy Act of 1992. More information can be found at the U.S. Department of Energy: Energy Efficiency and Renewable Energy Web site.²

When constructing your cases, you do not need to define every term in the resolution. That would be a waste of time and common sense. However, you should be prepared to explain your interpretation of the resolution, if it is called into question by the other team. I would encourage teams to step away from the traditional defining of terms and instead to focus on crafting a brief resolitional analysis of their own. This will cover all of the bases of the traditional definitions, but will save you time and let you get into the thick of the substantive arguments.

Decision Calculus

This resolution is pretty clear on what question is being posed. Should the federal government mandate that all passenger vehicles and light trucks run on alternative fuel by a set date. The framework of how a judge decides the round should be clear, weigh out the costs of proceeding with the proposed mandate versus the benefits of the mandate. In other words, which side is more beneficial to a larger purpose.

² U.S. Department of Energy. (2008, Dec. 15). *Alternative & Advanced Fuels*. Last accessed December 18, 2008: <http://www.afdc.energy.gov/afdc/fuels/index.html>

The idea of a net-benefits or cost benefit analysis criteria (which essentially weigh out the arguments on a scale as described above), can be broken down into specific benefits to examine. I would encourage Con teams to redirect the decision calculus to look into areas like practicality of implementation. In policy realms, this line of attack would be on solvency. Does the proposed mandate have a practical chance to solve or is it just a really nice theoretical bubble? This additional decision calculus means that the Pro team could never achieve any of benefits of implementing the advocacy of the resolution.

Pro Analysis

One of the primary arguments that the Pro team should be developing is the environmental benefit of switching to alternative fuels. This should be developed by first looking at the impacts that gas powered cars have on the air quality of the world, as well as contributions to global warming. From there, teams should analyze various types of alternative fuels or find evidence that references alternative fuels as a whole, and how there would be a significant reduction in pollution in a world where the judge votes for the Pro team. What benefits are there when you save the environment? Well there is always the argument about increasing life expectancy and quality of life for humans, but let's also look at impacts like biodiversity that diminishes with pollution. Additionally one can explore the weather phenomena and natural disasters that have recently been linked to global warming.

Additionally, Americans are not the only drivers in the world. As the economies in China and India grow (hello February topic!), there is an alarming increase in the number of gas-consuming, air-polluting vehicles on the road worldwide. With a mandate to update cars in the United States, we would not only be offsetting the pollution caused in other countries, but we would be setting a global example and decreasing the cost of technologies for other countries to follow in our green

footsteps. The United Kingdom has examined this issue specifically in context to 2040 and has included biofuel measures in its Climate Change Act 2008.³ One area where America can lead the world is in ethanol production. According to a White House press release, “ethanol production has quadrupled from 1.6 billion gallons in 2000 to an estimated 6.5 billion gallons in 2007. In 2005, the United States became the world's leading ethanol producer, and last year, the United States accounted for nearly half of worldwide ethanol production. The Administration has dedicated more than \$1 billion to advance cellulosic ethanol made from switchgrass, wood chips, and other non-food sources. Since the President took office, the projected cost of cellulosic ethanol has dropped by more than 60 percent. Last year, the United States produced about 490 million gallons of biodiesel - up 96 percent from 2006. Today, there are more than 968 biodiesel fueling stations, and hundreds of fleet operators use biodiesel to fuel their trucks. Every year, more Americans are realizing the benefits of biodiesel, which can be produced from soybeans and other vegetable oils, including waste products like recycled cooking grease.”⁴ The press release discusses alternative fuel further when it states, “over the last five years, the Federal Government has invested approximately \$1.2 billion in hydrogen research and development to help bring hydrogen fuel cell vehicles to market. These vehicles use no gasoline at all and emit clean, pure water.”

Oil dependency and the availability of oil is a natural progression of argument when looking to international oil usage. The first area of analysis we can consider

³ U.K. Department for Environment, Food and Rural Affairs. (2008, Dec. 2). *Climate Change Act 2008 – key documents*. Last accessed on December 18, 2008:
<http://www.defra.gov.uk/environment/climatechange/uk/legislation/docs.htm>

⁴ White House Press Release. (2008, December 15). *Fact Sheet: Diversifying Our Energy Supply and Confronting Climate Change*.

here is what happens when we stop purchasing oil from other countries. According to the Department of Energy and the EPA, a reduction in foreign oil dependency would strengthen our national energy security because other countries can manipulate oil prices and thus our economy.⁵ Additionally, one can consider the study that predicts oil will be in short supply when 2040 rolls around. According to the Institution of Mechanical Engineers, in 2040 our oil production will be 80% smaller than the amount produced today.⁶ This means there is an immediate need for a reduction in the use of oil.

Consumers also have an advantage when they purchase alternative fuel vehicles. First, there was the above-mentioned manipulation that occurs with gas prices. But additionally, according to an article published in the Herald, alternative fuel vehicles also save on maintenance costs over traditional gas powered cars.⁷ This is another area where a judge might personally relate and thus increase the opportunity for the Pro team to win the ballot.

Con Analysis

⁵ U.S. Department of Energy and U.S. Environmental Protection Agency. (2008). *Strengthen National Energy Security*. Last accessed on December 19, 2008: <http://www.fueleconomy.gov/FEG/oildep.shtml>

⁶ Institution of Mechanical Engineers. *When will oil run out?* Last accessed December 18, 2008: <http://www.imeche.org/about/keythemes/energy/Energy+Supply/Fossil+energy/When+will+oil+run+out.htm>

⁷ Balasco, M.J. (2008, Dec. 15). *Workers take natural gas Honda Civics for a spin*. Herald, Rock Hill, S.C., pg A.1

The first Con argument that comes to mind when reading over the topic is the date. Essentially automakers will have 31 years to change over production capabilities to reduce or elimination petroleum car production. While some automakers like Mercedes, have pledged to eliminate gas powered vehicles by 2015⁸, others like the struggling American automakers will need to first figure out how to counter the flailing economy before they can switch completely over to new technologies. It should not be difficult for Con teams to find evidence on how long it would take for automakers to switch their manufacturing methods to allow for mass production of alternative fuel vehicles.

When looking to economic costs, let's examine how the change would impact the consumer. There are two specific areas where the consumer will be negatively impacted. First, there is the cost of such vehicles. Because the research that has to be done in order to make it feasible to make efficient alternative fuel vehicles will cost companies money, this cost has to be passed on to the consumer. This means that consumers will have to shell out higher prices for new vehicles. Additionally however, this means that many Americans will be unable to purchase vehicles that are new and thus will be forced to continue to repair and recycle older, higher polluting vehicles. This would not only defeat the purpose of increasing alternative energy vehicle production, but also reduces stimulation to the economy as fewer new cars are purchased.

Next, let's examine the cost to the vehicle manufacturers. In mid-December, President Bush okayed a bailout for the major car manufacturers in the United States. This will have a variety of implications for both the companies as the bailout dictates aspects like wages paid to employees and how the monies will

⁸ Heimbuch, J. (2008, June 26). *Mercedes to Cut Petroleum Out of Lineup by 2015*.

EcoGeek. Last accessed December 19, 2008:

<http://www.ecogeek.org/content/view/1800/69/>

be spent by the companies. The companies have to prove that they are viable by the end of March or face closure. Adding restrictions to a teetering market could push them over the edge. According to Ford President and CEO Alan Mulally, "The U.S. auto industry is highly interdependent, and a failure of one of our competitors would have a ripple effect that could jeopardize millions of jobs and further damage the already weakened U.S. economy."⁹

Another area of concern is the cost-effectiveness that alternative fuel vehicles provide as a solution to environmental concerns. According to a study done at the University of North Carolina at Chapel Hill, the cost of purchasing alternative fuel vehicles is only cost effective in certain circumstances.¹⁰ A University of California at Davis study further examines the cost-efficiency of various alternative fuel vehicles which could be utilized by both the Pro and Con teams in debating this issue since many of the most cost-efficient alternative fuel vehicles do not reap the same environmental benefits as others.¹¹

Ultimately, you will also want to be prepared on both sides to discuss the variety

⁹ Riechmann, D. (2008, December 19) *Bailout approved: Automakers to get \$17.4B*. Associated Press, Yahoo News. Last accessed December 19, 2008:
http://news.yahoo.com/s/ap/20081219/ap_on_bi_ge/meltdown_autos

¹⁰ Sherman, C. R. (2007, Spring). *When are Alternative Fuel Vehicles a Cost-Effective Options for Local Governments?* University of North Carolina at Chapel Hill. Last accessed December 18, 2008:
www.sog.unc.edu/uncmpa/pdfs/capstone/Sherman%20Capstone%20for%20Web.pdf

¹¹ Wang, M.Q., Sperling, D., and Olmstead, J. (1993). *Emission Control Cost-Effectiveness of Alternative-Fuel Vehicles*. Institute of Transportation Studies, University of California, Davis, Research Report UCD-ITS-RR-93-33

of alternative fuels that exist. As the Con, you should know the faults of the various kinds so that you can use these as offense in the second speech against the Pro case.

Topic Analysis by Carrie Robin Menapace

It is time for a sustainable energy policy, which puts consumers, the environment, human health, and peace first. - DENNIS KUCINICH, speech, Sep. 27, 2005

If we truly want an innovative and creative renewable fuel industry, then it needs to be challenged. And if we create a set of protections that allow it to not be as creative and innovative as possible, then we aren't doing a service to the industry or to the people of this country. - TOM VILSACK, speech, Oct. 12, 2006

Because we are now running out of gas and oil, we must prepare quickly for a third change, to strict conservation and to the use of coal and permanent renewable energy sources, like solar power. - JIMMY CARTER, televised speech, Apr. 18, 1977

Public Forum debaters were destined to debate renewable energy this year, the only question was when. The NFL chose January, which I think is indicative of a few things. Primarily, President Elect Barack Obama takes office on January 20, 2009 and he made large promises about renewable energy and decreasing the effects of global warming drastically in the next few years. Most people agree that renewable energy is something we need, but the viability of renewable energy for automobiles is still largely debated. There are some cars that use alternative fuel, but they are a rare in any run-of-the-mill middle class neighborhood. Which I think brings the second I think the NFL may have chosen this topic for January. The current state of the economy is forcing sacrifice and making all people reevaluate their monthly expenses. Major media and fellow politicians have asked President Elect Obama what will have to be sacrificed on a federal government level because the government will not be able to afford all the projects the future President wished to fund. Is alternative fuel for automobiles something that will be but at the bottom of the priority list? Is this a wise choice? If alternative fuel is something we deem worthy of time, politics,

and money, what kind of alternative fuel should we pursue? These are all issues that this topic will force us to resolve.

As always, there are outside factors that influence the topic that all debaters must remember. The first thing is that renewable energy is the Policy topic for the 2008-2009 school year. This is both beneficial and harmful for Public Forum. The benefit is that there is a lot of research available. If you debate at a school with a policy program, I would suggest you kindly ask your teammates for some of their ideas and research from the topic. If you do not come from a school with policy debate, the free evidence project is a wonderful resource for any debater to read, get ideas from, and provides research for cases. However, debaters should be warned that the wealth of research can be overwhelming and can actually make debaters lazy. The Policy topic is worded differently than the Public Forum topic and therefore may have different approaches. Therefore, you should not just use the policy evidence, or the policy positions, instead, you should read them for information and then continue to write your own material. Debaters also must realize that judges may either have seen policy rounds with this topic and will be expecting those types of arguments or will punish you if you debate in the same manner as the policy debaters. When competing locally, you should know which critics judge policy rounds as well, and I would be sure that I differentiated from the policy programs. If you are competing nationally, I would ask judges about what kinds of events they normally judge to get a good indicator about their experience with the topic.

So with that, let's examine the topic. This brief will outline key definitions to understand the meaning of the topic along with strategies for both the pro and the con within the understanding of the topic. It will answer essential questions in the topic and provide debaters the opportunity to understand the topic before they enter debate rounds.

Understanding the Topic

The phrases in the topic denote the ground each side has. Each phrase outlines strategy and provides the initial understanding of the topic. The first phrase that must be discussed is the time frame.

By 2040 – This is not a hard concept to understand, the topic clearly establishes a goal date by which all passenger cars and light trucks would be powered by alternative fuel. However, the date does provide interesting arguments for both the pro and the con. The pro can use the date in two ways. First, the pro can state that they realize the technology and infrastructure does not currently exist in the United States, or really anywhere in the world, but that by establishing a goal date approximately thirty years away the U.S. government can motivate the industry to develop the necessary technology to make cars run on alternative fuel. Arguments that thirty years is long enough to develop the engines and infrastructure should be researched and well articulated. Also, the fact that there are thirty years before the switch needs to be made can be beneficial to the market. Investors have the chance to make business plans around alternative energy, they can forecast how stocks may change, and will realize that the time provided to the automobile industry to develop technology is enough so they are confident in investing. The time also allows consumers the opportunity to be prepared for the change. Money to save up for a new car or be prepared for rising prices of petroleum-based vehicles can be planned out by families across the country.

