Obama’s Energy Plan

We tend to think of energy as being used in factories, yet our American way of life is supported by the need for energy to perform countless tasks. Consider your morning shower where water is pumped from wells, reservoirs, and lakes; filtered; treated; and then once again pumped, up into storage tanks. From there a system of valves and pumps brings it to our water heater. From the shower it flows by gravity to lift stations that carry it to treatment plants where it is screened, filtered, treated, and pumped into rivers often cleaner than it started. Unless we’re satisfied with a Third World standard of living (bathing weekly with a bucket of river water), we require copious amounts of reliable energy.

The Obama administration plans to turn conventional wisdom on its ear, advancing a plan wherein, instead of increasing energy supplies, the United States will attempt to decrease energy usage and replace our present reliable energy supply with solar- and wind-energy alternatives. The administration encapsulates its “New Energy for America” plan in six sentence-long bullet points, which we quote verbatim below:

• Provide short-term relief to American families facing pain at the pump

• Help create five million new jobs by strategically investing $150 billion over the next ten years to catalyze private efforts to build a clean energy future

• Within 10 years save more oil than we currently import from the Middle East and Venezuela combined

• Put 1 million Plug-In Hybrid cars — cars that can get up to 150 miles per gallon — on the road by 2015, cars that we will work to make sure are built here in America

• Ensure 10 percent of our electricity comes from renewable sources by 2012, and 25 percent by 2025

• Implement an economy-wide cap-and-trade program to reduce greenhouse gas emissions 80 percent by 2050

Let’s now take a look at the plan in detail.

Pump Pain

To moderate the pain of paying high gas prices, the Obama administration plans to confiscate a “reasonable share” (you might guess who is to determine what is “reasonable”) of record-breaking “windfall profits” of the oil companies and give it to American families as an “emergency energy rebate.” Individuals would receive a $500 largesse, while couples would be blessed with $1,000. Note that this subsidy tends to increase demand, while stripping profits from the oil company not only harms innocent stock holders and pension funds (which pay for people’s retirement), but reduces the capital to find and develop new sources of oil thus driving the price of fuel up — starting another round of subsidies, penalties, and higher prices.

In addition to the “pain” additional government interference in the energy market will cause, we’ll experience new “pain at the showroom.” The Obama administration proposed that Corporate Average Fuel Economy (CAFE) standards increase the fleet average requirement by 2016 to 35.5 miles per gallon from the present rate of 27.5 for cars and 24.0 for light trucks. The engineering to accomplish this feat comes with a healthy price tag of $1,300 per vehicle according to administration estimates, though engineering and fuel economy experts predict a rise of between $5,000 and $12,000. And the economic pain would be exacerbated by the physical pain and death caused by the lighter vehicles required to meet the CAFE requirements. Dr. Leonard Evan, author of *Traffic Safety*, concludes that “CAFE kills, and higher CAFE standards will kill even more.”

Oil-consumption Reduction

According to Obama, America needs to reduce oil consumption through switching to efficient vehicles. He would, he said, “put one million Plug-In Hybrid cars — cars that can get up to 150 miles per gallon — on the road by 2015, cars that we will work to make sure are built here in America.”* Is this feasible? And what effect will this have?

Let’s look at car technology. The conventional hybrid car available today, such as the Toyota Prius, is not a Plug-in Hybrid Electric Vehicle (PHEV), as referred to by Obama. Today’s hybrids typically have batteries, which are used for low-speed operation, and gasoline engines, which kick in at higher speeds and charge the batteries. The cars also have regenerative braking, meaning that in stop-and-go traffic the kinetic energy of the car is used to charge the battery during braking.

Toyota hopes to be the first competitor in the plug-in hybrid market in 2010 with a PHEV-7 car — a car that can travel seven miles on battery-only power. The GM Volt, also hoping to see the sales floor with a 2010 model, is a plug-in that would get 40 miles per charge. When battery power is exhausted, a gasoline engine drives a generator that provides electricity directly to the axle-mounted DC motors. There will certainly be customers for this type of automobile — especially those with short commutes, a garage (no stringing electrical cords across the sidewalk or using half the battery power for heating the car in the morning), and a fairly healthy car budget. The price tag is expected to be about $42,000 — but then the plan is to give buyers a $7,500 tax credit (not just a tax deduction), paid for primarily by those who can’t afford a $42,000 or even a $31,500 compact car.

