The original documents are located in Box 6, folder: "Energy Sense" of the Frank Zarb Papers at the Gerald R. Ford Presidential Library.

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Energy Sense

By FRANK G. ZARB, Federal Energy Administrator

On the third floor of New York's Museum of Modern Art, just down the street from my former investment house office, an Ansel Adams photograph is on display which vividly illustrates the energy dilemma this nation faces.

It is a pastoral scene of a farmhouse brightly illuminated by clear skies at lower altitudes, but above which can be seen the darkness of gathering storm clouds.

Like the farmhouse in Adams' photo, America's energy picture today seems brightened by the relative abundance of petroleum products we now enjoy.

Frank G. Zarb

With the exception of natural gas, where shortages persist, and may very well become worse next winter, Americans are simply not seeing storm clouds in their everyday use of energy.

The problem, of course, is that in the energy area, those storm clouds do exist, and they are becoming more ominous with each day that passes without enactment of a sound national energy policy.

In October 1973, when this nation's Middle East sources of crude oil were precipitously cut off, we lost about 14 percent of the oil we were using to keep our economy strong.

Few need to be reminded of the painful consequences of that embargo. A half million Americans lost their jobs. Some $20 to $30 billion were chopped from our GNP. And millions of motorists inched along in gasoline lines.

The Arab oil embargo was a moment of rude awakening for America. It put the word "vulnerability" into the vocabulary of a nation unaccustomed to it.

Since the embargo, with domestic oil production continuing to decline at a 6 to 8 percent annual rate, our dependence on foreign oil has increased to 38 percent of demand. And a greater proportion of that oil now comes from the countries which cut off our supply in 1973.

In addition, we have witnessed and endured a quadrupling of foreign oil prices imposed for political reasons without regard to traditional market forces.

In 1973, the United States paid foreign oil producers $7.7 billion for 2.3 billion barrels of petroleum. In 1974, we paid $24.5 billion – not for three times the quantity –

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Energy Sense

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but for slightly less oil than we imported in 1973.

Our balance of trade which would have been $14 billion in the black for 1974 was pushed more than $5 billion in the red - not because of decisions made here in America, but because of decisions made by the oil-producing nations on whom we depend.

The stark fact is that if this nation does nothing to reduce the trend of growing dependence on oil imports, by the end of 1977 we will be twice as vulnerable to an embargo and arbitrary foreign oil pricing policies as we were two winters ago.

What can we do to reduce this dependence and stem the flow of our wealth to foreign oil producers?

First, we can save more of the energy we already have. Every drop of energy conserved today is an instant addition to our supplies for tomorrow.

That's why we need the import fees and decontrol measures proposed by the President to raise the relative value of petroleum products in our economy so people will use less.

Second, we can produce more oil here at home. With economic recovery on the way, our imports promise to soar.

That's why we need prompt but careful development of offshore oil reserves in the Atlantic and Pacific, speedy completion of the Alaskan pipeline, tapping of our Navel petroleum reserves, and encouragement of advanced oil recovery technology to get more oil from old wells.

Third, we can stockpile petroleum. With oil tapped from our Naval reserves, we can gradually build up a savings account of oil - a billion barrels strong - to see us through any future embargo with less pain than we experienced during the last one.

Fourth, we can produce more coal. America sits atop half the world's known coal reserves. Yet, our mines produce less today than they did in the 1940s.

That's why we need carefully conceived strip mining and air pollution laws - laws which protect the environment, but which don't stand in the way of the increase in coal production and use the nation needs

Fifth, we can produce more natural gas. America has been using more natural gas than it has been discovering since 1968.

That's why we must lift Federal price controls on new natural gas shipped interstate. These controls were designed years ago with the good intention of insuring consumers low-priced natural gas. However, in today's economic climate, they deprive producers of enough return to make it worth their while to find and produce more gas.

Sixth, we can put our technological know-how to work on new forms of energy. We can't depend on the Earth's limited supplies of oil, coal and gas forever, and a nation with the skill to send men to the moon doesn't have to.

That's why we must continue an orderly and safe expansion of our nuclear power capability, provide incentives for research and greater use of solar power, and develop a vital synthetic fuels industry.