The second way the pro can use the time-frame, is honestly, to kind of ignore it. By establishing a goal date the pro can make the argument that this sends a signal to the country, and the world, that alternative fuel needs to happen as soon as possible. A law that would establish the topic would make it clear that the U.S. is serious about its plans for alternative fuel development and use. With this line of analysis, the pro can also argue that while 2040 is the goal date, and allows for time in the market if it encounters problems, the pro is really the team advocating for immediate change in our energy consumption. This will allow the

pro to capture the beneficial impacts of alternative energy in a faster time.

A word of caution: be careful how you phrase these two arguments if you choose to use them together. If the pro cannot say 2040 gives the industry and government a lot of time, and then argue that the change needs to happen now. If you want to argue that the change needs to happen sooner, rather than later, and that 2040 inspires that move, I would only use the thirty-year time frame as a way to account for problems in development of technology.

The con can also use the time to its benefit in two ways. First, the con can argue that technology for all passenger and light truck vehicles, along with the infrastructure to build these automobiles, simply cannot be achieved in that amount of time. This argument will rely on analysis about the current troubles of the automobile industry in the U.S. With the recent bailout of the Big 3 in the automobile industry, they cannot afford investment into the next generation of vehicles. If they did, they would have to increase prices on domestically made vehicles, losing out in their business to foreign competitors like Honda. The result of the collapse of the car industry in the U.S. would mean thousands of unemployed, suppliers would be strained for business and possibly close their doors, and the list continues. This argument is going to be a timely argument, and research into the current economic viability of the automobile industry along with estimates as to how much a policy similar to this would cost car-makers are all necessary to make it work.

The second way the con can use the time frame is by arguing that 2040 is not long enough. Global warming is here, and as we learned in the nuclear energy topic, cars are one of the largest contributors to green house gasses in the world. Foreign dependency on oil is a national security issue, forcing the U.S. to be at the will of unstable governments who may not have the best interest of the U.S. at heart. The car industry is failing in the U.S. causing a large strain on the economy and in need of an innovative plan in order to compete around the world.

All of these are reasons why we should develop alternative fuel powered vehicles NOW, not thirty years from now. The preliminary technology exists for these types of vehicles. Flex-fuel vehicles, hybrids, and electric cars do exist, but they are not widely available and they have not been streamlined in production. A date that is sooner than 2040 could jumpstart this development and force everyone to have an alternative fuel vehicle in the next few years. Arguments about not knowing what will happen in the next thirty years are just an excuse to avoid the changes the U.S. government needs to make sooner rather than later. To win this argument con teams will have to prove why now is essential, why we must push the industry and consumers into this change before it is too late, and why waiting for 2040 is too late.

The federal government should mandate – Mandates are laws. They require the power of the law. The definition for mandate is:

to authorize or decree (a particular action), as by the enactment of law.

(Random House Unabridged Dictionary)

To make mandatory, as by law; decree or require: *mandated desegregation of public schools.*

(American Heritage Dictionary)

This definition is important because it establishes that this decree would have to be a law from the federal government. States would have no leeway on delaying the date if they saw they needed for their own survival. Politics would get involved in the passage of the law. Some politicians may ask for favors in return for this law, especially if they are backed by the oil industry. There would also have to be a punishment enacted for those people that did not sell alternative fuel vehicles. All of these areas merit some reading so you are knowledgeable about the process, but I do not think they merit their own arguments in the constructive.

New passenger vehicles and light trucks – This phrase narrows the topic of debate in a few ways. First, by 2040 there would still be petroleum-based vehicles, but any new car off the lot would have to be powered by alternative fuel. This means that for years after the goal date had been reached, the U.S. would still have to support the oil industry so that individuals with older cars could still drive. If the U.S. did not, it would be forcing people who could not afford to purchase alternative fuel vehicle into buying one. This would probably affect smaller business and local governments more than anyone else, and could be a question of fairness and ethics. However, because there is still oil based cars there are still the dangers of oil-based vehicles which directly impacts the pro's ability to solve the problem.

The second way this phrase narrows the topic is by discussing only passenger vehicles and light trucks. The EPA classifies these separately from other types of automobiles for emissions standards and regulations. Reading why the EPA does this is a good way to understand why the NFL chose these two areas for alternative fuel. There are many definitions of these two phrases, many of them contextual to the automobile and energy sector. Yet for basic understanding, they are defined as follows:

Passenger Vehicle: a vehicle carrying many passengers; used for public transport; "he always rode the bus to work"

(Wordnet)

Light trucks -- All single unit two-axle, four-tire trucks, including pickup trucks, sports utility vehicles, vans, motor homes, etc.

(Department of Transportation)

The fact that the resolution is about these types of vehicles is interesting. We are not discussing the family vehicle, although I think it is easy to argue that technology developments in this sector lead to developments for the family sedan, but we are discussing large transportation vehicles. Many people exchange passenger vehicle for public service vehicle. Public transportation

such as busses, which is funded by local and state governments would be the area forced to change. That directly affects you and is tax dollars. Light trucks are more the vehicles that regular citizens buy. They are SUVs, pickup trucks, vans, etc. These types of cars are not a Honda Civic, but are vehicles that generally have a reputation of being gas guzzlers.

The fact that these two types of vehicles are drastically different I think warrants separate contentions as to why each needs to use, or does not need to use, alternative fuel. Passenger vehicles should use alternative fuel in order to end their use of diesel fuel, or to even transfer them over to light rail systems that use solar energy. There is a wealth of opportunities in the public transportation sector. However, staying with buses could be detrimental for the public transportation sector as a whole. There is currently a reemergence of trains in local areas. Could trains be the answer to alternative energy problems? Also, local governments have tight budgets, especially since the economy has taken a turn for the worst. Their need to balance the budget makes new purchases of passenger vehicles difficult to achieve. While the topic may have good intentions, the ramifications of the forcing local governments to purchase these vehicles could either (1) make the local governments bankrupt or (2) force them to abandon public transportation projects because they cannot afford it. Either one means either a loss of public services performed by government or negative impacts on the environment because of a forced increase in private vehicle use. Poorer populations are also the individuals who usually rely on public transportation and if this service were destroyed it would negatively impact their ability to get to work and function in society.

There is also unique arguments that can be made in regards to light trucks. These vehicles are the ones that arguable waste the most fuel and are the least necessary for transportation. A massive amount of light trucks were purchased over the last decade due to their status symbols and cheap gas prices. Yet, study after study concludes that they use more fuel than necessary and

contribute largely to global warming and dependency on foreign oil. By forcing this type of vehicle to move to alternative fuel there would probably be several consequences. First, people may just purchase a new SUV, use alternative fuel, and not have a problem. This would be ideal. However, they may also choose to not purchase a new vehicle for alternative fuel, and purchase a four-door sedan instead. While this would still use petroleum, it would use a drastically smaller amount of fuel, decreasing the need for oil, and would decrease emissions, helping longer term global warming. It could also be a resurgence of the domestic sedan market, which has been steadily declining in the U.S. Either way, the pro can get good offense from the switch. The con can also make good arguments, including how only forcing light trucks in terms of personal vehicles is one that does not solve the problem. Because people's Aveo or Elenatra can still use oil, the problem will never be fully solved.

Powered by alternative fuel – Honestly, I think this is where some really good strategy for the debate comes to play. The framers want alternative fuel to be used instead of gasoline as the main way to make vehicles move. Simple enough. But, as the policy topic, and just simple reading into alternative fuels in the automotive industry proves, the type of alternative fuel is something that has to be discussed. I think debaters should be incredibly knowledgeable about all the current types of alternative fuels being used and researched, but I also think that the debaters should choose to narrow the topic themselves by proposing one or two types of alternative fuel as alternatives. NFL Rules state that Public Forum teams cannot present a plan, and I in no way advocate that you do, however, I think that you can provide generalized solutions as to how one type of fuel would work well versus other types of fuel. The benefit of doing this on the pro is that you force con teams to debate the merits of your fuel choice. They must understand how it works and why it would be detrimental in order to beat a pro team that does this. Also, it provides some level of control over arguments for the pro. The con can easily make arguments that infrastructure for bio-fuels, hydrogen, corn ethanol, electricity, etc can never be achieved all at once by

2040. Without a control of what type of fuel would be used, different car companies could make different cars with different fuel choice and then it may be difficult to guarantee access to that fuel everywhere. Yet, if all cars used hydrogen fuel cells, or we produced corn ethanol for all cars, there would be guaranteed access. National Geographic defines alternative fuel as:

alternative fuel: a fuel used in vehicles that comes from a source other than petroleum, such as ethanol made from corn and biodiesel made from vegetable oil.

(<http://www.pbs.org/strangedays/glossary/index.html>)

That leaves the door pretty wide open. This where looking as some policy files may be helpful, they could give you an understanding of different types of alternative fuel and which may work the best. I am not here to tell you which one you should choose, but my reading has lead me to believe you should AVOID corn ethanol as a viable fuel. Teams must put in the time to have specific reasons why any alternative fuel currently on the market will have negative consequences and is not feasible. Teams, even if in the constructive do not identify one type of fuel, must at least have one fuel they understand so they can use that fuel to answer arguments by the con later in the debate.

Discussing one or two types of fuel is called parametrizing the resolution, or discussing its truth through a specific example. It is used as an example to prove the resolution is a good idea and one that we should adopt. You must discuss alternative fuel as a general concept, but specific examples will strengthen your argument and provide a tangible solution for the judge to hold onto. Just picture your final focus on the pro, a speech in which you can discuss a need to develop alternative energy and an alternative energy that is ready to be used. There is no reason not to grant thirty years in order to mandate its use.

Conclusion

This topic is timely and provides a plethora of creative arguments and strategies

for each public forum team. Understanding the topic and dissecting the key issues is the best way to generate arguments for it. Asking your self questions about what each phrase means, how it functions in the debate, and what it can give you in the final focus is the best way to come up with a winning strategy. Be excited about this topic because it is an issue that you and I will most surely encounter in our lives. There is a real possibility that the cars we purchase when we are fifty will be powered by alternative fuel and we have a unique opportunity to know why that is essential to our survival through the January 2009 Public Forum Topic.

Topic Analysis by Sarah Spiker

Resolved: That, by 2040, the federal government should mandate that all new passenger vehicles and light trucks sold in the United States be powered by alternative fuels.

This month's resolution occurs in the middle of an auto-industry bailout debate and growing concerns over global warming. This offers a unique position for Public Forum debaters on this topic. The current crisis could be a springboard or the death of U.S. automakers, up for you to debate. The resolution asks us important questions about the role of government, the future of oil and alternative fuels, and global warming.

Mandate

This one's going to be hard for you pro debaters out there – to say that alternative fuels are the best option is half the battle, but a mandate is tough to fight. A mandate requires that all car companies comply with this new policy, including domestic and foreign companies. This could be a bane or a blessing; this opportunity could allow U.S. automakers a new start or it could allow more-advanced foreign companies to swoop in and take over. The pro team should also consider the implications of companies that fail to comply with the mandate. What happens if a company continues to sell those cars past the deadline? This mandate also only applies to new car sales, but does not address cars currently out on the road. This scope of the mandate will make it difficult to prove effectiveness against fighting global warming since gas guzzlers will still be out on the road. The mandate also does not cover import sales of oil which prolong the life and use of petroleum-based cars and light trucks.

The con team has a lot of leeway in the resolution. They can discuss why federal mandates undermine the effectiveness of market solutions (and why that's bad), simply argue that the free market can work alternatives out better, or prove why

the mandated alternatives are more costly or just as environmentally destructive. If the con team can prove any of these areas true, the resolution's mandate has no reason for support. To win this, the pro should offer a methodology of the mandate in a constructive speech – argue why a particular mandate is best (for instance, a look at the EU model could give inspiration), and then the con can only argue on your terms. The resolitional mandate indicates a mandate, but does not provide any funding for research and development, prompting the question: can automakers survive on their own with an unfunded mandate?

Federal government

The federal mandate directly contradicts the idea of state choice, so the con may choose to develop the state v. federal debate in order to take away support for the resolution. The resolution asks the con to challenge fundamental assumptions of government. Does the government always know best? There's good ground for this because States operate differently – a fuel that works in Minnesota may work differently in Hawaii, and the states might need more freedom to determine what course of action to take on their own. Although a debate on this particular aspect of the resolution is not suggested, the con team can as a last resort argue that state initiatives ought to be preferred over federal ones (California, for instance, already has a similar mandate). This argument, however, cannot guarantee that states will enact cleaner legislation and policies, which still leave the pro team open for the global warming debate.