Not expected to be interested in cars like the Volt: soccer moms, Interstate drivers (the 68 hp engine is considerably less powerful than a twin-cam Harley), anyone who may need to tow something someday, and others who just don’t want to go to the extra effort of making sure their car is tucked in to bed every night.

Let’s put this program into perspective, shall we? As of 2006, there were over 240 million cars, pickups, minivans, and SUVs registered in the United States. The one million PHEVs sought by Obama amount to 0.4 percent of the total passenger fleet. The decrease in petroleum-product usage we could expect if one out of every 240 vehicles used nothing but electricity would be minimal. Is this something the federal government should be concerned over, or is it feel-good pandering to the radical environmentalists and journalist *ignorati*?

The overall goal of the Obama administration is to, within 10 years, save more oil than we currently import from the Middle East and Venezuela combined. But how much oil is that, and how much oil usage do we still need to cut after putting the PHEVs on the road?

The Middle East and Venezuela combined provide about 1.34 billion barrels of oil per year — some 37 percent of the 3.6 billion barrels in total imports. Of the total domestic and imported oil, 1.34 billion barrels is about 19 percent of total consumption. Where do we begin to increase supply or decrease demand to offset roughly one in five gallons of oil?

Let’s start with those million PHEV cars, which, for simplicity’s sake, we’ll assume don’t use any petroleum fuels. For the same reason, we’ll double those PHEVs to two million, so we can figure to have a one-percent oil-consumption reduction — only 18 percent to go.

Can we save more by using ethanol as a substitute for petroleum? Oops, we’re already going down that road and are very near to an “ethanol bubble” in this correspondent’s opinion. Yes, there are some happy farmers and some happy (and rich) blenders of ethanol into various gasohol concoctions. But there are also some very unhappy people — especially in the poorer countries — who have seen the price of staples like tortillas double in price. Burning our food as fuel has also caused serious increased costs in livestock production following higher feed prices. With 27 recent bankruptcies of ethanol producers, many investors in ethanol plants are whistling through the graveyard these days hoping to recoup their investments without anyone noticing they are bailing out.

With service stations advertising “No ethanol in our gas,” it appears the public is waking up to the poorer mileage of ethanol and wondering why they are forced to use it in their cars when it is known to be too corrosive for pipelines. Without continued subsidies, tariffs, and especially inane laws requiring its use to dilute and degrade the quality of gasoline, it would be limited to its historical uses: medical supplies and distilled spirits.

What about savings gleaned from bio-diesel made from animal fat and other feedstocks, such as cooking grease? Tyson Foods plans to build a plant to render chicken fat and turn it into diesel fuel. Certainly this will produce a tiny fraction of the 18 percent, but to meet Obama’s goal of six billion gallons of biodiesel by 2030, we would need to render the fat from about 75 billion chickens per year. Really, is this the way to maintain the industrial might of the United States and keep our lights and air conditioners operating?

Of course, there are ways to increase the availability of U.S. crude (such as developing our off-shore and Alaskan fields) and methods to provide ample crude-oil substitutes (such as converting coal into liquid fuel as was done by the Germans during WWII and is still being done in South Africa). Using the high temperatures of pebble bed nuclear reactors, this could be done efficiently and with little pollution, but it will never happen under this administration as there is no intent to produce more energy — only an intent to use less.

More Renewable Energy

Advancing hand in hand with reducing oil consumption is the administration’s plan to “ensure that 10 percent of our electricity comes from renewable sources by 2012 and 25 percent by 2025” — moving our country away from CO2-emitting power sources to “clean, abundant power.”

