WHAT'S AHEAD FOR ENERGY

Putting Down the Scare Stories and Facing Reality

By REP. MIKE McCORMACK

PHOTO: GEORGE TAMES

THE ONE certain thing about energy is the confusion that exists almost everywhere.

But one concept has emerged that has almost universal acceptance—namely, that we must reduce waste in our use of energy.

What is not apparent, however, even to many sincere and concerned policymakers, is that the total energy consumption of our nation must continue to increase, even if we establish very successful conservation programs.

Additional energy will be required for new homes, new jobs, upward mobility of low income groups, employment for women, more protection for the environment, and more industry.

This will be true even if we have zero population growth.

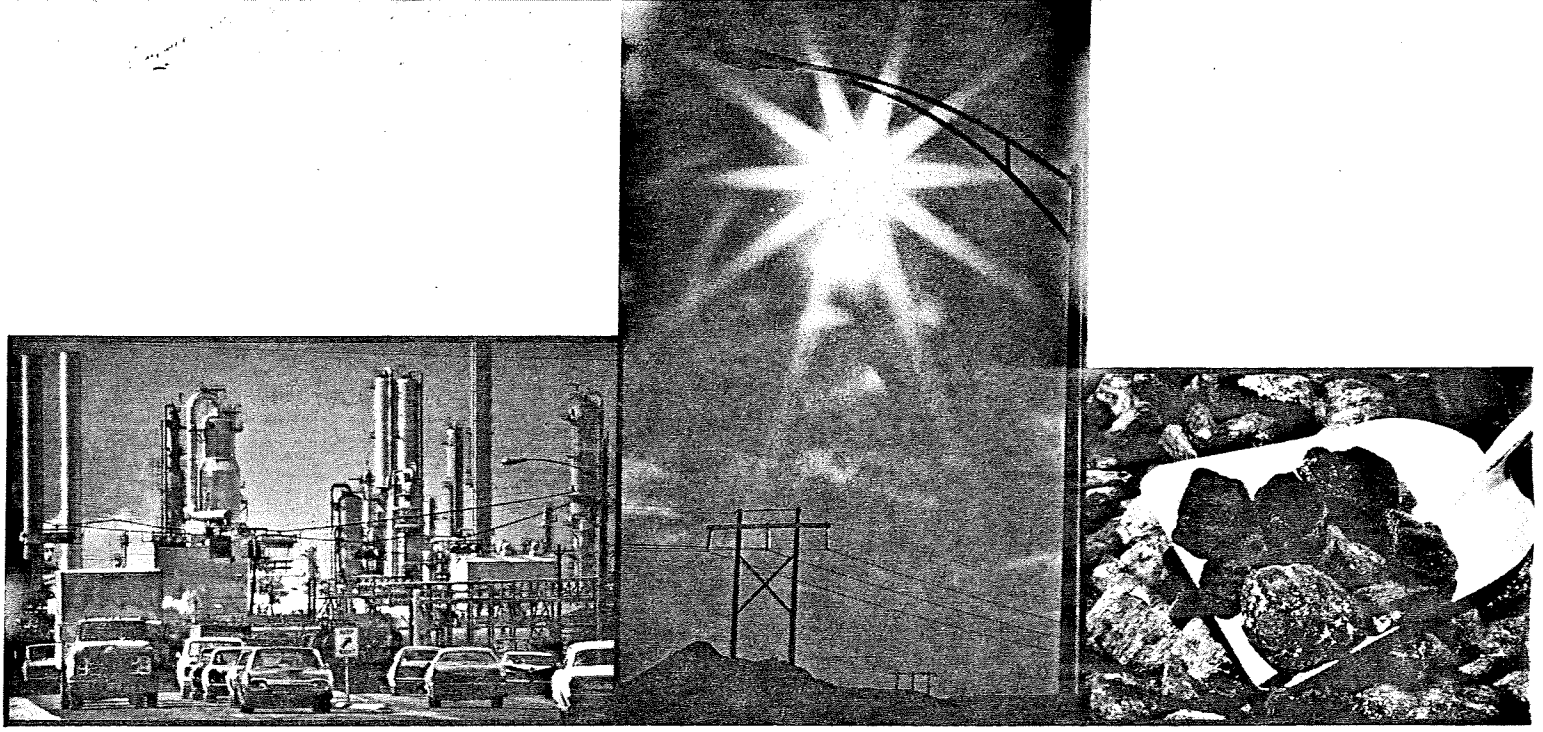
Production is declining

Unfortunately, most of the debate on the energy crisis, in spite of the perils, has centered around such subjects as import tariffs, quotas, gas taxes, allocations, regulations, and incentives.