New

The U.S. already has policies concerning fuel efficiency and a new Supreme Court ruling has expanded the governments control in this area. In light of the recent auto industry bailout and the surrounding debate, automakers may be required to increase their fuel efficiency standards and focus on electric cars in order to qualify for federal loans.¹² A new policy-such as the one proposed by

¹² “US automakers get federal bailout,” <http://www.greentechmedia.com/articles/us-automakers-get-federal-bailout-5409.html>

the resolution-could alter the stability of the market and U.S. automakers. Review the con background evidence and the section on the automobile industry itself. Keep an eye out for future information and literature as the auto bailout debate continues.

In the pro background evidence and throughout the evidence file, you will find information regarding the United Kingdom approach; they have already proposed a similar course of action within the same timeline as the resolution. Information on the UK plan can be used to bolster or tear down the resolution within the United States.

Despite the policy proposal in Europe, the existence of this exact proposal in the United States is limited. On one hand, this allows for creativity in the creation of cases. Teams can choose to focus on global warming, the economy, or public health using logical extrapolations of the current auto and climate debate. On the other hand, the specificity of the resolution will make it difficult to pinpoint exact impacts of the policy. Exactly how many jobs will be created? Exactly how many cars have to be run on alternative fuels to stop global warming?

Passenger vehicles/light trucks

Passenger vehicles and light trucks effectively mean that transportation to and from work and school, say by you and me. Shipping lines will not have to undergo expensive overhauls. Educational districts can do what they wish with buses, and trains operate normally. That means any downside as far as the economy goes is limited – Shell and BP aren't going out of business anytime soon but they will take a hit. The resolution will also limit the scope of your debate as well as the implications of switching over to alternative fuels.

Pinpointing the exact vehicles that are affected by the resolution may become a debate in its own right. Trucks have their own coding system. Light trucks are considered a separate category from passenger automobiles and do not include

market SUVs or other large vehicles.¹³ The CSA explains: “The basic definition of a light truck--any truck or truck derivative with a gross vehicle weight rating of 8,500 pounds or less--allows plenty of room for family vehicles.”¹⁴ The U.S. Department of Labor defines a passenger automobile as “a motor vehicle with motive power designed for carrying 10 persons or less (except a low-speed vehicle, a multipurpose passenger vehicle, a truck, a motorcycle, or a trailer).”¹⁵

It is interesting to note that a passenger vehicle and a multipurpose passenger vehicle are categorized separately. Multipurpose passenger vehicles are defined as:

A motor vehicle with motive power, except a low-speed vehicle or trailer, designed to carry 10 persons or less which is constructed either on a truck chassis or with special features for occasional off-road operation (e.g. SUV). For MSPA enforcement purposes, a multipurpose passenger vehicle will be treated as a passenger automobile with the exception of those that meet the criteria of a truck.¹⁶

Because of their separate considerations, multipurpose passenger vehicles may not be covered by the resolution. The resolution calls for two specific types of vehicles to be driven on alternative fuels, leaving the rest of the automotive industry up for grabs. If millions of heavy trucks and SUVs will still be driving the streets and polluting, the limited nature of the resolution will short circuit impacts to global warming. Additionally, much of the literature on job creation is predicated off of a total industry move towards greener technology, which could draw criticism on figures promoting job creation or loss.

Powered by alternative fuels

¹³ CSA, <http://www.csa.com/discoveryguides/ern/03aug/overview.php>

¹⁴ CSA, <http://www.csa.com/discoveryguides/ern/03aug/overview.php>

¹⁵ http://www.dol.gov/esa/whd/foh/AdvisoryMemoranda2006_1.htm

¹⁶ http://www.dol.gov/esa/whd/foh/AdvisoryMemoranda2006_1.htm

Teams should be prepared to handle this portion of the debate with relative ease. The pro team must be prepared to provide evidence indicating that the alternative fuel market is or will be ready to adequately meet the needs of citizens. Alternative include a wide range of fuels: biodiesel, electricity, ethanol, hydrogen, methanol, natural gas, propane, biobutanol, biogas, biomass to liquids, coals to liquids, gas to liquids, hydrogenation-derived renewable diesel, p-series, and ultra-low sulfur diesel.¹⁷ This portion of the resolution gives debaters a lot of discretion. The pro can effectively be prepared with a long list of alternative fuels, and advocate whichever is easiest and most probable. Both sides should be ready to debate the pros and cons of alternative fuel types as well as their feasibility in the market.

By 2040

Additionally, the resolution sets a timeframe for implementation: 2040. The pro team has to prove that the massive infrastructure associated with alternative fuels will be viable within the timeframe. Because this exact proposal has not been evaluated by many authors, you will need to use some tangential evidence about the development of alternative fuels in general as well as some common sense. We need more than technology; we need to have gas stations in the middle of nowhere. We need mechanics who understand the new cars. We need everything you could imagine to service the modern car, but now for an alternative fuel. Since we cannot see into the future, do not spend too much time on projection, just focus on the direction of the trend – we can see some partial success in California and the UK – logic can tell us whether or not we can expect gains to be seen everywhere. The pro team should show the propensity to reasonable accomplish these goals with the given timeframe, while the con team should focus on the unlikely ability to build massive infrastructure in the mean time.

General strategies-Pro

¹⁷ <http://www.afdc.energy.gov/afdc/fuels/index.html>

The pro team should prove first that alternative fuels are better (whether it be for the environments sake, the creation of jobs/economy, or both) and second that the free market does not have the tools needed to create the incentive to change fast enough to accommodate and solve for the problems at hand. The pro should clearly focus the debate on global warming or the economy.

Do not, however, argue that the free market is inept. You'll need to prove that companies can adapt (which, they can, as we have clearly seen.)

Things this is NOT a debate about:

This is not a debate about science. Don't argue whether a given alternative fuel will be available in the next forty years – while a valid discussion in the real world, you can't satisfactorily persuade a judge in such a short time. We can assume on the current course that such fuels are operative – the only question is whether we can alter the infrastructure in such a course of time.

This is also not a debate about whether or not other systems or ideas have worked. While it is perfectly fine to look at the EU model, to criticize or bolster it, it is only useful insofar as its application to the United States. That's where the debate is – don't waste your time dividing your attention away. If an opponent wins that the mandate works everywhere but the United States, and you argue that it won't work in the United States, then you win. It's all you need.

PRO EVIDENCE

Background

A peak in oil expected in 2040 would drive up oil prices and cause economic damage, but alternative fuels are not yet ready.

Hilary Venabels, April 29, 2007, Sunday Times, "Simple life is solution to a world less crude." LexisNexis, last accessed 12.18.08.

A report published last month entitled Crude Oil - Uncertainty about Future Oil Supply Makes It Important to Develop a Strategy for Addressing a Peak and Decline in Oil Production, did not originate from death2capitalism.net but from the US Government Accountability Office (GAO).

Not even this influential body could establish the truth about the state of conventional oil reserves, but it is sure production will peak sometime between, like, last week and 2040.

So we could be in for a nasty surprise.

"The consequences would be most dire if a peak occurred soon, without warning, and [if it] were followed by a sharp decline in oil production because alternative energy sources, particularly for transportation, are not yet available in large quantities. Such a peak would require sharp reductions in oil consumption, and the competition for increasingly scarce energy would drive up prices, possibly to unprecedented levels, causing severe economic damage."

The US GAO recommends new alternative hydrocarbons, but liquid fuel use must be drastically cut.

Hilary Venables, April 29, 2007, Sunday Times, "Simple life is solution to a world less crude." LexisNexis, last accessed 12.18.08.

The GAO focused exclusively on transport and confined its recommendations to new extraction technology and alternative hydrocarbons.

But it is not confident that there is the time, money or will to mitigate the effects of the peak. And it doesn't even mention the needs of agriculture, manufacturing, mining, construction, plastics and pharmaceuticals. Or even the 3% of US electrical power generated by oil.

If massive investment in more hydrocarbons is not the answer, the only option is to drastically cut the use of liquid fuel.

That's what Portland in Oregon has decided to do.

Portland (population 1.7 million), on the northwest coast of the US, has just become the first city in the world to officially recognise the dangers presented by oil depletion and to adopt concrete proposals for "energy descent". These go way beyond cutting carbon dioxide (CO₂) emissions, improving efficiency and using substitute fuels. They encompass a radical transformation of the whole urban landscape and economy. Portland proposes to halve its oil and gas consumption in the next 25 years.

As you'd expect, it's planning better public transport, more pedestrian routes and cycle lanes. But the changes go much deeper, affecting every aspect of life. The city aims to become virtually self-sufficient. No longer will the population be able to depend entirely on outside suppliers for food or anything else. It will have to start doing for itself, like in the old days.

Hydrogen and electric cars are developing. Car companies are not always driven by what's best for the planet.

Nick Churchouse, September 29, 2007, The Press (Christchurch, New Zealand), "Car has electric future; Car may go electric to fit in with environmentally friendly future." Lexis Nexis, last accessed 12.18.08.

According to Toyota New Zealand managing director Bob Field, Toyota and Honda are 10 years ahead of the rest of the industry in hybrid technology and the future will be in hydrogen-based engines. Electric vehicles just have too many problems.

Electric cars make great PR opportunities for motor companies, he says, but the reality is hybrid technology will pave the way for hydrogen fuel cells, the ultimate technology that will run cars off alcohol and emit only water. However, hydrogen cars are still a pipe dream, and electric engines are taking leaps and bounds as battery companies ramp up research and development.

Even Field admits carmakers paint their own rose-coloured pictures.

"A lot of it (the alternative fuel debate) is driven by what motor companies perceive is their competitive advantage rather than what is best for the planet."

The EU is moving towards alternative fuels as part of a larger attempt to reduce carbon emissions.

BBC News, August 28, 2007, British Broadcasting Company, "Lib Dems urge end to petrol cars," http://news.bbc.co.uk/2/hi/uk_news/politics/6966771.stm, last accessed 12.18.08

Petrol-powered cars should be phased out within decades to help fight climate change, say the Lib Dems.

Environment spokesman Chris Huhne says cars should use alternative fuel - like hydrogen fuel cells - by 2040 as part of plans to make the UK carbon-neutral.

"The EU acting together through the internal market can make sure that change happens," he said.

The government's draft Climate Change Bill aims to reduce carbon emissions by at least 60% from 1990 levels by 2050.

Alternative technology exists now. Transitions have been seen in the past.

BBC News, August 28, 2007, British Broadcasting Company, "Lib Dems urge end to petrol cars," http://news.bbc.co.uk/2/hi/uk_news/politics/6966771.stm, last accessed 12.18.08

"What we are saying is that needs to go further. We need to provide certainty to the car industry and every other industry that is involved in this area to make sure that by 2040 we are using alternative non-carbon emitting fuels.

"For example, it could be the hydrogen fuel cell, it could be the sort of improvements you have already seen in battery technology."

He said the technology already existed and history had seen more dramatic changes over similar periods - pointing to the switch from steam engine to

internal combustion engine.

General Economy

Reliance on fossil fuels undermines the economy, forces countries to wage military campaigns, and harms education, health, and social services.

Africa News, December 19, 2007, Byline: The Herald, "Investment in Biofuels Shows Foresight." LexisNexis, last accessed 12.18.08.

An economy that runs on fossil fuel undermines itself by exporting money and resources away to other economies and not receiving the return on investment of that money in goods and services. One would expect the prices of fuel to reflect the increasing costs of fuel production and procurement, but no, the price of oil is kept low via industry and governments' price controls.

Instead of being paid at the pump, the increased cost of fossil fuels is paid from taxes. The consequences of paying the excess costs of fossil fuel using tax is three-fold.

First and foremost, it keeps the price of fossil fuels deceptively low.

Second, it allows oil companies to work from a huge base of government subsidies and support rather than having to seek that support from those that use fossil fuels.

Third, and not least in importance, it evenly distributes the excess cost of fossil fuels among taxpayers. This is clearly unfair.

Wars such as the Persian Gulf War deplete resources from the economies of countries involved in them to ensure that there is a healthy supply of energy from overseas. Governments involved in such wars consider the loss of human life and economic expense as necessary tradeoffs. The cost of fossil fuels is similar to using a MasterCard or Visa credit card - the bills come later and in different ways.

The first cost is the social services that a country forgoes because it exports so much of its citizens' tax money. As the debt grows, military campaigns are waged to secure oil. The quality of education, health care and social services suffers as a consequence.

Alternative fuels in the US can decrease the trade deficit with oil and create 1.43 million jobs.

Africa News, December 19, 2007, Byline: The Herald, "Investment in Biofuels Shows Foresight." LexisNexis, last accessed 12.18.08.