Since Obama said on December 20, 2007 that he is “not a nuclear power proponent,” and there is no record that he has since reversed that position, one can assume America’s new green energy will not be nuclear. And since he will only back coal as a power source if it involves the capture and storage of CO2, and such “capturing” processes are strictly in experimental stages, we can bypass that option as well.

Inasmuch as Obama has barely given lip service to geothermal energy, when he says “renewables,” he means solar energy and wind power. Let us take a practical look at these as energy sources for America.

Solar Energy: Since the deserts of the Western United States have 280 clear days per year and solar energy is there for the taking — as compared to some 120 such days in the Northeast United States — it seems like a no-brainer to build a power line from the sun-rich desert to the energy-starved states of the Northeast. (Twenty-five percent of U.S. electrical energy — 1,004 of 4,157 million megawatt-hours — is used in the industrial states of Illinois, Indiana, Pennsylvania, Ohio, Michigan, New Jersey, and New York.) Problem solved! Planet saved! Why then is solar only a tiny fraction of one percent of U.S. energy production — and losing ground?

Before America starts building a transmission network to transfer this energy (call it a Smart Grid since “smart” stuff is really in these days), we need to consider why private industry is *not* collecting all of this “free” power:

• While there are up to 280 clear days in the desert, that also means there are about 85 days that aren’t clear — in fact, they may be overcast and rainy. Even Death Valley has 18 days per year with measurable precipitation. Since electricity must be generated at the time it is used, what are we to do when the sun doesn’t shine?

• When the coffee pots and hair dryers are cranking up in the industrial Northeast, it is still dark in the desert. And it will be functionally “dark” until about 2 p.m. EST when the incidence of the sun’s ray allows the photovoltaics (or the mirrors in a thermal plant) to collect sufficient energy for electricity generation to commence. Perhaps the government could decree that the East Coast go on “Green Time,” where citizens would be required to stay in bed till 2 p.m. (Teenagers would certainly be for it.)

• If we are to supply even 10 percent of the aforementioned states’ electrical energy in the eight-hour period when there is sufficient sunlight, then we would need a transmission capacity of about 35,000 megawatts. A 345-kilovolt line with 1,000-amp conductors can carry about 500 megawatts, meaning it would take some 70 transmission lines crossing mountains, rivers, and the property of several hundred thousand possibly unimpressed landowners. (And for two-thirds of each day, these hundreds of thousands of 15-story towers would be nonfunctioning.)

As a matter of fact, tapping into solar power wouldn’t lead to the elimination of any conventional power plants, since the solar-generated electricity is not available on demand. Conventional power plants must always be on standby, powered up as “spinning reserves” available at a moment’s notice, just in case clouds or one of the frequent desert dust storms knocks out solar production. These reserves would have to come from natural-gas turbine generators or from coal or nuclear power plants that are running but are putting out less-than-maximum electricity so that they can come up to speed quickly when the solar generation drops off.

But what about periods such as the Northeast’s morning peak when *no* solar is available? Then we would need our full existing complement of coal and nuclear power plants to provide the required energy. Since these plants require hours, if not days, to come on line, they would need to stay in a full operational mode at all times.

Obviously, centralized solar generation won’t work; perhaps we should look to local solar electricity generation.

The Internet is full of schemes for local solar generation to augment utility power — we’ve all seen the ads about installing solar panels to not only save on electrical bills, but to *make your meter run backwards*.

Local photovoltaic generation of electricity can be useful. In fact, your correspondent is in the process of installing solar panels to provide electricity for a radio that will report the level in a water tank to control three duplex pumping stations sending water up a mountain in North Carolina. Running power lines to a remote site often costs many, many times the cost of solar panels. The power requirement in this case is minimal — only five watts to power the radio and control circuitry. But the cost for the solar panels and electricity storage — since it is expected that there will be periods up to two weeks without significant sunlight — is over $2,000, not including installation. Still, that is economical compared to the cost of stringing power lines.

The problem comes in trying to provide “usable” amounts of reliable electrical energy with solar panels without breaking the bank. Let us look at the cost of solar panels and how much electricity they produce.