Last, but not least, we can mobilize the single energy resource America has in everlasting supply - the creativity of people in a free market economy.

America has always been a "can country. In the energy area there is m we can do, and simple energy sense s it's time we get out and do it.

This article was prepared by Mr. Zarb for this Energy Issue of the UTC Chronicle

Martha White Foods, Inc. Announces Completion Of Long Term Financing

Officials of Martha White Foods, 110-21 Ave South, Nashville, Tenn., 37 announced the completion of a seven lion dollar long term financing wh "significantly strengthens the Compa operating position and allows retirem of short term debt."

Robert V. Dale, president, made the nouncement and said the financing been arranged through the sale of 15 y notes to two different insurance com nies, John Hancock Mutual Life Insura Co. and New England Mutual Life In 'ance Co. Goldman Sachs & Company sisted in the placement of the securitie

ENERGY SENSE

A Turning Point in Energy History

by Frank G. Zarb
Federal Energy Administrator

President Ford's signature on the Energy Policy and Conservation Act of 1975 marks a turning point in our country's energy history. Although the Act has its controversial aspects, it remains a substantial achievement that not only provides many of the authorities we need to begin reducing this country's dependence on foreign oil, but also a strong foundation on which to build for the future.

The new law means a short-term reduction in the average price of crude oil produced in the United States but will have little immediate effect on the price the consumer pays at the gasoline pump or on his monthly fuel bill. This is because still rising costs and increased amounts of imported oil will erase much of the rollback of the price of domestic crude oil.

The real price reduction should not exceed a penny a gallon.

As of February 1, the new law requires a reduction in the average price of crude oil produced in the United States from $8.75 to $7.66 per barrel. The law allows prices to rise by a maximum of 10 percent a year at the discretion of the President, subject to certain findings. However, after February of 1977, Congress will have the authority to halt 3 percent of the maximum 10 percent increase allowed.

The mandatory pricing and allocation authorities expire at the end of 40 months, when they are converted to standby authorities until September 30, 1981.

The pricing provisions of this legislation will permit the gradual phasing out of controls on domestic oil although the Act may lower retail prices in the short term. The Act will also permit the rapid removal of most downstream price and allocation controls on retailers and wholesalers.

I repeat, however, that the Act is by no means perfect. By seeking to lower retail prices in the short term, it runs the risk of creating the impression that we can have all the energy we want at cheaper prices.

But over the "long haul," this legislation does allow controls to be removed and it should give industry sufficient incentive to explore, develop, and produce new oil fields on the Outer Continental Shelf, in Alaska, and in the lower 48 states, and to increase production from existing fields.

I believe—along with the President—that this legislation represents the most constructive that can be worked out at this time. On balance, it puts into place the first elements of a comprehensive national energy policy. As a result of this legislation, the President has been able to remove the two dollar per barrel import fee on imported oil. The new law has provided a foundation upon which we can build together toward America's goal of energy independence.

In a subsequent column, I will review the other major provisions of the Energy Policy and Conservation Act of 1975.

ENERGY SENSE

Be Energy-wise in '76. A good way is to keep your home temperature down to 68 by day and 60 degrees by night. You could save as much as 15 percent in heating fuel costs.

* * * * * *

Let the sun shine in. Keeping windows clean lets nature do some of your heating and lighting for you . . . free. Saves energy and energy costs.

* * * * * *

Avoid driving during rush hours whenever possible. Go earlier or later . . . and save gasoline.

* * * * * *

Don't drown vegetables when you cook them. Use a minimum amount of water. The foods heat faster, their vitamin content is preserved, and you save energy longer cooking would use up.

* * * * * *

Don't use hot water unless you really need it. Rinse dishes and operate your garbage disposal with cold. You'll save energy and the cost of heating the water.

* * * * * *

Break gas-wasting habits. Don't pump the accelerator or race the engine when your car is not moving. And use the brake pedal rather than the accelerator to hold your car in place on a hill.

* * * * * *

Chances are you won't have to wash heavily soiled clothes twice if you pre-soak them, or use the soak cycle in your washing machine. You'll save the energy required for the second washing.

* * * * * *

Get the most out of the electric lamps you use, and save electricity. Light-colored transparent shades the light more effectively than darker shades.