In a nutshell, renewable fuels strengthen the economy. At the time of writing this article, the renewable fuels industry is so small [in Zimbabwe] that it does not account for much of the nation's gross domestic product. However, the renewable fuel industry has the potential to create millions of jobs.

For example, in the United States it has the potential of adding over U.S.\$50 billion to the economy each year and that would decrease the trade deficit by at least 30 percent.

If not controlled, the monetary reserves of a country will eventually be depleted and it will go into debt and, like we all know, if left unpaid, the national debt can destabilise the economy.

If you do not believe me, check this out: the U.S. had a trade deficit of U.S.\$ 5 billion in 1965, U.S.\$2 billion was from petroleum imports.

At that time, the national debt was roughly U.S.\$320 billion. By 1995, the U.S. trade deficit had ballooned to U.S.\$174 billion with petroleum imports accounting for \$53US billion. During that same year, the national debt stood at almost U.S.\$5 trillion.

The US Department of Employment estimates that for every U.S.\$1 billion reduction in the trade deficit, the US can gain 27 000 jobs. By producing 100 percent of its fuel locally, the US could decrease the annual trade deficit by over U.S.\$53 billion and create 1,43 million jobs in the biofuels and supporting services industries. It, therefore, makes economic sense to invest in biofuels.

A shift away from oil would create new economic opportunities, helping the elderly and the poor while providing clean air and financial savings for all.

Hilary Venables, April 29, 2007, Sunday Times, "Simple life is solution to a world less crude." LexisNexis, last accessed 12.18.08.

But Portland remains determinedly upbeat, emphasising that the transition "will have an overall positive social and economic impact".

The shift away from increasingly expensive oil "will provide new opportunities for skilled and manual labour as well as for efficient alternatives to existing technologies, materials, processes and services".

Even the vulnerable and marginalised have a valuable role to play. The Portland report says the community will need the knowledge and skills of the elderly, who "have the experience of surviving in a much less energy-dependent world".

Different cultural communities can share "social, health and other knowledge which has largely been lost in mainstream society". Poor people can offer "skills for getting by with less and creatively stretching resources".

"Local residents and businesses will enjoy the health benefits and financial savings of cleaner air and walkable communities. They will also benefit economically as dollars spent on imported fuels are redirected into the local economy."

Green fuels are progressing. At least 50,000 new jobs will be produced by 2010.

The Kiplinger California Letter, April 18, 2007, "California means business when it comes to "green" energy" Vol. 43, No. 8. LexisNexis, last accessed 12.18.08.

Calif. means business. As the nation pushes to reduce emissions of greenhouse gases, researchers in the state will lead the way in developing less-polluting sources of energy.

Work on alternative fuels will thrive.

The surge won't match the dot-com boom, which buoyed the state for years. Although they are making important inroads, green fuels will still lag fossil fuels by far.

But expect at least 50,000 new jobs by 2010 and millions of investment dollars for universities and companies in the state.

Rural Economy

Poor rural communities can take advantage of biofuel development to gain access to new markets.

Apollo Alliance, no date provided (website updated daily), “Clean Energy Strategies for Agricultural and Rural Communities.”
http://www.apolloalliance.org/resources_rural.php, last accessed 12.18.08.

The last several decades have not been kind to rural communities – working farms and rural manufacturing plants are in decline, energy costs have skyrocketed, and increasing numbers of farmers require supplemental incomes to survive. Consider the following statistics:

Seventy years ago there were almost 7 million farmers in the U.S. Today there are roughly two million. Between 1987 and 1992, the United States lost an average of 32,500 farms per year.[i]

Extreme poverty is disproportionately concentrated in rural areas. Of the 500 poorest U.S. counties, over 90% are rural. And of the 382 counties where poverty rates exceed 20%, 95% are rural.[ii]

At the same time, the United States is experiencing another, different crisis. Runaway energy prices, declining air quality, and the tense politics of oil supply are testing the wisdom of conventional energy strategy. This has resulted in an impressive development of more secure and safe energy alternatives.

Many of these alternatives, especially wind energy and biomass/biofuels, rely on the availability of open land and agricultural crops to generate power. Agricultural and rural communities can take advantage of these assets, which they have in abundance, to fuel new energy technologies and access new markets in America’s energy sector.

Farmers can use their biofuel assets to create prosperity.

Apollo Alliance, no date provided (website updated daily), “Clean Energy Strategies for Agricultural and Rural Communities.” http://www.apolloalliance.org/resources_rural.php, last accessed 12.18.08.

As America transitions from its current dependence on foreign energy sources, farmers and rural communities stand to benefit greatly. The resources necessary to build new and clean electricity-generation and fuel production infrastructure – open land, growing capacity, and waste streams – are abundant in rural areas. If these resources are fully utilized through the policy tools outlines above, the resulting energy transition will sow the seeds for a new era of productive farming and rural prosperity.

Rural communities need jobs. Biofuels offer career development in many areas.

Apollo Alliance, no date provided (website updated daily), "Clean Energy Strategies for Agricultural and Rural Communities."
http://www.apolloalliance.org/resources_rural.php, last accessed 12.18.08.

One thing that rural communities in America need desperately are jobs: good, family-supporting jobs with career potential. The Apollo Alliance believes that a rural economy based on renewable energy, biofuels, and bioproducts could lead to jobs in a range of areas, including:

- Manufacturing, operating, and maintenance of wind turbines, biofuel plants, anaerobic digesters, biorefining plants
- Biofuel distribution
- Power grid jobs in design, construction, engineering, cable and conduit laying
- Research and development in renewable energy, green chemistry and next generation fuels
- Transportation (trucking, rail)
- Commercial building construction

Smart, targeted rural energy investment that allows farmers and rural landowners to ultimately own the energy and fuel they produce can also go a long way toward wealth generation for rural areas.

Alternatives

A variety of crops can provide up to 13% of motor fuel use.

Apollo Alliance, no date provided (website updated daily), "Clean Energy Strategies for Agricultural and Rural Communities."
http://www.apolloalliance.org/resources_rural.php, last accessed 12.18.08.

Energy can also come directly from the earth. Farmers can dedicate cropland to a variety of energy crops, such as corn, soybeans, and switchgrass, which can be turned into electricity and fuel. Switchgrass is a particularly good crop for farmers in that it grows quickly and can be harvested annually without replanting.

Under expanded crop production and improved conversion techniques, biomass could eventually provide for 14% of electricity generation and 13% of motor fuel use.[vi]

New forms of ethanol could lower prices for farmers.

Apollo Alliance, no date provided (website updated daily), “Clean Energy Strategies for Agricultural and Rural Communities.”
http://www.apolloalliance.org/resources_rural.php, last accessed 12.18.08.

Ethanol – either corn or cellulosic – can be used as a fuel additive. While ethanol displaced roughly 2% of motor fuels in 2003, the likely phase-out of MTBE (as well as increasing federal subsidies for ethanol production) will drive considerable demand for the resource.[vii]

Corn-based ethanol is not without its critics, as the fuel takes a large amount of energy to produce (about one unit of gasoline – used for fertilizing, harvesting, and bringing raw products to processing plants – is needed to produce 1.3 units of ethanol); however, critics have argued that producing traditional gasoline also requires large inputs of fossil fuels. The U.S. government and many states are now looking toward cellulosic ethanol, which uses perennials such as switchgrass and woody waste as its feedstock, as a more energy-efficient fuel alternative than corn-based ethanol.

Biomass can also be used to produce biodiesel, a fuel additive produced from biomass oils, such as soybean or rapeseed oils. These biodiesel fuels can then either be combined with regular diesel fuel as an additive, or used on their own. Because many farm vehicles run on diesel fuel, rural biodiesel production can have an immediate effect of lowering fuel prices for local farmers and other rural landowners.

Government policies that promote alternative fuels can make rural land-based energy a reality.

Apollo Alliance, no date provided (website updated daily), “Clean Energy Strategies for Agricultural and Rural Communities.”
http://www.apolloalliance.org/resources_rural.php, last accessed 12.18.08.

Though rural land-based energy is promising, it is a significant departure from convention and will require considerable policy support to achieve scale. The sections below outline model policies that can facilitate this process.

Renewable Fuel Standards require a percentage of all gasoline sold in a state to be made from renewable resources. In the most recent federal Energy Bill, the U.S. government enacted a RFS requiring the U.S. to double its ethanol and biodiesel use in the next two years, and putting extra weight on cellulosic ethanol as a fuel source. Some states, notably Washington, are considering biofuel standards of their own, hoping to spur domestic production of these fuels.

Environment

Critical climate processes are happening earlier than expected; we are all at risk as global warming increases.

George Monbiot, November 25, 2008, The Guardian (London) "The planet is now so vandalised that only total energy renewal can save us: It may be too late. But without radical action, we will be the generation that saved the banks and let the biosphere collapse" George Monbiot is the author of the best selling books Heat: how to stop the planet burning; The Age of Consent: a manifesto for a new world order and Captive State: the corporate takeover of Britain. He writes a weekly column for the Guardian newspaper. Lexis Nexis, last accessed 12/18/08.

Is it too late? To say so is to make it true. To suggest there is nothing that can be done is to ensure that nothing is done. But even a resolute optimist like me finds hope ever harder to summon. A new summary of the science published since last year's Intergovernmental Panel report suggests that - almost a century ahead of schedule - the critical climate processes might have begun.

Just a year ago the Intergovernmental Panel warned that the Arctic's "late-summer sea ice is projected to disappear almost completely towards the end of the 21st century . . . in some models." But, as the new report by the Public Interest Research Centre (Pirc) shows, climate scientists are now predicting the end of late-summer sea ice within three to seven years. The trajectory of current melting plummets through the graphs like a meteorite falling to earth.

Forget the sodding polar bears: this is about all of us. As the ice disappears, the region becomes darker, which means that it absorbs more heat. A recent paper published in Geophysical Research Letters shows that the extra warming caused by disappearing sea ice penetrates 1,000 miles inland, covering almost the entire region of continuous permafrost. Arctic permafrost contains twice as much carbon as the entire global atmosphere. It remains safe for as long as the ground stays frozen. But the melting has begun. Methane gushers are now gassing out of some places with such force that they keep the water open in Arctic lakes through the winter.

The effects of melting permafrost are not incorporated in any global climate models. Runaway warming in the Arctic alone could flip the entire planet into a new climatic state. The Middle Climate could collapse faster and sooner than the grimmest forecasts proposed.

Fossil fuels produce sulfure, carbon monoxide and carbon dioxide, pumping toxic materials into the environment.

Dr. Othieno Joseph, April 1, 2008, freelance science journalist, All Africa, "Continent Needs to Weigh the Benefits of Using Biofuels," <http://allafrica.com/stories/200803312049.html>, last accessed 12.18.08.

With the atmosphere choking under carbon emissions, and crusaders of the green planet shouting from the roof-tops, who can resist the allure of a product that promises to drive the economy while at the same time cleaning our environment?

Sulfur causes acid rain, carbon monoxide is toxic, and carbon dioxide produces the greenhouse effect. All these are by-products of fossil fuel.

Biofuels can be used in car engines with little modification.

Dr. Othieno Joseph, April 1, 2008, freelance science journalist, All Africa, "Continent Needs to Weigh the Benefits of Using Biofuels," <http://allafrica.com/stories/200803312049.html>, last accessed 12.18.08.

Biofuels are being touted as environmentally-friendly: They are biodegradable and easily manageable. They are renewable and their supply can't be depleted. They can be used in car engines with just a little modification.

There are financial savings to be made on crude oil importations. The idea of embracing the use of biofuels is a hot cake, one that doesn't need a lot of haggling to be bought. But the discovery of the current fossil fuel (petroleum-rock oil) received a similar welcome and baptised black gold then.

It has brought the global economy this far, but it has also contributed to the degradation of our planet. Every year, man spews over 300 tonnes of CO₂ into the atmosphere, and if this continues, by 2040, the planet will be in a severe condition.

Periods of global warming empirically kill off large amounts of plants and animals.

Alok Jha, October 24, 2007, Science correspondent, The Guardian, "Science: Warming could wipe out half of all species." Last accessed 12.19.08.

Rising global temperatures caused by climate change could trigger a huge extinction of plants and animals, according to a study. Though humans would probably survive such an event, half of the world's species could be wiped out. Scientists at the University of York and the University of Leeds examined the relationship between climate and biodiversity over the past 520m years - almost the entire fossil record - and uncovered an association between the two for the first time. When the Earth's temperatures are in a "greenhouse" climate phase, they found that extinctions rates were relatively high. Conversely, during cooler "icehouse" conditions, biodiversity increased.

The results, published today in the Proceedings of the Royal Society B, suggest that the predictions of a rapid rise in the Earth's temperature due to man made climate change could have a similar effect on biodiversity.