A typical panel is about one square meter, or approximately 10 square feet. Though it is rated for 130 watts, it will never achieve that power production. The 130 watts of electricity is based on a radiant flux of 1,000 watts per square meter (meaning the panel converts 13 percent of solar energy to electricity), but even in the tropics at noon on a clear day, the solar radiation striking the Earth is only 950 watts per square meter.

So how much incoming solar radiation is the panel *really* expected to intercept for conversion to electricity? First we need to assume that the photovoltaic cells are clean because a thin coating of dust or grime can easily reduce the light energy reaching the cell by 10 to 20 percent. Then we must calculate the angle of the sun’s rays. Except for expensive, commercial solar plants that use servo motors to “track” the sun, there are only brief periods where the sunlight is perpendicular to the solar collection device. When the sunlight strikes at an angle, the solar energy is decreased by the cosine of the angle of incidence. With a fixed collector, the angle of incidence varies from 0 to 90 degrees and back to 0 degrees every day. Over the seasons it also varies because of the sun’s course over the seasons. If you’re set up for collecting in the winter, it could easily be off 45 degrees in the summer and vice versa. So when you combine vectorily the incidence angles, being off by 30 degrees is a pretty good average. When this angle is 30 degrees, a decrease of 13 percent occurs.

The around-the-clock average of solar radiance hitting the United States is approximately 200 watts/square meter, far from the 1,000 watts of irradiance the panel rating is based on. Deducting a conservative 10 percent for being off the perpendicular, we have 180 watts per square meter that we can possibly collect. With a conversion ratio of 13 percent, suddenly our 130-watt panel now becomes a 23.4-watt panel. With 8,760 hours in a year, one could expect to generate 205 kilowatt hours of electricity — which costs the average consumer about $20 from the utility company. The typical cost of the solar panel from online vendors: $550. This, of course, does not include installation.

But the problems for the solar enthusiast are just starting with the installation of the panels. One doesn’t just connect the output from the panels — which is low voltage direct current (DC) — to one’s breaker box that brings in alternating current (AC) from the utility company. While incandescent lights (but *not* the fluorescent bulbs being pushed by the Greens) can be operated on DC power, appliances cannot. To convert the DC power to AC requires an inverter, and then a transformer to bring the voltage to a level that is usable in your home or office. To make that *meter run backward*, you must synchronize the frequency of your system to the utility line — very carefully, or your system will become a puddle of copper and silicon.

Taking these numbers, let’s look at what a solar system would cost for the average homeowner who uses the national average of 12,000 kWh per year. First 58 panels plus installation: $42,000. Then add batteries, an inverter, and other controls at $20,000, giving a system cost of $62,000. Maintenance and replacement batteries represent an annual expense of at least $2,000. And for all this, the green homeowner saves $1,000 in utility costs — plus the satisfaction of thinking he’s “saving the planet.”

Wind Power: Logic would suggest that if wind power were a viable option to other forms of generation, the investor-owned power companies would be first in line to utilize this “fuel-free” source of energy. If they did not utilize it, competitors would gain an advantage and abscond with valuable commercial and industrial accounts. Obviously, there is no such rush for wind power, as utilities must deliver electricity, not rhetoric.

The employment of wind-power electrical generation requires a modification of the normal rules of mathematics. Take the following question:

Q. You have a 5,000-megawatt network of coal, nuclear, and natural-gas power plants, to which you add one hundred 1.5-megawatt wind turbines. What is your new capacity?

A. You still have a 5,000-megawatt network. The 150 megawatts of wind power don’t count — because they can’t be depended upon when electric energy is called for by the network.

An NPR (National Public Radio) interview of grid manager Bob Benbow made clear that he is worried that when wind power makes up a significant portion of his grid, managing it will cause him major problems because of grid instability, as happened to colleagues in Texas on February 29, 2008. The limit of wind power and/or solar power that can be added to a network is reported to be in the area of nine percent, after which there becomes a danger of losing control of the network. Benbow elaborated on his concern about the possibility of 20-percent wind power on his grid: “If the wind is not blowing, you just don’t have that resource available.” And even when the wind is blowing there are problems with wind turbines: “A lot of these plants are not manned — if we need to turn them off, we have to send a person out to actually do that.”