While all of this is important, it is something like wrestling for deck chairs on the Titanic.

The stark realities are that, while this debate goes on, our production of oil and natural gas is down from last year. In fact, we are running out of both. So is the entire world, including the Middle East.

Each nation has its own date with reality, and few lie very far into the next century.



Today we are consuming about six billion barrels of oil a year, about four billion of which come from domestic sources. The National Academy of Sciences reports that our production is peaking at that level. We will be down to 1.5 billion barrels a year, the academy estimates, by the year 2000.

Outlook for solar energy

Any energy policy must be based on the best scientific and engineering facts available. We cannot afford the luxury of basing policies on wishful thinking. Assuming that solar or geothermal energy will bail us out, or that we will be lucky enough to find enough natural gas or petroleum to keep us going, is wishful thinking.

So is the hope that the American people will voluntarily slash their consumption of energy at the cost of a much lower standard of living and massive unemployment.

In 1972, this nation consumed the equivalent of 34 million barrels of oil a day. That's the total for all our sources of energy—coal, natural gas, hydroelectric power, nuclear power, as well as petroleum itself.

This year, Americans will consume the equivalent of 37 million barrels a day.

However, since 1972 our domestic natural gas production has dropped the equivalent of one-half million barrels a day and domestic oil production has dropped one million barrels a day.

Coal production has scarcely changed at all in the past three years. It is up from the equivalent of six million barrels a day to 6.5 million. Hydroelectricity has increased a little. In 1972, it was equivalent to 1.4 million barrels a day. Now production is 1.5 million.

Only nuclear energy has shown a big increase. It is up from the equivalent of 300,000 barrels a day to one million.

But the increase is far outstripped by imported oil, which is up from 4.5 million barrels a day in 1972 to seven million now.

What of the future?

We will consume the equivalent of about 48 million barrels a day by 1985. This forecast assumes an extremely aggressive conservation program which would cut our traditional growth rate in energy consumption in half—from 3.6 percent to 1.8 percent.

The forecast also assumes a very aggressive search for oil and gas.

Energy and production

What if we cut consumption below 48 million barrels?

There is a very close relationship between energy consumption, gross national product, and employment. So if we do, we will be reducing employment by an estimated 900,000 jobs for each million barrels.

An equilibrium should exist between energy consumption, a reasonable program for protecting our environment, and maintenance of a stable, responsive economic system.

We cannot expect to have energy production without some impact on the environment, and we can't expect to have jobs for the American people unless we produce more energy.

Thus, we have several environments to protect. Not only are there those we normally think of—air and water—but there is also the economic environment and industrial capacity that will maintain this nation's national security and economic stability.

Finally, there's the environment of our own homes, where we must have enough energy for a decent standard of living.