Peter Mayhew, a population ecologist at the University of York and one of the authors of the research paper, said: "Our results provide the first clear evidence that global climate may explain substantial variation in the fossil record in a simple and consistent manner. If our results hold for current warming - the magnitude of which is comparable with the long-term fluctuations in Earth climate - they suggest that extinctions will increase."

Global warming will cause more droughts, heat waves, dust storms and flooding, killing off plants and depleting water resources leading to conflict between people.

Jeffrey L. Treder, August 15, 2008, Center for Responsible Nanotechnology, Jeff Treder, older brother of CRN executive director Mike Treder, is a retired English professor and published author, specializing in the past and future trends that may be relevant to the development and deployment of molecular manufacturing. <http://www.crnano.org/archive08.htm>, last accessed 12.19.08.

Climate change, a.k.a. global warming, is now denied only by the uninformed or the disingenuous. The earth's temperature is rising and human activity is largely if not solely the reason why. Our activities release carbon dioxide and methane, the chief greenhouse gases, into the atmosphere in ever increasing amounts. We are destroying much of the vegetation that absorbs carbon dioxide, especially by cutting down rain forests and by polluted water runoffs which make the oceans slightly more acidic, killing off plankton. Humans have already removed half of the earth's forests and wetlands and are hard at work on the remaining half. Each of the last five decades has seen more flooding and wildfires worldwide than the decade before. Polar and mountain glaciers are melting faster than even most alarmists predicted. Hurricanes and tornadoes are more frequent and stronger. Fisheries are collapsing, due both to overfishing and to warming water. Coral reefs are dying. Droughts are worse and deserts are expanding.

No matter what we do now, these trends will continue over the next few decades. If everyone from governments and transnational corporations to SUV owners immediately starts doing what environmentalists are telling them to do, global climate might stabilize by the end of the century. But that is a very big if. Most likely, people won't change their ways until fuel prices and shortages force them to.

Prediction: The planet's weather will continue to grow more violent. Droughts, heat waves, dust storms, and flooding will be particularly hard on human life.

Increasing temperatures will kill off vegetation and dry up water resources, and their loss will lead, in a destructive feedback loop, to even more warming. The Amazon and Indonesian rain forests will suffer drought and massive wildfires, sending up thousands of tons of carbon dioxide into the atmosphere. Fresh water supplies will be critical by 2020 and will be a major cause of migration and conflict. Due both to thermal expansion and glacial melt, the sea level will slowly rise, and by 2030 low lying coastal areas like Bangladesh, the Nile delta, the Netherlands, London, and southern Florida and Louisiana will be inundated during storm seasons. Much of Venice will be abandoned.

Solutions

Obama's plan won't do enough to stop global warming: total energy replacement is the only answer to try and save civilization.

George Monbiot, November 25, 2008, The Guardian (London) "The planet is now so vandalised that only total energy renewal can save us: It may be too late. But without radical action, we will be the generation that saved the banks and let the biosphere collapse" George Monbiot is the author of the best selling books Heat: how to stop the planet burning; The Age of Consent: a manifesto for a new world order and Captive State: the corporate takeover of Britain. He writes a weekly column for the Guardian newspaper. Lexis Nexis, last accessed 12/18/08.

Barack Obama's speech to the US climate summit last week was an astonishing development. It shows that, in this respect at least, there really is a prospect of profound political change in America. But while he described a workable plan for dealing with the problem perceived by the Earth Summit of 1992, the measures he proposes are hopelessly out of date. The science has moved on. The events the Earth Summit and the Kyoto process were supposed to have prevented are already beginning. Thanks to the wrecking tactics of Bush the elder, Clinton (and Gore) and Bush the younger, steady, sensible programmes of the kind that Obama proposes are now irrelevant. As the Pirc report suggests, the years of sabotage and procrastination have left us with only one remaining shot: a crash programme of total energy replacement.

A paper by the Tyndall Centre for Climate Change Research shows that if we are to give ourselves a roughly even chance of preventing more than two degrees of warming, global emissions from energy must peak by 2015 and decline by between 6% and 8% per year from 2020 to 2040, leading to a complete decarbonisation of the global economy soon after 2050. Even this programme would work only if some optimistic assumptions about the response of the biosphere hold true. Delivering a high chance of preventing two degrees of warming would mean cutting global emissions by more than 8% a year.

Is this possible? Is this acceptable? The Tyndall paper points out that annual emission cuts greater than 1% have "been associated only with economic recession or upheaval". When the Soviet Union collapsed, emissions fell by some 5% a year. But you can answer these questions only by considering the alternatives. The trajectory both Barack Obama and Gordon Brown have proposed - an 80% cut by 2050 - means reducing emissions by an average of 2% a year. This programme, the figures in the Tyndall paper suggest, is likely to commit the world to at least four or five degrees of warming, which means the likely collapse of human civilisation across much of the planet. Is this acceptable?

Feasibility

Electric cars are feasible and available in California and Europe.

Nick Churchouse, September 29, 2007, The Press (Christchurch, New Zealand), "Car has electric future; Car may go electric to fit in with environmentally friendly future." Lexis Nexis, last accessed 12.18.08.

Electric cars have been desired and designed, discounted and debunked, built and broken for the last 50 years. They have been everything -- except accessible to the average motorist.

The Government's latest punt to save the environment - its climate change strategy released last week - plans to cut emissions per capita in half by 2040 and puts New Zealand up as a willing leader in electric car technology.

The question arises - why now when it has not worked before?

Not worked is not entirely fair.

Electric cars are on the road in Europe, being used in California, and feature in various forms at almost every international motor show.

But getting them up and running in New Zealand, where we still import more than 120,000 used cars a year to bolster our already aged fleet, would take, at the very least, a major shift in thinking, policy and technology.

California tried it 15 years ago, requiring new car sales to sell 10 per cent "zero-emission cars" by 2003. The concept fell over long before then.

But David Parker, the minister responsible for climate change issues, is positive that electric cars are the future.

"In the past decade there has been no real environmental imperative driving it, and that is the big change now," he says.

He is in plentiful company too, with everyone from the United Nations to Hollywood driving the need for action on climate change and electric cars becoming de rigueur in celebrity garages, ironically often alongside petrol-sucking Hummers and other postercars of energy inefficiency.

Along with the motivation to do something, he says lithium-ion batteries, the technology for laptops and cellphone batteries, take the evolution of battery power about 80% towards a feasible solution for everyday electric cars.

Electric cars can be convenient.

Nick Churchouse, September 29, 2007, The Press (Christchurch, New Zealand), "Car has electric future; Car may go electric to fit in with environmentally friendly future." Lexis Nexis, last accessed 12.18.08.

With a 660cc 47 kilowatt motor (about half the grunt in a standard Toyota Corolla), the i-Car would take about eight hours at home to fully recharge but a speedy separate three-phase plug could mean recharging in 20 minutes, something a bit more practical.

"So you can see in the future you'll have pedestals in parking buildings and outside cafes and you'll be able to put your credit card in, do your shopping and your car will be recharged."

Despite the costs, the US has already implemented expensive schemes for banks.

George Monbiot, November 25, 2008, The Guardian (London) “The planet is now so vandalised that only total energy renewal can save us: It may be too late. But without radical action, we will be the generation that saved the banks and let the biosphere collapse” George Monbiot is the author of the best-selling books Heat: how to stop the planet burning; The Age of Consent: a manifesto for a new world order and Captive State: the corporate takeover of Britain. He writes a weekly column for the Guardian newspaper. Lexis Nexis, last accessed 12/18/08.

The costs of a total energy replacement and conservation plan would be astronomical, the speed improbable. But the governments of the rich nations have already deployed a scheme like this for another purpose. A survey by the broadcasting network CNBC suggests that the US federal government has now spent \$4.2 trillion in response to the financial crisis, more than the total spending on the second world war when adjusted for inflation. Do we want to be remembered as the generation that saved the banks and let the biosphere collapse?

Dependency

Oil dependency is an addictive codependency, producing corrupt tyrants.

Michael Watts, November 10, 2008, CNN, "The price of our oil addiction."
LexisNexis, last accessed 12.19.08.

But the true costs of cheap oil -- a vast military presence in the Middle East; environmental damage, including global climate change; the need to support corrupt "oilygarchs" -- have never been paid by consumers at the fuel pump. And a half century of "special relationships" -- or, more precisely, addictive codependencies -- have only produced Venezuela's Hugo Chavez, Libya's Muammar al-Gaddafi, Iran's Mahmoud Ahmadinejad and, in the end, September 11, Osama bin Laden's murderous response to the permanent deployment of American troops in the oil-rich Saudi holy land.

Oil produces corrupt, unmanaged and unaccountable oil companies.

Michael Watts, November 10, 2008, CNN, "The price of our oil addiction."
LexisNexis, last accessed 12.19.08.

As a result, international oil companies, national oil companies, and oil-producing states are awash in money. Their profits are unprecedented. ExxonMobil, the largest of the international oil companies, has a market valuation of nearly \$450 billion, or slightly more than the entire GDP of sub-Saharan Africa. In 2007, it booked a net profit of more than \$40 billion, which translates to a stack of dollar bills more than 10,000 miles high. The national oil companies -- the so-called New Titans that account for 90 percent of global oil reserves and more than one-third of output -- are equally flush. But to all intents and purposes, they are black boxes -- massively corrupt, completely unaccountable and poorly managed.

Addiction to oil creates corruption and violence.

Michael Watts, November 10, 2008, CNN, "The price of our oil addiction."
LexisNexis, last accessed 12.19.08.

By almost any measure, Nigeria's oil-producing states are a calamity. The United Nations estimates that between 1996 and 2002, the human development indices (education, life expectancy, income) actually fell in the core oil-producing states. Since 2000, the rage felt by marginalized and unemployed men across the Niger Delta has taken a militant turn. In late 2005 an armed insurgency erupted in the creeks of the Delta, led by the Movement for the Emancipation of the Niger Delta (MEND). For the better part of two years, the Niger Delta has been more or less ungovernable -- effectively a war zone.

The history of our addiction to oil is a chronicle of violence, corruption and the worst excesses of frontier capitalism and social Darwinism. It was the case when the Nobel and Rothschild families grappled for control of Caspian Sea oil in the late nineteenth century; it is just as true now in the Gulf of Guinea. Like crack, tobacco or any other addiction enabled by a vast, powerful industry (Is it surprising that Big Tobacco financially supported global warming skeptics for years?), our oil addiction is hugely destructive, defies logic and is nearly impossible to break. But unlike crack and tobacco, we will eventually run out of oil.

CON EVIDENCE

Background

US energy policies are far from being a complete solution.

John DeCicco, August 12, 2008, "Energy, Efficiency, and Climate: What Role Auto?" Senior Fellow for Automotive Strategies, Environmental Defense Fund, Center for Automotive Research, Management Briefing Seminars, http://mbs.cargroup.org/2008/images/speaker_photos/decicco%20for%20car%20mbs%202008.pdf, last accessed 12.18.08.

Some say that the United States doesn't really have an energy policy. Actually, we do, and let's be frank about its foundation. Last's year's bill was called the Energy Independence and Security Act. And of course, those terms have huge political resonance. In reality, however, energy independence is a false promise and a poor basis for sound policy. A real cornerstone of our policy is that oil has been long declared a "vital national interest," in other words, something worth going to war over. And therein lies a contradiction: whatever politicians may spend to promote alternatives, it's dwarfed by what they spend to ensure access to foreign oil, even if at a high price and at the incalculable cost of lives lost.

As things stand, we continue to pursue a legacy energy policy that, while it does trim fuel use, remains far from a complete solution. Washington has proven that it can do an energy bill in every Congressional cycle and still not be satisfied. Last year's bill came on the heels of the 2005 energy bill, and more action on energy is still at the top of the list as Congress feels the heat on high fuel prices.

The auto industry is already carries a significant energy burden.

John DeCicco, August 12, 2008, "Energy, Efficiency, and Climate: What Role Auto?" Senior Fellow for Automotive Strategies, Environmental Defense Fund, Center for Automotive Research, Management Briefing Seminars, http://mbs.cargroup.org/2008/images/speaker_photos/decicco%20for%20car%20mbs%202008.pdf, last accessed 12.18.08.

Energy-policy-as-usual today leaves automaking as the only major industry that is significantly carbon constrained. It leaves this industry carrying a disproportionate burden even in a policy framework fails to get the job done. And the energy policy paradigm fails in no small measure because it fails to carbon constrain the fuels industry.

The auto industry is repositioning itself in the status quo.

John DeCicco, August 12, 2008, "Energy, Efficiency, and Climate: What Role Auto?" Senior Fellow for Automotive Strategies, Environmental Defense Fund, Center for Automotive Research, Management Briefing Seminars, http://mbs.cargroup.org/2008/images/speaker_photos/decicco%20for%20car%20mbs%202008.pdf, last accessed 12.18.08.