Other concerns frustrate Benbow and his fellows: wind blows hardest at night when electricity demand is lowest, and it can’t be counted on for hot summer days when it’s needed most: “You can put all that wind in, but I still need to have all this other generation that I need to have available — all my coal, nuclear, all the gas — for my peak load day.” It’s not easy being green.

European countries are far ahead of the United States in not only wind power, but in its unhappy consequences. At 9:15 a.m. on the day before Christmas in 2005, the Energy Intensive Users Group (EIUG) in the UK was almost overwhelmed by wind power; it reached a maximum of 6,024 megawatts. Yet the day after Christmas, the wind power complement fell to 40 megawatts. (In 10 hours the wind-power feed-in dropped 4,000 megawatts, comprising most of the wind energy potential and equivalent to four full-scale 1,000-megawatt nuclear plants or eight typical coal-fire generating facilities.)

One can visualize the EIUG grid managers shutting down power plants all over the UK on Christmas Eve, only to frantically attempt to bring them back online two days later.

The situation in the UK should be instructive. Forty-year-old nuclear plants are to be shut down in the next decade, along with many less-efficient coal plants. Environmentalists demand that this loss of electrical generation capacity be made up by on-shore and off-shore wind power, even though there is strong resistance in the engineering and economics communities that such a plan is even possible, much less economically feasible, a fact that the British government is apparently not overlooking altogether. The UK *Telegraph* reports: “Meanwhile the [English] government gives the go-ahead for three new 1,000 megawatt gas-fired power stations in Wales. Each of them will generate more than the combined average output (700 megawatts) of all the 2,400 wind turbines so far built. The days of the ‘great wind fantasy’ will soon be over.”

Of course, if solar and wind power aren’t viable, neither is the claim by Obama that his administration will “help create five million new jobs by strategically investing $150 billion over the next ten years to catalyze private efforts to build a clean energy future.”

Again, we look to what’s happening in Europe — as Obama did, after a fashion, in a speech in March given at the Southern California Edison Electric Vehicle Technical Center. “Around the world nations are racing to lead these industries of the future” he said. “Spain,” the president reported, “generates almost 30 percent of its power by harnessing the wind, while we manage less than one percent.”

A recent study by researchers at Spain’s King Juan Carlos University looked closely at the idea that new green energy jobs will stimulate hiring across the economy:

We find that for every renewable energy job that the State manages to finance, Spain’s experience cited by President Obama as a model reveals with high confidence, by two different methods, that the U.S. should expect a loss of at least 2.2 jobs on average, or about 9 jobs lost for each 4 created, to which we have to add those jobs that non-subsidized investments with the same resources would have created….

The study calculates that since 2000 Spain spent 571,138 Euros to create each “green job,” including subsidies of more than one million Euros per wind industry job. Each “green” megawatt installed destroys 5.28 jobs on average elsewhere in the economy; 8.99 by photovoltaics, 4.27 by wind energy, 5.05 by mini-hydro. These costs do not appear to be unique to Spain’s approach but instead are largely inherent in schemes to promote renewable energy sources.

Why is the Obama administration overlooking the real European example? Because in the administration’s worldview, the only important factor is controlling how much “greenhouse gas” is produced. This makes sense when you put the administration’s energy puzzle together and look at the biggest the piece — cap and trade.

Cap and Trade

The Obama administration plans to “implement an economy-wide cap-and-trade program to reduce greenhouse gas emissions 80 percent by 2050.”

Cap and trade — just kind of rolls off your tongue. Having become such a common phrase, it’s lost all sense of harshness and severity. There is another word that means the same thing, although for most Americans it has also lost its sense of authoritarian control: r-a-t-i-o-n-i-n-g. In this case we are not rationing to provide supplies for troops, as in WWII, but rationing industry’s ability to produce goods and services that would improve the condition of humanity. All this in order to avert a hypothetical global-warming crisis for future generations.

