

America, is there an energy option?

The 'hard' energy commitment: No mistakes can ever be permitted

By PHILIP LUSK
WITH THOM GUNTER

Editor's Note: This is the second in a series of three articles dealing with America's future energy policy. This article considers the implications of nuclear-generated electricity in North Carolina—the "hard" energy approach. Part three will consider the "soft" path and the energy option for North Carolina.

Yesterday, the arguments against nuclear-generated electricity and especially against the breeder reactor were temporarily tabled. Today the implications of these arguments will be considered with respect to their possible impact on North Carolina following the "hard" energy path.

The use and rapid expansion of centralized high technology in the United States (and North Carolina) to meet the projected energy demand in the next 50 years offers many economic, social, environmental and political problems which may prove to be insolvable.

These problems may be primarily related to most official U.S. energy policy proposals, which are based upon the goals of maintaining traditional growth patterns in energy consumption coupled with the reduction of oil imports. The most common approach for meeting projected demand is the rapid expansion of present domestic fuel sources (coal, gas, oil and nuclear fission) for meeting the short-term goals of the next 10 to 20 years.

The anticipated solutions for meeting long-term energy needs are largely assumed to rely on exotic technologies, such as the fission breeder reactor, fusion reactors and various forms of solar-generated electricity. Economic and energy growth will not be constrained greatly as the use of massive subsidies and regulations will keep the price of energy consumed well below its actual replacement value through the

use of depletion allowances which ignore actual replacement costs.

The major form of energy that will be available for the average consumer in the year 2000 will be electricity, which will consume one-half of the total fuel input but provide only one-third of the total available energy for consumer use.

This shift to massive electrification has been only a recent historical trend, largely through the efforts of Samuel Insull, an employee of Thomas Edison who later assumed early control of Chicago Edison Electric. It was Insull who brought the myth to the American public that the best form of energy available for consumer use was instantaneous electricity produced in centralized power-generating systems. (This is in direct contrast to the almost forgotten potential of stored energy supplied from diverse, decentralized sources.) This myth has been largely perpetuated by the large energy-producing institutions through the use of advertising, and by almost all levels of government through their granting of monopoly franchises to these institutions. The energy-consuming public has been sold, in general, a fraudulent bill of goods as a result of this myth.

At present, the generation of electric power requires about 29 per cent of total energy use in the United States. 13 per cent of this total is then available for and supplied to consumers for meeting their end-use needs (space heating, cooking, etc.) The remaining 16 per cent is released into the environment as waste heat. Only about 4 to 8 per cent of all the total energy use meets needs that are directly suited for electric power, such as lighting, telecommunications and electric motors in home appliances. As stated by Lovins: "Plainly we are using premium fuels (fossil and nuclear) and electricity for many tasks for which their high energy quality is superfluous, wasteful and expensive and a hard path would make this inelegant practice even more common."

By the year 1985, one half of all the energy supplied in North Carolina will require the generation of electricity, with one half of the electrical generating capacity provided by nuclear power.

This concentration of nuclear power in North Carolina is higher per capita than in any other state. There are many arguments against nuclear power, and especially against the breeder reactor. Some of these arguments are considered below:

• **Reactor Safety:** A nuclear accident has the potential, if the containment vessel is breached, of causing approximately \$17 billion worth of damage and of killing or injuring over 150,000 people. The Price-Anderson Act limits the total liability for any

single nuclear accident to \$560 million. Duke Power's McGuire Nuclear Facility (14 miles from Charlotte) was recently stopped by a federal restraining order over the consideration of possible impacts caused by a major failure. The Sheraton Harris nuclear facility (1.5 times the capacity of the McGuire plant) is located approximately 20 miles from Chapel Hill. Construction of a nuclear facility, the Perkins Plant, to be located 20 miles from Winston-Salem is planned. It will have 1.6 times the capacity of the McGuire plant.

that each reactor produces every year, may take 240,000 years to degrade to the point where they are considered safe. In contrast, mankind crawled out of its common ancestral tree only within the last 15,000 years.

• **Handling, transport and storage of long half-life wastes:** It might be of interest to consider that, in lieu of basic federal or state policy dealing with reactor waste storage, nuclear wastes are already being transported to a location outside of Charlotte (from the McGuire facility) for storage.