This industry has already come a long way in repositioning itself. Under Mike's leadership, AIAM last year voiced support for action on energy and climate. At the Alliance, Dave McCurdy helped usher the Big 4 CEOs to publicly support national cap-and-trade policy. I've been honored to work with Beth and other business representatives in the U.S. Climate Action Partnership (USCAP). And Honda is unique in its steady, constructive policy stance, calling for balanced approaches with adequate lead time for progress on energy, safety and emissions. But at this juncture, the industry needs to go farther in leadership, and the second step for doing so is to rethink its policy priorities.

Consumers prefer gasoline driven cars, representing nearly 89% of sales.

Steve Miller, March 17, 2008, Brandweek, Adweek, "(Not So) Green Machines," LexisNexis, last accessed 12.19.08.

To a degree, makers of these ever-girthier machines are only doing what the free-market bible preaches: following demand. No matter what people might say about global warming and alternative fuels, many of them don't want any of it getting in the way of their nice, roomy cars. Figures from the Power Information Network, Westlake Village, Calif., show that consumers are not in a hurry to buy anything other than a gasoline powered engine. Last year, hybrid sales represented a mere 2.6 percent of the 16.1 million cars and trucks sold in the U.S. Diesels accounted for another 2.9 percent and flex-fuel vehicles, which can run on either gasoline or an ethanol blend, accounted for 6 percent. Meanwhile, gasoline-powered vehicles represented 88.5 percent of sales.

And truck sales? Driven by a collapsing home-builder market, pickup sales were off dramatically, but trucks overall represented 53 percent of all vehicle sales, per Autodata. That's a drop from 54.9 percent in 2005, but still up from 50.9% in 2001.

Environment

Energy replacement would force us to use fossil fuels in the immediate future, pushing us past the climate tipping point and creating an economic collapse.

George Monbiot, November 25, 2008, The Guardian (London) "The planet is now so vandalised that only total energy renewal can save us: It may be too late. But without radical action, we will be the generation that saved the banks and let the biosphere collapse" George Monbiot is the author of the best selling books Heat: how to stop the planet burning; The Age of Consent: a manifesto for a new world order and Captive State: the corporate takeover of Britain. He writes a weekly column for the Guardian newspaper. Lexis Nexis, last accessed 12/18/08.

This approach is challenged by the American thinker Sharon Astyk. In an interesting new essay, she points out that replacing the world's energy infrastructure involves "an enormous front-load of fossil fuels", which are required to manufacture wind turbines, electric cars, new grid connections, insulation and all the rest. This could push us past the climate tipping point. Instead, she proposes, we must ask people "to make short term, radical sacrifices", cutting our energy consumption by 50%, with little technological assistance, in five years.

There are two problems: the first is that all previous attempts show that relying on voluntary abstinence does not work. The second is that a 10% annual cut in energy consumption while the infrastructure remains mostly unchanged means a 10% annual cut in total consumption: a deeper depression than the modern world has ever experienced. No political system - even an absolute monarchy - could survive an economic collapse on this scale.

Timeframe

While companies are leaving the option of alternative fuels open, technologies are not viable. Some won't be viable until 2040, not before.

David Curry, June 4, 2008, Canberra Times, "Power of oil to fuel price rises, cars for decades." Lexis Nexis, last accessed 12.18.08.

Australian motorists can look forward to technological leaps that will produce cars powered by hydrogen and by ethanol derived from organic waste but not any time soon.

The overriding message at the Australian Automobile Association's national climate change summit in Barton yesterday was that despite skyrocketing petrol and diesel prices, fossil fuels would power cars for decades yet.

However, the director-general of the FIA Foundation for the Automobile and Society, David Ward, said the International Energy Agency had predicted cars would become 50per cent more efficient by 2030. "That is their technology forecast, and it's not about radical new technologies, it's really about globalising the sort of products [like hybrid cars] we've seen in Europe.

The fuel gains will outweigh the actual cost of introducing them to the market," he said.

The Toyota Asia-Pacific Technical Centre's Max Gillard said Toyota believed there was "no silver bullet" for alternatives to fossil fuels and was keeping all alternative fuel options open. He said Toyota was doing a lot of work on direct-injection for diesel engines, as well as improving combustion efficiency and reducing friction and weight. He said Toyota's "core technology" in the near future would be hybrid vehicles, which combined petrol with electric power. "We're looking at developing hybrid technology that will have the ability to

combine whichever of those [fuels] or all of them that come to the fore. We [also] believe the plug-in hybrid has great potential for the future."

The battery of plug-in hybrids can be recharged from an ordinary power outlet, instead of from power generated by a car's wheels, as is the case in the current hybrids. Mr Ward said projections from the International Energy Agency showed demand for liquid fuels in 2050 would be almost double 2005 levels, at 160million barrels a day. And while synthetic fuels, bio- fuels and oil derived from tar sands and shale would be much more significant, conventional oil was expected to comprise more than half of all liquid fuels. But the era of cheap oil was probably over. BP Australia's biofuels project director, Frank Russell, said the ultimate car fuel would be hydrogen, but the technology to make it viable was not expected until at least 2040.

Oil Supply

Current predictions about how long oil will last are wrong.

Tony Allwright, May 31, 2008, The Irish Times, "Simplistic predictions of looming oil drought are wide of the mark." Lexis Nexis, last accessed 12.18.08. Tony Allwright is an occasional Irish Times columnist. He is a retired oil industry engineer, specializing in exploration and production. His last position was with Shell in Oman, where he was technical director.

According to published sources, the world has something like one trillion barrels of oil reserves and consumes about 87 million barrels a day. Divide a trillion by 87 million and you get 11,494 days or $31\frac{12}{31}$ years of oil left - that is, it will run out in 2040 or thereabouts.

That's within the lifetime of many of us, so panic about a coming oil drought is entirely appropriate. Right?

Wrong. For the equation assumes stasis, but its two key components, reserves and consumption, are wildly dynamic and uncertain.

Take consumption. It is dictated by demand, but this in turn is driven by energy mix (oil, gas, coal, nuclear, hydrogen, renewables such as hydro, solar, wind, wave, tides, bio - more of one means less of another); by technology (machines that are either more fuel-efficient or less so); and by business organisation (arranging things more cleverly, such as by eliminating process duplication within or between companies, or eliminating processes altogether - eg replacing travel with video-conferencing, or reaping economies of scale, or a multiplicity of simple things like car-sharing).

Consumption is also driven by oil price (higher prices lead to less consumption), which is itself driven by demand (more consumption leads to higher prices); by

free-market competition forcing businesses to drive down their costs in order to survive; and by overall world economic circumstances that can foster either tighter or looser financial control, and lower or higher demand.

So if there is one thing you can be certain of between now and 2040, it is that consumption is not going to remain at 87 million barrels a day or any simple multiplier of this.

Only about 60% of oil reserves are actually reported.

Tony Allwright, May 31, 2008, The Irish Times, "Simplistic predictions of looming oil drought are wide of the mark." Lexis Nexis, last accessed 12.18.08. Tony Allwright is an occasional Irish Times columnist. He is a retired oil industry engineer, specializing in exploration and production. His last position was with Shell in Oman, where he was technical director.

But reserves can't be measured like liquid in a swimming pool, because oil sits in countless tiny voids (eg the space between adjacent grains of sand) within rock several kilometres downstairs and typically between a million and a billion cubic metres in size.

So you have to estimate the volume of the oil-bearing rock you've got; how much of this comprises voids able to contain fluids (porosity); how well the voids are connected together for easy tapping (permeability); the percentage to which the voids are filled with oil rather than water (saturation); how easily the oil itself can flow from one void to another till it gets to a well bore (viscosity); what help you may need to provide to push the oil along (eg external pressure); and the proportion, based on all the above, of the oil actually present that you will be able to economically extract - the so-called recovery factor.

On the last point, recovery factors for given oilfields range typically from 15 per cent to 60 per cent, with a global average of about 40 per cent, meaning the other 60 per cent doesn't appear in reserves estimates.

The above is what you need to know, but all you can measure is a few metrics that will yield seismic data that vaguely maps the shape of the rocks; good raw data about rocks and fluids from individual wells drilled - but wells are expensive, so they are few and far between; and reliable data about past production, though this largely just tells you how wrong your previous estimates were.

So with this limited, spaced-out information, covering only a very small percentage of the rock, you nevertheless have to interpolate and extrapolate what it means for all of the rock.

Human factors distort available oil predictions.

Tony Allwright, May 31, 2008, The Irish Times, "Simplistic predictions of looming oil drought are wide of the mark." Lexis Nexis, last accessed 12.18.08. Tony Allwright is an occasional Irish Times columnist. He is a retired oil industry engineer, specializing in exploration and production. His last position was with Shell in Oman, where he was technical director.

It is not hard to see, therefore, that if two engineers get together to agree on a reserves estimate, they come up with at least three different answers.

And that's not even to talk about human factors, such as the bonuses they might earn for themselves and their colleagues if they can increase reserves for their company and hence its share price, or the interest many Opec countries have in inflating their reserves to qualify for bigger production quotas, while simultaneously obscuring from their colleagues the basis of their calculations.

New technology allows us to increase the amount of oil we recover from oil fields, increasing reserves and recovering previously unprofitable oil.

Tony Allwright, May 31, 2008, The Irish Times, "Simplistic predictions of looming oil drought are wide of the mark." Lexis Nexis, last accessed 12.18.08. Tony Allwright is an occasional Irish Times columnist. He is a retired oil industry engineer, specializing in exploration and production. His last position was with Shell in Oman, where he was technical director.

Technology is changing all the time in a manner that in effect continuously increases reserves, as new ways emerge to use ever-better seismic techniques to locate oil-bearing rocks - smaller, deeper, tougher - that would otherwise remain hidden; to drill wells in ever-deeper, rougher waters and in more demanding land locations (from frozen wastes to thick jungle) that go ever deeper underground, that snake in three dimensions through multiple oil-bearing zones like a fighter jet stalking its prey, that are multi-tentacled, able to reach out several kilometres - perhaps up to 15km - in all directions like the spokes of a bicycle wheel; and to drill wells ever more cheaply, and to re-use old wells, thus yielding a profit from what would otherwise be uneconomic oil.

Increasingly sophisticated engineering provides solutions that improve the recovery factor, ie by untrapping more of the 60 per cent of oil (over a trillion barrels) currently not economically producible. These enhanced recovery techniques include cracking the rock open by pumping in water at high pressure; dissolving the rock and/or solid impurities by soaking with acid or other solvents; flushing the reservoir with water, or steam, or gas, or thinning chemicals, or viscous fluids down one set of (injection) wells, in order to drive more oil into the bores of other (producing) wells; or combining such methods.

New technology allows us to increase the amount of oil we recover from oil fields, increasing reserves and recovering previously unprofitable oil.

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Above all, know and trust that there is no limit to human ingenuity. Indeed it is said that oil is found not in the ground but in that unfathomable, inexhaustible resource that is the human brain, prompted it must be said by the driving force of benign human greed that so fascinated the Scottish economist Adam Smith, spiritual father of capitalism.

The limitless human mind will always ensure there is sufficient oil to meet humankind's needs until well after our grandchildren have died of old age.

Energy Independence

Energy dependence is mutually beneficial. Oil bans would make us poorer.

David R. Henderson, October 2008 “Lets Not Be Energy Independent,” The Freeman: Ideas on Liberty, Vol. 58 No. 8, Foundation for Economic Education, <http://www.fee.org/Publications/the-freeman/article.asp?aid=8340>, last accessed 12.18.08.

Energy “dependence” is much cheaper. In fact, the case for being “dependent” on other countries for oil is the same as the case for being dependent on other countries for bananas or coffee. At some tariff-protected price, the United States could be self-sufficient in bananas or coffee. If the price were high enough, someone would grow bananas and coffee plants in greenhouses. But why would we want that? Why would we want to pay more for coffee and bananas than we need to? Another way of saying that we would pay more is that we would give up more of our resources (capital, labor, and land) to have domestic bananas and coffee than we now give up by producing other things with these resources and using the proceeds to buy coffee and bananas more cheaply abroad. We would be poorer. The reasoning doesn’t change when the good is oil. By preventing people from importing oil, either with a ban on imports or a tariff on oil, the government would make us poorer.

Or think of it another way. Do you ever take your shirts to the local cleaner to be washed? If so, you are “dependent” on the cleaner. You could wash your shirts yourself, but you don’t. The reason you don’t is that your time is more valuably used producing other things, some of which you sell, and using some of the proceeds to pay the cleaner.