The always-unmentioned details about how cap and trade would be administrated are horrible to contemplate. The logically extrapolated procedures to make cap and trade happen make “waterboarding” seem like blowing soap bubbles.

Obama is personally on record advocating a carbon-emission “auction.” But what *exactly* would be auctioned, and who would be doing the auctioning? And who would be bidding? Probably "carbon credits," i.e., allowances to put CO_2 into the atmosphere, would be the product auctioned. The Treasury Department or some government agency would be the auctioneer, and a variety of buyers, mainly industry, would be allowed to buy these "Mother-May-I" instruments.

The credits, if we use the European Union as our guide, would not be permanent, but renewable. In the EU, businessmen must go to the Great Wizard every year and beg for a share of the decreasing amount of carbon credits. The amount of *carbon credits*, which even if it were held at a constant amount would be terrible and stifle a growing economy, must constantly decrease to fulfill the Obama administration's game plan: decrease CO_2 emissions in accordance with a Kyoto-type plan to be adopted in Copenhagen in December. As the credits decrease, rationing comes into play — only so many goods and services will be able to be created under the government-imposed constraints, and many industries will undoubtedly close operations. As a corollary, this reduction makes the *carbon credits* more valuable, puts American industry under total control of the government, and makes trading credits incredibly profitable, especially when brokers can pick up inventory from Eastern European nations or African satrapies, and sell it to American entrepreneurs.

At the beginning, the enforcement of the carbon-reduction scheme would be arranged through regulations on electric power companies, motor fuel companies, and other large users of carbon-based energy. But in time, the scheme would become not only a tax burden for consumers, but a bureaucratic one: when ABC Power Company is forced to decrease its carbon emissions, and the windmills can't take up the slack, then its customers would be squeezed. ABC Power would have to ration the amount of power each customer may use. If a customer exceeds his allowed usage, then the meter would be turned off, or a surcharge would apply based on the trading on carbon credits done by the utility. Similarly, gasoline will become in short supply, requiring rationing to keep the oil companies from exceeding their supply of carbon credits. To say this would create the bureaucracy of all bureaucracies is an understatement.

If it's enacted, the Obama energy plan, if it can be called that, will likely be used as a case study in college classes generations from now as a lesson explaining how government interference in the markets leads to the economic downfall of a civilization.

Author's note: Some readers have questioned my position denying anthropogenic (human-caused) global warming (AGW), in particular the link between carbon dioxide and rising global temperatures. These critics might first consider that my position does not ask them to enact new cap-and-trade taxation, worry endlessly about their carbon footprint, or make major changes in their lifestyles. So I suggest it is not incumbent on me to prove CO_2 is not causing global warming, but for the alarmists to prove that it is.

Let us look at the evidence they bring to the table to "prove" their position:

• The graphs in Gore's Inconvenient Truth purport to show a CO_2/temperature relationship and indeed do so. But an examination of the data shows that warming precedes increases in CO_2 by an average of 800 years. The huge thermal "flywheel" of the oceans requires long periods of time for temperature rises to occur. When oceans do warm, CO_2 is expelled since warmer water can hold less of the gas.

• There is general agreement that if CO_2 is causing the warming trend, there should be a "hot spot" at about 10 km over the tropic. This signature is missing, causing even many IPCC scientists to abandon the AGW hypothesis.

• Most of the rest of the climate-alarmists' case rests on computer climate models. But none of the models predicted the cooling trend of the last eight years of 1 degree C per century as shown by satellite measurements. In fact, there is not one computer model that can even replicate past changes in global temperature, let alone predict future ones. Plus, all increases in temperature are completely consistent with natural processes and warming taking place since the Little Ice Age, and Earth has not even yet reached its 3,000-year average temperature.

In other words, there is NO proof whatsoever that AGW has had an effect on the warming trend, which began at about the time of the Civil War, that brought us out of a 400-year "Little Ice Age".

The effects — actual or imagined — of this trend should not be confused with causation. Tales of polar bears, coral reefs, glaciers, etc. only take the spotlight off the real question: where is the evidence of AGW?