Alternate Fuels and Emergency Supplies Should Offset Projected Winter Gas Curtailments

By Frank G. Zarb
Federal Energy Administrator

Assuming normal winter weather conditions, anticipated natural gas curtailments this winter should be about 30 percent above curtailments actually experienced during the winter of 1975-76 which was a warmer than normal winter. However, our nationwide supplies of alternative fuels currently appear adequate to offset these anticipated curtailments.

FEA's survey indicates no projected curtailments of residential customers. But there could be some curtailment of commercial customers and—as was the case last year—industrial and electric utility users are expected to be affected the most.

I should emphasize that curtailments by themselves are not a meaningful measure of the natural gas shortage on end-use customers. The final impact on end-users depends also upon the availability of alternate fuels, supplemental gas, or emergency gas needed to offset the projected curtailments.

At any rate—and as long as normal winter weather prevails—supplies of alternate fuels nationally should be adequate to cover the projected curtailments of natural gas.

A prolonged "cold snap" could, however, place a temporary local strain on delivery capabilities affecting the availability of one alternate fuel—propane—in Georgia, Maryland, North and South Carolina, Tennessee, and Virginia. Such a situation could also affect the availability of middle distillates in Arizona, Kentucky, Tennessee, and West Virginia.

North Carolina is susceptible to propane availability problems even if the winter weather is normal.

FEA's survey indicates that some industrial customers reported have no alternative fuel capability in Ohio, Iowa, North Carolina, and Indiana could have problems this winter. When such customers are identified, they are referred to the Natural Gas Action Group in the Department of Commerce, which contacts companies impacted by curtailments to see if assistance can be provided.

The major impact of incremental gas curtailments this winter over last will be higher costs for additional alternate fuels used to replace additional gas curtailment volumes.

The magnitude of these additional costs relative to last year could be from $550 to $650 million across the Nation.

FEA will continue throughout the winter to monitor, update, and report on natural gas curtailments. Meanwhile, we encourage natural gas users to line up supplies of alternate fuels and FEA will allocate emergency supplies of propane if it does not interfere with supplies to historical markets.

These actions are in addition to FEA's proposing and supporting emergency legislation to allow curtailed users to obtain additional supplies from the intrastate market.

Energy Efficiency Improvement Targets Set For Industry

By Frank G. Zarb
Federal Energy Administrator

"Company X," a chemical products manufacturer, has been consuming more energy than is necessary to produce the products required by the consumers.

But that pattern could soon be changing—not only for hypothetical "Company X" but for several of the other largest industrial energy users.

The catalyst for change is a program that sets voluntary energy efficiency targets for the Nation's 10 most energy-consumptive industries.

The proposed targets range from a 10 percent improvement in energy efficiency for the primary metals industry to a 27 percent improvement for the textile industry based on equipment and processes in place as of Jan. 1, 1980. The percentage improvements are projected from 1972 to 1980 for each of the 10 industries.

Final targets will be set after a series of hearings are held in Washington for each of the 10 affected industries to provide opportunities for written and oral comment by the public.

Proposed energy efficiency improvement targets for the indicated industries are:

Primary metals 10 percent; Petroleum and Coal products, 12 percent; Paper and Allied products, 12 percent; Food and Kindred products, 14 percent; Machinery, except electrical, 15 percent; Chemical and allied products, 16 percent; Transportation equipment, 16 percent; Stone, Clay and Glass products, 17 percent; Fabricated Metal products, 24 percent; and Textile mill products, 27 percent.

This energy-saving program is being carried out in compliance with Title III, Part D of the Energy Policy and Conservation Act, which requires the establishment of a program to promote increased energy efficiency in U.S. industry.

This Industrial Energy Conservation Program includes four key elements: (1) the identification and ranking of major energy-consuming manufacturing industries; (2) the establishment of energy efficiency improvement targets for at least the 10 most energy-consumptive industries; (3) the identification of major energy-consuming corporations within the targeted industries, and (4) reporting on industry progress in improving energy efficiency.

Up to 50 corporations in each of the 10 industries will be required to report their progress in meeting the final targets, unless a corporation is exempted from that requirement because it is in an industry which has an adequate voluntary reporting program.