Moreover, think about the word “dependence.” The image the word creates is of a poor, helpless waif. I picture Oliver Twist in the musical Oliver, who after eating a meager amount of food, says, “Please, sir, I want some more.” But U.S.

consumers of oil are not poor, helpless waifs seeking the good will of oil-producing nations that are giving us oil out of kindness. Rather, they sell us the oil. We “need” the oil and they “need” the money. To the extent that dependence exists, it is mutual. International trade in oil is just that: trade. Since both sides gain from trade, each is therefore “dependent” on the other. Producers of oil are dependent on the dollars, euros, and yen that buy the oil. This fact is commonly recognized when the topic is U.S. exports; many Americans worry that we don’t export enough because they want our exporters to earn money from people in other countries. In other words, they see that our exporters need the dollars, yen, and euros that they earn on their exports. But, somehow, they fail to see that this is true of foreign exporters too. Exporters in the Middle East, Venezuela, and Canada need the income from exporting oil. “Dependence on foreign oil,” because it is so one-sidedly misleading, is a term that belongs in the dustbin of history.

Energy independence is expensive. Oil dependence is good.

David R. Henderson, October 2008 “Lets Not Be Energy Independent,” The Freeman: Ideas on Liberty, Vol. 58 No. 8, Foundation for Economic Education, <http://www.fee.org/Publications/the-freeman/article.asp?aid=8340>, last accessed 12.18.08.

The cost of using these alternatives, if successful in driving oil imports to zero, would actually be quite high. What makes these other policies politically attractive is not that they cost little, but that they hide the cost. A tariff on oil is a tax, and people can see the result of the tax in the price of oil. A subsidy to alternative fuels or to conservation, however, comes from the government’s treasury or from some other source and therefore is not visible to more than a small percent of the population. Economist David Loughran and engineer Jonathan Kulick studied the effect of state public utility commissions’ policies requiring electric utilities to subsidize their customers’ investments in conservation. The subsidies came not from tax revenue, but mainly from higher prices to other customers. Loughran and Kulick found that the cost of the conservation was between 14 and 22 cents per kilowatt-hour. This was a whopping two to three times as expensive as the energy conserved. (David Loughran and Jonathan Kulick, “Demand Side Management and Energy Efficiency in the United States,” Energy Journal 25, no. 1 [2004], cited in Jerry Taylor and Peter Van Doren, “Energy,” in David R. Henderson, ed., The Concise Encyclopedia of Economics.)

“Energy independence” is a bad idea. Every individual understands that it is far better to depend on others for most of what we want rather than trying to do everything for ourselves. This is true whether we’re buying oil or haircuts. The principle applies to groups of individuals living in large geographical areas called countries. Moreover, the dependence is mutual. In 1776, Adam Smith wrote in The Wealth of Nations, “It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner but from their regard for their own self-interest.” We can comfortably depend on foreigners for much of our oil because

the world's oil suppliers want to make money.

Biofuels

Biofuel harvesting encourages the destruction of the rainforest and hurts biodiversity. Governments should only use biofuels when they can be harvested in a sustainable environment.

David Maddox, April 19, 2008, The Scotsman, "Greens demand new look at biofuels drive." Lexis Nexis, 12.18.08.

Biofuels should only be used if it is proved they can be harvested in a sustainable way, the Green Party claimed last night.

The UK government is pressing ahead with the Renewable Transport Fuel Obligation, which means 2.5 per cent of all fuels at the pumps will have to be biofuels, but the Greens have called for the Scottish parliament to look again at their use.

And at their conference this weekend, the SNP will debate a motion that by 2040 all new cars should run on renewable fuels, some of which will be biofuels.

Biofuels were considered to be a carbon alternative to petrol, but recently came under attack as it emerged that harvesting fuel crops was behind a world food shortage with vast swathes of rainforest being cut down to make room for them. There are also concerns that they may be damaging wildlife because they are reducing bio-diversity.

Green MSP Patrick Harvie has said plans for pushing biofuels as an alternative should only happen when proved they can be harvested sustainably.

"Everyone knows why biofuels are so tempting to ministers," he said. "They appear to allow business as usual for drivers while promising significant cuts in carbon emissions. However, when something looks too good to be true, it normally is."

Biofuels destroy wetlands, pastures, and rainforests and increase corn prices in the US.

The Western Mail, October 16, 2007, "Controversy fuels the debate on plant replacements for petrol." Lexis Nexis, last accessed 12.18.08.

One controversial area is biofuels, often portrayed as the green option, to move cars away from dependency on petrol. But it can be a highly energy-intensive way of getting fuel and valuable areas of wetlands, pasture land and even rainforests have been cleared for cultivating crops for fuel.

The rapid expansion of fuel crops in the US, helped by subsidies, has caused a shortage of corn and a rise in its price, causing particular problems to South American countries which are dependant on US imported corn in their daily diet. I voted against the 10% target for biofuels by 2020 proposed by the European Commission because I believe there should be an environmental, social and food security impact assessment before setting or implementing any compulsory target for plant fuels or biofuels in the EU. Our group's amendment asking for an impact assessment was defeated. Priority should be given to reducing the amount of fossil fuel we use rather than finding an alternative that is still polluting and not changing the way we live and think.

Biofuels and biodiesels provide only a marginal energy balance while destroying rainforests.

Gwyn Morgan, February 18, 2008, retired founding CEO of Encana Corp., The Globe and Mail, "Those silver-bullet go-green solutions do more harm than good." LexisNexis, last accessed 12.19.08.

The latest alternative-energy silver bullet is biofuel. Canada, the United States and much of Europe have mandated minimum ethanol or plant-oil content in motor fuels, with the stated intent of reducing fossil fuel emissions. It turns out that producing Canadian grain-based ethanol and U.S. corn-based ethanol uses almost as much hydrocarbon energy for tractor fuel, fertilizer and distillation as the ethanol product yields. Scientists call this a "marginal energy balance." There is also strong evidence that intensive biofuel farming practices are resulting in the drainage of sensitive wetlands and unsustainable water use. Then there's the eruption of the huge food-versus-fuel conflict. While subsidized American corn belt farmers buy bigger tractors and more expensive pickup trucks, Mexicans riot over a 400-per-cent rise in the price of tortillas. And it's not just in Mexico; food prices have soared around the world.

Palm oil is blended with mineral diesel fuel to create biodiesel. Borneo is a great place to produce palm oil, provided you first burn down a large part of one of the world's most important rain forests. A visit to this land of the endangered orangutan and previously little-disturbed aboriginals is a depressing lesson in misguided silver-bullet solutions. The air is blue with smoke, as hundreds of thousands of square kilometres of rain forest are burned and replaced with palm oil trees. It's ironic that a policy supposedly aimed at environmental improvement is polluting the air and permanently destroying the rain forest lungs of our planet.

Ethanol policies push meat and poultry prices higher.

Progressive Grocer, March 13, 2008, A Publication for Strategic Management, "Economist Warns National Ethanol Policy Keeps Pushing Meat, Poultry Prices Higher." LexisNexis, last accessed 12.19.08.

At the Annual Meat Conference, the farm economy expert said ethanol's effects on the food industry could hit \$100 billion by 2010.

U.S. ethanol policy is continuing to drive meat and poultry prices higher, according to preliminary results of an analysis revealed this week by expert economist Tom Elam at the Annual Meat Conference in Nashville, Tenn.

"You cannot use the combined grain crops of Australia and Indonesia for U.S. fuel and not have an impact on corn, soybean and food prices," said Elam, president of Farm Econ, who expects food price inflation to rise five or six percent in 2009.

Elam said that he estimates the cumulative costs to the food industry of the renewable fuel program will be about \$100 billion from 2005-2010. The program mandates minimum ethanol production and provides tax incentives for ethanol use.

As part of his analysis, Elam compared what would have happened without the federal biofuels program with what has happened. According to his findings, farm level corn prices in 2008 would have averaged about \$2.77 per bushel without the program. But ethanol tax credits have added \$1.33 per bushel, and may drive corn more than \$5 a bushel in 2009.

Without the biofuels program, Elam estimated that 2008 ethanol production would have been 4.5 billion gallons, but the program has added at least 4.2 billion gallons. Ethanol would have been \$1.69 a gallon, but increased demand

for corn and higher corn prices are driving ethanol prices up and they now are 51 cents a gallon higher than that.

Approximately 76 million acres of corn would have been harvested in 2007, but the program added 10.5 million acres, said Elam. As a result of the program, this year's costs to the broiler industry are up \$3.4 billion; turkey input costs are up \$646 million; swine input costs are up \$2.9 billion; cattle input costs are up \$2.24 billion; and dairy producer input costs are up \$2.7 billion, he said.

Translated into a cost per animal, Elam estimated the costs at 53 cents per chicken; \$3.40 per turkey; \$38 per hog and \$117.50 per fed beef animal.

Hydrogen

There aren't enough natural gas resources to make hydrogen, and the alternative method of production requires dirty power plants.

Gwyn Morgan, February 18, 2008, retired founding CEO of Encana Corp., The Globe and Mail, "Those silver-bullet go-green solutions do more harm than good." LexisNexis, last accessed 12.19.08.

It's been 15 years since Ballard Power listed on the TSX. Ballard's vision of hydrogen-fuelled cars, powered by fuel cells emitting nothing but water, was enthusiastically embraced by policy makers and investors. Within a few years, Ballard's stock market capitalization soared to tens of billions of dollars. As then-head of one of North America's largest natural gas producers, I should have been a big booster of a hydrogen-fuelled future. Why? Because hydrogen is manufactured mainly out of natural gas. But it was clear to me there simply weren't enough natural gas resources to supply existing users, plus fuelling a significant percentage of North America's auto fleet. That remains true today.

The alternative method of producing hydrogen is the electrolysis of water. There's enough water, but the electrolysis process takes a lot of electricity. Producing hydrogen in large quantities would require many new power plants, and most power plants burn hydrocarbons. The long-term zero-emissions answer would be a massive nuclear power program, but don't count on that happening any time soon.

All available hydrogen is used up, so hydrogen fuel must be made or mined, making it an unlikely energy source.

Robert Zubrin, Winter 2007, "The Hydrogen Hoax," The New Atlantis The Journal of Technology and Society, Number 15, pp. 9-20, Zubrin is an aerospace engineer, is president of Pioneer Astronautics, a research and development firm. <http://www.thenewatlantis.com/publications/the-hydrogen-hoax>, last accessed 12.19.08.

Hydrogen is only a source of energy if it can be taken in its pure form and reacted with another chemical, such as oxygen. But all the hydrogen on Earth, except that in hydrocarbons, has already been oxidized, so none of it is available as fuel. If you want to get plentiful unbound hydrogen, the closest place it can be found is on the surface of the Sun; mining this hydrogen supply would be quite a trick. After the Sun, the next closest source of free hydrogen would be the atmosphere of Jupiter. Jupiter is surrounded by radiation belts so intense that they are deadly to humans and electronics. It also has a massive gravity field that would severely impair hydrogen export operations. These would also be complicated by the 2.5-year Jupiter-to-Earth flight transit time (during which any liquid hydrogen launched would probably boil away), and the fact that upon re-entry at Earth, the imagined hydrogen shipping capsule would face heat loads about eight times higher than those withstood by a space shuttle returning from orbit.

So if we put aside the spectacularly improbable prospect of fueling our planet with extraterrestrial hydrogen imports, the only way to get free hydrogen on Earth is to make it. The trouble is that making hydrogen requires more energy than the hydrogen so produced can provide. Hydrogen, therefore, is not a source of energy. It simply is a carrier of energy. And it is, as we shall see, an extremely poor one.

The spokesmen for the hydrogen hoax claim that hydrogen will be manufactured from water via electrolysis. It is certainly possible to make hydrogen this way, but

it is very expensive—so much so, that only four percent of all hydrogen currently produced in the United States is produced in this manner. The rest is made by breaking down hydrocarbons, through processes like pyrolysis of natural gas or steam reforming of coal.

Hydrogen is not economical.

Robert Zubrin, Winter 2007, "The Hydrogen Hoax," The New Atlantis The Journal of Technology and Society, Number 15, pp. 9-20, Zubrin is an aerospace engineer, is president of Pioneer Astronautics, a research and development firm. <http://www.thenewatlantis.com/publications/the-hydrogen-hoax>, last accessed 12.19.08.

Neither type of hydrogen is even remotely economical as fuel. The wholesale cost of commercial grade liquid hydrogen (made the cheap way, from hydrocarbons) shipped to large customers in the United States is about \$6 per kilogram. High purity hydrogen made from electrolysis for scientific applications costs considerably more. Dispensed in compressed gas cylinders to retail customers, the current price of commercial grade hydrogen is about \$100 per kilogram. For comparison, a kilogram of hydrogen contains about the same amount of energy as a gallon of gasoline. This means that even if hydrogen cars were available and hydrogen stations existed to fuel them, no one with the power to choose otherwise would ever buy such vehicles. This fact alone makes the hydrogen economy a non-starter in a free society.