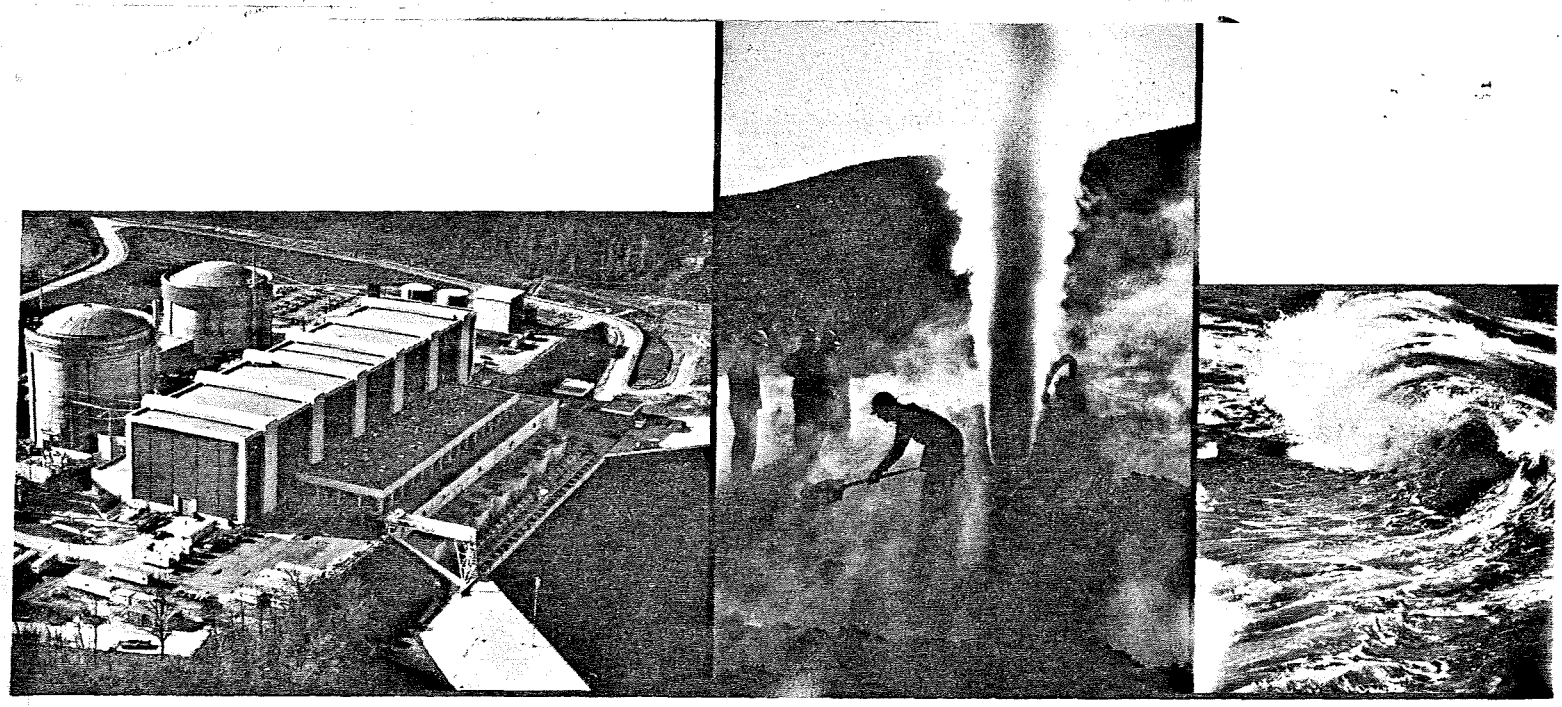
Our national energy policy must strike a balance between them in a rational manner.

Research for new sources

One general misconception is that research and development, generously funded, can solve energy problems in the very near future. Nothing could be further from the truth. Even with a crash program, the time required between successful demonstration in a laboratory and implementation of such technology takes ten to 30 years. Usually, the time lag is closer to 30.

There is no way, for example, that a tidal wave of federal funds could make solar energy or geothermal energy a significant resource for this nation before 1990—or nuclear fusion before the year 2000.

So, while we must support an aggressive research and development program, our nation must rely for the



Putting Down the Scare Stories and Facing Reality *continued*

immediate and short-range future on energy sources which are available to us today.

Coal is our greatest resource of fossil fuel. We must rely heavily upon it. We will need to increase dramatically our coal production. To do so, we must allow coal to be surface mined under realistic regulation and responsible reclamation of the land.

Use of nuclear power

One of our greatest strokes of good fortune is that our nuclear industry is as well advanced as it is today. It is ready now to provide much of the energy this nation will need during the next 50 years.

Nuclear energy is the cleanest and cheapest source of energy available with the least impact on the environment. If we did not have nuclear energy available to us for the coming decades, our country's future would be black indeed.

Meanwhile, ill-informed antinuclear activists are clamoring for a moratorium on nuclear energy—our only hope for self-sufficiency during the rest of this century.

