

The Energy Nag Returns!

Volume 2, #1: What the Nag can do for YOU!

The Energy Nag Rag was discontinued, temporarily, last fall in light of the horrific events of Sept. 11. Everybody had more immediate things to think about. But, now that at least some of the acute pain of the terror has passed, it is time to consider the implications of that episode, and what we as individuals can do about it.

One clear implication is (you guessed it): American “policy” (to the extent it exists at all) about energy and oil needs to change. It is highly unlikely that terrorists originating in the Middle East would attack America directly if, somehow, oil wasn’t involved. They know that our responses - political, military, and economic --are severely limited by our dependence on that part of the world. Only when we manage to extract ourselves from that dependency will the dynamics change.

Well, enough about politics. What can an individual do?

It is important to understand that the vast majority of our energy use comes from burning fossil fuel (most of you know this). And, it is convenient to think about total energy use in the US as being categorized into “place of use” and “type of use”. The Nag will illustrate:

- About 1/3 of the total energy consumption in the US is for transportation (cars, planes, trains, boats);
- about 1/3 for industrial processes (melting things, pounding them, shaping them, and turning out final products);
- and about 1/3 for residential uses (heating, lighting, cooling, refrigeration)

As for type of use (there’s a little overlap here so cut the Nag some slack):

- About 1/3 is for transportation of all types
- About 1/3 for heating and cooling
- About 1/3 for lighting and everything else (more or less).

Of course, in transportation, the only fuel worth talking about at the moment is gasoline. Hydrogen consuming cars are coming, but it’ll be a while (at least a decade by even the most optimistic guesses) before they are a significant portion of the market. In the meantime, we are stuck with using oil, and we import about 13 - 14 million barrels of the stuff EVERY day (about 12 million barrels are produced domestically).

With heating fuels, the story is mixed. Most US heating (including, by the way, water heating) is done with natural gas, but a large number of people (mostly in the northeast) use fuel oil (ugh... more imports). In the Northwest, where electricity is cheap due to the availability of hydropower, most folks use electricity, as is the case in hot summer climates because heating isn’t needed very much. In any case, natural gas use is booming, and so is the price of it (see more below)

Now lighting, cooling and industrial processes rely heavily on electricity. Most of the electricity in the US is produced from burning coal; about 12% is nuclear, about 12% is hydro, and the rest is acquired from burning natural gas (this is becoming increasingly popular as it emits less carbon dioxide per unit of electricity produced) with tiny bits from solar, wind, and other renewables.

So what does all of this mean? Well, first, the vast majority of our total energy consumption comes from burning things (coal, oil, natural gas, some wood), all of which dumps enormous loads of CO₂ into the air. Coal is the worst, and natural gas is the least offensive, but there has been an every increasing amount of CO₂ put into the air each year, especially in the US.

Second, because so much transportation occurs inside of crowded cities, on crowded highways, huge amounts of energy are wasted as cars and trucks idle, accelerate for a short distance, and then idle again. It is hard to calculate how much gasoline is burned without benefit, but doubtless a substantial portion is. Add to that the uniquely American penchant for big trucks, big cars, SUVs, motor homes (you get the idea), and all of this adds up to lots of wasted fuel.

Third, we Americans just love to over-cool our buildings in the summer (Europeans find it odd that we enjoy donning sweaters while working inside in the middle of the summer, but hey, it's our God-given right, no?), overheat them in the winter, leave lots of lights on, turn the temperatures in freezers and refrigerators down below what it needed to preserve food, and never turn off the TV. Is this a great country or what?

So, when you add it all up, most energy analysts think that about 30% or more of our entire energy consumption (transport, heating, cooling, lighting) is wasted. The Energy Nag believes this is the case based on his own family's use of energy, and he will share it with you now.

About 10 years ago, the Nag's family was consuming about the New Mexico average, which is as follows:

- Electricity: about 5-600 kw-hrs per month (about a \$50 -55 bill) or about 11,000 kw-hrs per year.
- Natural gas: about 1000 therms (120,000 cubic feet) per year
- Gasoline: about 7-800 gallons a year for two cars, one of which is driven by the Nag's wife, "lead-foot Mary" who never met a car she didn't want to floor the gas on, brake, floor, then brake again.

Now being a well-paid Sandian, the Nag didn't think much of the direct dollar costs, but (being a Sandian again), he began to wonder about the environmental costs, and he learned the following:

- Every kilowatt puts about 2 pounds of CO₂ into the atmosphere, so my family was dumping about 22,000 pounds of CO₂ every year.

- Every therm of natural gas puts about 15-20 pounds of CO₂ into the air, so credit the Nag's family with another 20,000 pounds of greenhouse gas pollution; and
- Every mile driven by "lead-foot Mary" puts at least 1 more pound of CO₂ (and lots of other noxious gases) into the air.

In total, we joyously contributed 30 tons of CO₂ for your children and grandchildren to breath (the Nag long ago boiled and ate his children, so he has no need to worry about the next generation of humans).

But, with a little bit of thought, the Nag and family reduced their energy consumption by MORE than HALF! How did they do this? It was simple!

- They bought some compact fluorescent bulbs and scattered them around the house in high use areas (outdoor lights, reading lights, kitchen lights)
- They turned UP the freezer temperature to 4 degrees Fahrenheit (it was less than zero), and cleaned the coils on the refrigerator once a season
- They unplugged the 100 watts (1000 kw-hrs per year!) of little "vampire loads" that he didn't need to use - like extra clocks, chargers, night lights, doorbells). They even bought an "Energy Star" TV (uses only 4 watts as opposed to 20 or more)
- They learned to turn down the thermostat at night during the winter and turn it up in the summer; ("it takes more energy if you do that!" your mother would scream is, as any physics 101 student will tell you, a silly old wife's tale) (and boy is the Nag's mother an old wife).
- They changed the filters on the swamp cooler and furnace more than once every Presidential election cycle
- They bought a hybrid car (50 mpg in TOWN) for "lead foot Mary".
- And the Nag rides his bike or the bus to work as often as possible (burning the calories enables the Nag to eat more!)

Bottom line: 18 tons of CO₂ production forgone, and a savings of about \$1,500 in energy costs. Not bad.

YOU can do the same. Those "expensive" compact fluorescent lights pay for themselves in a couple of months (depending on use, of course) and last forever. Your freezer/refrigerator motor will last longer, and, best of all; you'll do the next generation a favor. The Nag doesn't know if global warming is real or not; he just thinks it is prudent to hedge.

Coming NEXT: Water, water everywhere, and not a drop of it makes us think.