More energy must be spent to liquefy and transport hydrogen.

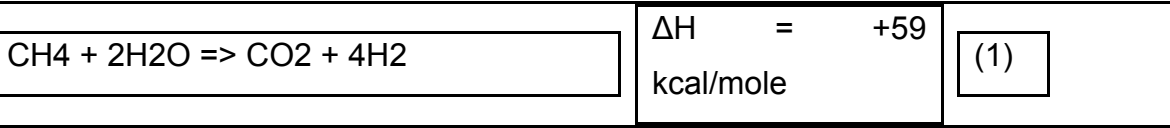
Robert Zubrin, Winter 2007, "The Hydrogen Hoax," The New Atlantis The Journal of Technology and Society, Number 15, pp. 9-20, Zubrin is an aerospace engineer, is president of Pioneer Astronautics, a research and development firm. <http://www.thenewatlantis.com/publications/the-hydrogen-hoax>, last accessed 12.19.08.

The situation is much worse than this, however, because before the hydrogen can be transported anywhere, it needs to be either compressed or liquefied. To liquefy it, it must be refrigerated down to a temperature of 20 K (20 degrees above absolute zero, or -253 degrees Celsius). At these temperatures, the fundamental laws of thermodynamics make refrigerators extremely inefficient. As a result, about 40 percent of the energy in the hydrogen must be spent to liquefy it. This reduces the actual net energy content of our product fuel to 792 kilocalories. In addition, because it is a cryogenic liquid, still more energy could be expected to be lost as the hydrogen boils away during transport and storage.

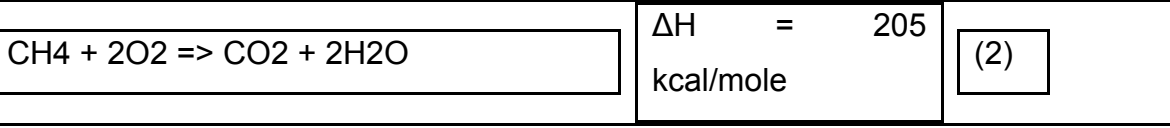
Hydrogen actually pollutes the environment.

Robert Zubrin, Winter 2007, "The Hydrogen Hoax," The New Atlantis The Journal of Technology and Society, Number 15, pp. 9-20, Zubrin is an aerospace engineer, is president of Pioneer Astronautics, a research and development firm. <http://www.thenewatlantis.com/publications/the-hydrogen-hoax>, last accessed 12.19.08.

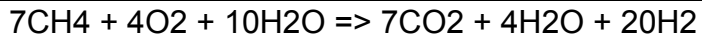
And even if you are among those willing to sacrifice freedom and economic rationality for the sake of the environment, and therefore prefer hydrogen for its advertised benefit of reduced carbon dioxide emissions, think again. Because hydrogen is actually made by reforming hydrocarbons, its use as fuel would not reduce greenhouse gas emissions at all. In fact, it would greatly increase them. To see this, let us consider an example. Let's say you wanted to produce hydrogen. You choose to do it via steam reformation of natural gas, the most common technique used commercially today. The reaction is:



As the positive enthalpy change indicates, the reaction is endothermic (that is, heat-absorbing) and will need an outside source of energy to drive it forward. This can be obtained by burning some methane, which releases 205 kcal/mole, via the following reaction:



Assuming an optimistic 72 percent efficiency in using the combustion energy to drive the steam reformation, this would allow us to reform 2.5 moles of methane for every one that we burn (or 5 for every 2). So if we take five units of reaction (1) and add it to two units of reaction (2), the net reaction becomes:



(3)

As far as usable fuel is concerned, what we have managed to do is trade seven moles of methane for twenty moles of hydrogen. Seven moles of carbon dioxide have also been produced, exactly as many as would have been produced had we simply used the methane itself as fuel. The seven moles of methane that we used up, however, would have been worth 1435 kilocalories of energy if used directly, while the twenty moles of hydrogen we have produced in exchange for all our trouble are only worth 1320 kilocalories. So for the same amount of carbon dioxide released, less useful energy has been produced.

Economical hydrogen fuel is impossible.

Robert Zubrin, Winter 2007, "The Hydrogen Hoax," The New Atlantis The Journal of Technology and Society, Number 15, pp. 9-20, Zubrin is an aerospace engineer, is president of Pioneer Astronautics, a research and development firm. <http://www.thenewatlantis.com/publications/the-hydrogen-hoax>, last accessed 12.19.08.

Given these technical difficulties, the implementation of an economically viable method of retail hydrogen distribution from large-scale central production factories is essentially impossible. Because of this, an alternative concept has been proposed wherein methane or methanol fuel would be transported by pipeline or truck, and then steam-reformed into hydrogen at the filling station itself. This would eliminate most of the cost of hydrogen transport, but would increase the cost of the hydrogen itself, since small-scale reformers are less efficient, both economically and energetically, than large-scale industrial units. Also, it is questionable how many service stations would want to buy, operate, and maintain their own steam reforming facility. The station would also need to operate its own 5,000 psi explosion-proof high pressure hydrogen pump, or a cryogenic refrigeration plant, both of which are very unappealing prospects. Such a scheme of distributed production stations would also eliminate any hope of implementing the hydrogen economy's advertised plan to sequester underground the carbon dioxide produced as a byproduct of its hydrogen manufacturing operations. At bottom, the whole idea is ridiculous, since either the methane or methanol used as feedstock at the station to make the hydrogen would be a better automobile fuel, containing more energy, in less volume, at less cost, than the hydrogen it yields.

Automobile Industry

Alternative fuel mandates have unintended consequences for the auto industry.

Harry Stoffer, September 8, 2008, "Proposed flex-fuel mandate roils industry," Automotive News.
<http://www.autonews.com/article/20080908/ANA03/809080350/1186/rss01&rssfeed=rss01>, last accessed 12.19.08.

Congress' efforts to address energy prices and supplies before the November election may do more harm than good, auto industry leaders warn.

One proposal before lawmakers would require every new vehicle built by 2020 to be capable of running on an alternative fuel such as E85. That idea is misguided, said Barbara Nocera, director of government and public affairs at Mazda North American Operations.

"Congress shouldn't try to dictate winning and losing technologies to automakers," Nocera told Automotive News at last week's Republican National Convention here.

The flex-fuel proposal is part of an energy bill drafted by a bipartisan group of senators. The full Senate is expected to consider the measure in the remaining weeks of the congressional session.

The bill would require 75 percent of new vehicles to be capable of using an alternative fuel by 2015, and 100 percent by 2020. The latest energy plan from Democratic presidential nominee Barack Obama, a senator from Illinois, includes a similar mandate.

Some lawmakers want to require all new vehicles to be capable of using an alternative fuel such as E85. Industry leaders say the mandate could have these

unintended consequences.

- Discourage r&d [research and development] of other promising technologies
- Apply scarce resources on technology that won't be used if fuel isn't widely available
- Force changes to engines that aren't easily adapted to E85 capability
- Potentially conflict with other regulations, such as California's clean air standards

Major auto makers reject a mandated policy towards alternative fuels but support voluntary measures. A mandate would increase costs dramatically.

Harry Stoffer, September 8, 2008, "Proposed flex-fuel mandate roils industry,"
Automotive News.

<http://www.autonews.com/article/20080908/ANA03/809080350/1186/rss01&rssfeed=rss01>, last accessed 12.19.08.

No mandate

The Detroit 3 have been major promoters of E85, which is 85 percent ethanol. They have vowed to make half of their vehicles E85-capable by 2012 if government does more to get the fuel into filling stations across the country.

But a voluntary commitment is different from a government mandate, industry executives say.

In a letter last month to lawmakers, the Alliance of Automobile Manufacturers objected to proposed measures that would require flex-fuel vehicles to account for half of new production by 2012 and 80 percent by 2015. The alliance represents the Detroit 3, Toyota, Mazda and five other automakers.

The industry group says automakers already are building more flex-fuel vehicles than the fueling infrastructure can support. Fewer than 1,700, or 1 percent, of the 170,000 filling stations in the United States have E85 pumps.

A high-volume engine can be converted to flex-fuel capability for \$300 or less, the alliance says. But alliance President Dave McCurdy says a mandate would increase costs dramatically because the technology cannot be applied easily to some powerplants.

Automakers should embrace climate issues on their own to minimize costs.

John DeCicco, August 12, 2008, "Energy, Efficiency, and Climate: What Role Auto?" Senior Fellow for Automotive Strategies, Environmental Defense Fund, Center for Automotive Research, Management Briefing Seminars, http://mbs.cargroup.org/2008/images/speaker_photos/decicco%20for%20car%20mbs%202008.pdf, last accessed 12.18.08.

The questions posed to this panel are: what is the auto industry's role in addressing energy and climate concerns? And how can automakers -- as well as suppliers and others in the industry's extended community on which so many jobs depend -- better make their collective voices heard in this debate?

My answer is this: automakers need to embrace the climate problem as their own, taking it on with an urgency and clarity of purpose that transcends the traditional response of managing policy pressures to minimize costs.

Government policies and auto makers don't have to be at odds. The auto industry should embrace climate issues on their own.

John DeCicco, August 12, 2008, "Energy, Efficiency, and Climate: What Role Auto?" Senior Fellow for Automotive Strategies, Environmental Defense Fund, Center for Automotive Research, Management Briefing Seminars, http://mbs.cargroup.org/2008/images/speaker_photos/decicco%20for%20car%20mbs%202008.pdf, last accessed 12.18.08.

So, to sum up, the best way forward on these issues is for the auto industry to take on climate protection as a challenge that you own. You can look at this as a kind of jujutsu: rather than fight the force of policy pressure directed at you, embrace it and redirect it to your advantage. Stepping forward to really own the problem that others say you own will provide the best way transcend the legacy approaches of energy policy and this aspect of the turbulence the industry now faces.

A thriving auto industry need not be in conflict with climate protection if we can recast the debate and put in place a policy that is comprehensive, rational, cost-effective and fair. This industry's leadership is crucial for advancing such a goal. With a well-crafted climate policy, the auto industry will position itself to thrive in the ever more carbon-constrained world that it will surely face in the decades ahead.

Free Market

Energy policies should put the free market to work for us.

Steve Chapman, April 12, 2007. Columnist and editorial writer for the Chicago Tribune, "Mistakes to Avoid in the Global Warming Fight," Human Events Online. LexisNexis, last accessed 12.19.08.

How will we address this new challenge? The most plausible answer is: with a lot of command-and-control programs that micromanage various industries on the assumption that the government knows best. In a word, badly.

Reducing the output of carbon dioxide and other substances that trap the Earth's heat is not cheap. But there are expensive solutions, and there are astronomical ones. Any new policy should aim at getting the greatest reductions for the least money.

That may sound like a hugely complex task for the government, but it's not. The free market is the best system ever created for providing what we want at the lowest possible cost. The way to get affordable amelioration of climate change is to put the market to work finding solutions. To achieve that, we merely need to make energy prices reflect the potential harm done by greenhouse gases.

How? With a carbon tax that assesses fuels according to how much they pollute. Coal, having the highest carbon content, would be taxed the most, followed by oil and natural gas. The higher prices for the most damaging fuels would encourage people and companies to use less of them and more of other types of energy, including nuclear, solar, wind and biofuels. This approach would also affect all sources -- not just cars, which account for only one-fifth of all U.S. carbon dioxide emissions.

Allowing consumers to choose energy sources is a cheaper solution to the government cutting out energy sources themselves.

Steve Chapman, April 12, 2007. Columnist and editorial writer for the Chicago Tribune, "Mistakes to Avoid in the Global Warming Fight," Human Events Online. LexisNexis, last accessed 12.19.08.

It also has the advantage of keeping the government role as small as possible. When the government gets directly involved in controlling energy use -- by fiddling with mileage rules, handing out grants and tax incentives, and underwriting particular energy sources -- it invites boondoggles and special-interest gimmicks that benefit politicians without doing much to temper climate change. We'll all be better off if Washington merely levies a tax and gets out of the way, leaving producers and consumers to search out the cheapest means of minimizing emissions.

Of course, no one wants to pay more in taxes. Here's the good news: We don't have to. Some economists propose that carbon tax revenues be used to finance equal cuts in income and payroll taxes. That way, we'd get environmental improvements and a lighter load on companies and workers. Meanwhile, the total tax burden on the economy would be unchanged.

The campaign against global warming promises to be costly and uncomfortable under the best of policies. But if we let it become an excuse for bureaucrats and busybodies to meddle needlessly in our lives, it promises to be even worse, for us and the planet.