Much to-do has been made about the hazards of nuclear power. Many false or flagrantly distorted news stories and TV programs about those dangers have been foisted on the public.

Atomic explosion?

Some scare stories reach the point of absurdity. For example, is it correct to believe that a nuclear power plant might explode like an atomic bomb?

"It is impossible for nuclear power plants to explode like a nuclear weapon," says Dr. Norman C. Rasmussen of the department of nuclear engineering at the Massachusetts Institute of Technology.

"The laws of physics do not permit this," he points out in a study he directed for the U.S. Atomic Energy Commission, "because the fuel contains only a fraction (three to five percent) of the special type of uranium that is used in weapons."

It is essential, of course, that every reasonable safety precaution be taken in the design and operation of nuclear power plants. The nuclear industry, like any other, poses some risks.

But how great are they?

With 100 plants on the line, the report says, the danger of injury to any individual or group will be about the same as their danger of being struck by a meteor.

Predictably, the antinuclear lobby assailed Dr. Rasmussen's report. They charged that the report was too conservative by a factor of ten to 16. Thus, if we take their word for it, the danger of death from an atomic power plant is only ten to 16 times as great as the chance of being killed by a meteor.

This helps put the subject into perspective.

Radiation injury is another bugaboo the report discusses.

Assume that 1,000 nuclear power plants are on the line by the year 2000, it says.

Then the average American will receive the following radiation:

- From natural background: 102 millirem per year.
- From medical X rays and therapeutic radiation: 73 millirem per year.
- From nuclear power plants: 0.4 millirem per year.

Radiation safeguards

"The only way that potentially large amounts of radioactivity can be released is by melting the fuel in the reactor core," the study says. "Not once in some 200 reactor years of commercial operation has there ever been a fuel melting."

Nuclear power plants, of course, have numerous systems to prevent core melting.

Today there are 55 nuclear power plants licensed to operate in the United States. By the end of next year, 72 plants should be operating. Another 149 are under construction or being planned.

If they are on the line by 1985—and they can be if we simply eliminate unnecessary delays and provide capital for construction—then the nation will have a nuclear capacity of about 220 thousand megawatts. That would amount to about 30 percent of our electrical generating capacity.

Each nuclear power plant saves us the equivalent of ten to 12 million

barrels a year. Thus it would take seven million barrels of oil a day to produce the same amount of electricity as these nuclear plants will generate.

That's the equivalent of all the oil and petroleum products that the United States imports today.

Fusion in our future

Three future sources of energy which have attracted a great deal of public attention are solar energy, geothermal energy, and nuclear fusion.

Congress has appropriated hundreds of millions of dollars for research and development of all three. However, we can't expect miracles overnight from any of them.

With well-managed, well-funded, aggressive programs, we may be able to provide two percent of our energy from the sun by the year 1990, but not before.

Even with a crash program, it is unlikely that we can produce one percent of our total energy from all geothermal sources before we are into the 1990's.

What about nuclear fusion?

In the past three years, researchers have made great progress in controlling this new source of energy. Now, for the first time, we understand the physics and dynamics of the plasma in which the thermonuclear reaction must take place.

Prediction of success

For the first time, we are in a position to predict success. Congress has appropriated this year $192 million to back this research, double what it spent last year.

By the mid-1990's, or a few years later, we should have a commercially feasible fusion electric demonstration plant in operation. If this program is successful, we may be able to look forward to providing unlimited quantities of clean, cheap energy forever.

That means we can look forward to phasing out burning fossil fuels and the use of nuclear fission to produce electricity. But that happy day won't dawn until the 21st century.

Meanwhile, the nation must depend for most of its energy on coal and nuclear fission.

There is no choice.

If we do not develop a comprehensive national energy policy now, we will face a disastrous energy crisis in 1985—far worse than the one we face today.

The result would be equivalent to losing a major war.

The challenge is equivalent to organizing for and fighting one. END

THE AUTHOR, *a Democrat, represents the fourth congressional district of the state of Washington. A former nuclear scientist, he is the author of the Solar Research, Development, and Demonstration Act of 1974, the Geothermal Research, Development, and Demonstration Act of 1974, and the Solar Heating and Cooling Demonstration Act of 1974.*