As of this writing, there has not been a single location identified as stable enough to secure waste storage over geologic time. These wastes, with respect to the breeder reactor and the 2.5 tons of plutonium

of raising the temperature of the entire freshwater runoff of the lower 48 states by 34 to 37 degrees Fahrenheit through the release of waste heat. This could affect seriously global climate patterns within 50 years.

The proposed nuclear facility outside of Winston-Salem will evaporate up to 71 million gallons of water per day when in normal operation. This represents a total of approximately 26 billion gallons of water per year that will be lost into the atmosphere. In contrast, the total 1970 human consumption of water in North Carolina (already facing a serious water problem) was approximately 39.4 billion gallons.

• **Economic considerations:** The capital investment required for the construction of the three proposed North Carolina nuclear facilities (Harris, Perkins and McGuire) is approximately \$12 billion. If this same amount of capital were to be made available to the public for solar space-heating equipment, every home in North Carolina could have a \$5,000 solar-collecting system installed. This would provide adequate space heating and hot water requirements for the total population of North Carolina with no fuel costs and mostly user-serviceable equipment.

This article does not want to suggest that all forms of centralized power generating systems (and especially nuclear) should be rejected and discarded immediately. They presently do play a major role in our lifestyles and that role is one not easily changed. However, the fact remains that the commitment to the use of the "hard" energy path represents a decision that will affect all persons for all time using a generating system where no acts of God (and, presumably, impudent men) can ever be allowed.

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• **The release of low-level radioactive wastes into the environment:** Release of low concentrations of radioactive wastes (like Strontium-90, Iodine-131, Cesium-137) has the possibility of concentration in living organisms during food chain transfers. Radioactive substances may also simply accumulate

that each reactor produces every year, may take 240,000 years to degrade to the point where they are considered safe. In contrast, mankind crawled out of its common ancestral tree only within the last 15,000 years.

• **Potential risks to national security:** The location of conventional nuclear and breeder reactors, power transmission lines and the weapons-grade fissile materials produced by the breeder reactor lend themselves readily as potential targets of weapons which could be used by groups and individuals interested in violent political change. It has been estimated that a grapefruit-sized ball of Plutonium-239 dispersed equally over the global population would cause cancer or genetic mutations in all.

• **Thermal pollution:** The projected use of nuclear-powered electric generating plants has the possibility

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The Daily Tar Heel
85th year of editorial freedom

letters to the editor

Students to catch, paint and study zoology majors

To the editor:

The *Daily Tar Heel* is right; nuts are more plentiful in Chapel Hill than elsewhere and I ought to know. That is what draws all of us here to start with, including the squirrels. Nuts are what keep us here — each other. Nuts are entertainment, nuts are sustenance. But the biggest nut of all seems to be a certain zoology student.

This is the conclusion several friends and I have arrived at after reading a recent article ("Senior to catch and paint squirrels," Sept. 23).

The squirrel population has been here infinitely longer than this University and I am proud to say that, of the thousands of students who have passed through the halls of UNC over almost two centuries, not one has ever been taken in so badly or been so naive as to waste time and money on finding out why our little rodent neighbors prefer the campus to other parts of town.

The pretense behind the entire experiment is absolutely ludicrous. Anyone with an acornful of common sense understands it is simply a matter of food and shelter being available to the squirrels under some of the best of circumstances. The squirrels feel safer and welcome.

Of course, these last two could change if Mr. Seagle carries out his mad experiment, one that sounds like it was hatched in the dank mind of a German SS "research" physician or maybe by Boris Baddinoff trying to knock off Rocky and Bullwinkle.

My friends and I have become so intrigued by the farcical phenomenon of this zoology student that we have decided to conduct an experiment of our own. We wish to ascertain what would drive an undergraduate (if he were getting his Ph.D. for his experiment, that would be a different matter) zoology major to conduct this sadistic experiment and why he would devote body and mind to such worthless research.

Once our experiment begins, a student walking through one of our survey areas may think he has spotted the latest element of a beautification program — decorative zoology students. To identify and individually catalogue each squirrel-crazy zoologist we catch, they will be spray-painted red and each treated with a separate radioactive isotope.

Teachers, students and authorities should not be worried about the health factor, however. Bright red paint will make the zoo student readily identifiable over a great distance during the daytime, and he will glow brightly in the dark. So folks should have plenty of time to get away from him without harm.

As for the zoo students themselves, everyone can forget their worries because we have been assured that our marking methods are completely harmless. The paint manufacturer has guaranteed us that the paint will wear off within three to six weeks after body decomposition, and the identifying isotopes have a half-life of only 18,000 years. This should have a nearly negligible effect on the rest of the population provided the subject is buried in the middle of 50 feet of concrete and sealed in a lead vault immediately following expiration.

But before a zoology student can be painted, he must be caught. We plan to set a large number of traps in the areas where young Seagle has indicated he will undertake his atrocious depredations on the squirrels. One of our number suggested a claymore ("Bouncing Betty") land mine, but that was passed over because of complications that might arise in identifying the subject, not that we underestimate Dr. Page Hudson's capabilities in the least.

We finally agreed upon Burmese tiger pits in each area, 20 feet square and 35-40 feet deep.

Before removing the subject from the trap, though, we will have to render him unconscious, if he is not already so from the fall. To do this, we will force-feed him squirrel dung until he passes out.

The zoology student will be lured into the

trap by leaving things that would appeal to him on the foliage covering the pit. We will bait some with science research grants from the New American Nazi Party, others with a complete set of Marquis Donatien de Sade's *Cyclopedia of Beastiality and Other Fun Things To Do*, and a few with small cages containing mechanical squirrels.

We want to emphasize that these traps will not harm the subject in any way whatsoever. Students passing by should not be alarmed by the sight of a zoology student stuck in an open pit screaming and pleading to get out. Just go on your way, forget about him and do not worry — everything is in the safe and loving hands of science. Please resist the temptation that a few of you might have to set him free. Please do not feed him, pelt him with acorns, spit on him, or do anything else that might come to mind.

Thank goodness for science and its sterile religion that we have all been caught up in. Without it, we wouldn't have Presto Hot Doggers or electric pencil trimmers, nor would we know how long it takes to fry two eggs, or (as Tom Robbins pointed out), how long it will take a monkey with a wooden leg to kick the seeds out of a dill pickle in a day-and-a-half, nor would we be able to determine that we are polluting and burning ourselves out faster than we can figure out how not to.

I'm sure Seagle and his friends in the zoology department could find some more useful information of a higher order to research.

Besides that, I've talked with my sources and I know for a fact that Seagle has not asked the squirrels in the local population how they feel about this census. They said they thought it was nonsense.

Jim Pate
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'Get straight'

To the editor:

I have been reading with great interest your articles regarding the "supposed" High Noon Society. Not being a member myself, I have restrained my strong opinions in hopes that someone else would sound off. However, after reading last month's *Reader's Digest* ("I Am Johnny's Brain"), it becomes more and more necessary to speak out on the issues at hand. Come on, you High Nooners, be real. Let's separate the myths from the facts about marijuana.

Myth: Marijuana heightens sensitivity.

Fact: Marijuana causes fatigue and "nerve deadening."

Myth: Marijuana is a relaxant.

Fact: Marijuana causes headaches and "the jitters."

Myth: Marijuana is not a drug, but merely a weed similar to tobacco.

Fact: The law states that marijuana is a drug. Five to 10 in the pen will easily support this fact.

Now that we have the facts straight, it is time to "turn off" to drugs and "turn on" to the real reason we are all here in Chapel Hill, namely, for good grades and enriching

experiences. Come on, you High Nooners, let's "get straight" to the library so that we may get "straight A's."

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'Get all the facts'

To the editor:

In your article presenting excerpts from the AWS lecture ("AWS lecture excerpts," Sept. 26), you quote Christie Barbee as saying "University and college campuses should avoid open debates (on ERA) because you can't argue against emotion on an intellectual level. Never give them a forum to voice their opinions." Regardless of who is "right" or "wrong," everyone should be encouraged to openly voice their opinions. To stifle debate on a decision as important as a constitutional amendment is against all ideals of American democracy. Let's get all the facts so we can make an intelligent decision either for or against the Equal Rights Amendment.

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The *Daily Tar Heel* needs editorial assistants to help research editorial topics and ideas. Anyone interested in the position should contact Lou Bilionis or Ed Rankin at the *Daily Tar Heel* offices sometime this week or call 933-0245 or 933-0246.

Amendment may end unfair foreign med student quotas

To the hundreds of UNC pre-med students, slaving away to merit highly coveted berths in medical school, the news of HEW's quotas for foreign-trained medical students must be infuriating. Federal law states that medical schools must reserve "an equitable number" of spaces for U.S. citizens transferring from foreign medical schools, but administrators at UNC, Duke and Bowman Gray in Winston-Salem say HEW is forcing them to take too many unqualified students.

All too often, this foreign quota is a loophole for college seniors who don't have the proper credentials to get them into medical school. If such a student has another credential — money — he can bolt for a foreign medical school where standards are often lower than they are stateside. HEW quotas then give these students an unfair advantage in transferring into medical schools that may have rejected them the first time around.

Of course, it's hard for the medical schools to argue with HEW. The federal agency also has that all-important credential to back it up. For instance, UNC stands to lose at least \$800,000 if it refuses to take what it considers an inflated number of transfers.

"Congress has placed the medical schools under an unusual burden," said Dr. Christopher Fordham, medical school dean, referring to the choice between money and "academic integrity."

But there is hope that Congress will change its discriminatory regulations. Legislators are considering an amendment that would limit the quota to 6 per cent, a figure Fordham finds reasonable. The foreign-transfer program would end by 1981. A hearing on this amendment to the Health Professions Educational Assistance Act is set for Thursday.

Fordham and other medical school administrators have been quite brave — and quite justified — in challenging the unfounded quotas set by HEW. Congressmen ought to take the advice of these competent leaders of the medical community and pass the amendment as soon as possible. Representatives of this state, with its wealth of quality medical education should take up the banner for these administrators. Reps. L. H. Fountain, Ike Andrews and Stephen Neal have the responsibility to look after the fine schools in their districts.

It's absolutely unwarranted for the federal government to compromise these schools, even as it's unjust for a spurious quota to allow unqualified students to slip into medical schools along with those who deserve to be there.



"PARTY?" HECK, WHY DO YOU THINK WE GROW ALL THIS CORN?
Yes, Virginia, there is a better school. It's called UNC.

To the editor:

A recent and somewhat misguided letter to the editor ("Partying: Is Carolina the 'Iowa of the ACC?," Sept. 26) has prompted me to represent my native state, Iowa. Being one of only a handful of Iowans at UNC, I have gracefully endured the numerous questions, ranging from the obvious "Why did you come to Carolina?" to the ridiculous "Where is Iowa?" Mr. Dorrian's letter, however, has gone beyond the point of human decency; his criticism of Carolina as the Iowa of the ACC borders on the incredible.

As any Iowa City native knows, the University of Iowa is the partying capital of the Midwest. South of Minneapolis and west of Chicago there is no better place. Iowa City's 40 bars, two liquor stores (with the highest sales in the state) and what *Esquire* magazine calls the "red eyes" of her student inhabitants all point to partying excellence. In his ignorance, Mr. Dorrian has paid Carolina a compliment.

The reasons for Iowa's partying excellence are obvious. After all, if your football team is losing 65-0 to Michigan, alcoholic attempts to

forget the game are warranted. Certainly, Virginia can relate with this attitude. Witness the "pretend" game the Wahoos showed up for against Texas... or Duke... or...

Wisely, Mr. Dorrian does not take issue with Carolina's proven athletic excellence. Instead, still clinging to the elitist attitudes which characterize many Virginia students, he takes issue with Carolina's academic integrity. Here, once again, he is on very shaky ground. *Time* magazine and an issue of the *Yale Daily News* have called North Carolina the best state-supported school in the South. Perhaps Virginia would like to secede from the South so that it can be best too.

Yes, Virginia, there is a better school. It combines academic excellence with athletic ability. So take some advice, Virginia students: when you think you've seen it all, come to Chapel Hill. Because UVa, like Thomas Jefferson, is not all that it's cracked up to be.

Craig Brown
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