The final targets will be set at a level which represents the maximum feasible improvement in energy efficiency which each industry can achieve by January 1, 1980.

As previously indicated, the targets are voluntary, and there will be no penalties for failing to meet them.

Large Increase in Coal Production One Key to Energy Self-Sufficiency

By Frank G. Zarb
Federal Energy Administrator

U.S. coal production should be substantially increased by 1985 as one of the key actions needed to achieve energy self-sufficiency.

Other key priorities call for maximum production of domestic oil and gas, orderly and safe expansion of nuclear electric generation, a curb on energy growth demands through conservation, and storage of a billion barrels of oil by 1985.

We'll need all of these essential actions for a basic policy of decreased dependence on foreign sources of energy.

We expect approximately 1 billion tons of coal to be produced in the U.S. by 1985.

Coal production in the East should rise from the present level of 530 million tons to *660 million tons by 1985. Central Appalachia* will provide 100 million tons of this increase in production.

Projected production from the *Western States* in 1985 is *up to 380 million* tons as compared to 1975 production of 100 million tons. The Western Northern Great Plains will produce up to 275 million tons in 1985.

Eastern production was led in 1975 by Kentucky with 130 million tons, followed by West Virginia with 109 million tons. Other producing states east of the Mississippi River were Pennsylvania, 83 million; Illinois, 60 million; Ohio, 46 million; Virginia, 33 million; Indiana, 25 million; Alabama, 22 million; Tennessee, 8 million, and Maryland, 3 million.

Western production was led in 1975 by Wyoming with 25 million tons, followed by Montana with 22 million tons.

Other producing states in the West were North Dakota, 8 million; New Mexico, 9 million; Colorado, 8 million; and Utah, 7 million.

So far as environmental issues are concerned, FEA fully supports the Clean Air Act and other measures for protecting public health and safety from pollution. At the same time, however, we believe that a safe balance must be struck between energy, the environment, the economy, and the social welfare. We must work together to develop those policies and programs—those tradeoffs and balances—that will enable coal to make significant contributions we need to reach self-sufficiency.

FEA Survey Shows Heating Oil Prices Lower Than Index Values Although Gap Narrows

By Frank G. Zarb
Federal Energy Administrator

The results of a Federal Energy Administration heating oil price survey for the period from June 1 through Nov. 13 indicate that heating oil prices to ultimate consumers remained below FEA index levels.

The index values are FEA's best estimates of the level of prices had price controls remained in effect plus a flexibility factor of 2 cents per gallon. The monthly survey results are based on reports by 600 firms which provide the price data for sales to all ultimate consumers. The weekly survey prices are estimated only on the basis of changes in prices of No. 2 heating oil sold to retail residential consumers.

Survey prices for the 5½-month period were at least one cent below estimated levels for the Nation as a whole and in all regions except the West. FEA's estimate of the average survey prices in the West was 40.6 cents per gallon, which was only half a cent below its estimated price.

October index values increased above their June estimates by .6 of a cent per gallon in the North Central Region and South, .8 of a cent in the West, 1.3 cents in the Northeast, and .8 of a cent nationwide.

The overall national and regional increases are attributed to changes in crude oil costs, non-product costs, and a seasonal adjustment factor, totaling about .6 of a cent per gallon in all regions. The higher increases in the Northeast, West, and the U.S. averages are attributed to the impact of higher prices for the imported middle distillates.

Within each region and across the Nation as a whole, a considerable range occurred in residential prices among individual firms.

The variation in the Northeast, for example, ranged from about 37 to 46 cents per gallon and in the West from about 38 to 45 cents per gallon. Average prices for the regions varied as follows: North Central, 38.8; South, 40; Northeast, 42; and West, 43.6.

ENERGY SENSE TIPS

The Federal Energy Administration recommends that you turn your home thermostat back to 60 degrees at night during the winter heating season. For every degree you dial down, you'll save at least one percent in heating fuel costs.

—FEA—

The Federal Energy Administration suggests that you use your kitchen vent sparingly. In just one hour, it can literally blow away a houseful of warmed air . . . and that's pure waste.

—FEA—

Are you keeping your car properly tuned? Regular tuneups, as recommended by the manufacturer, save gasoline. According to the Federal Energy Administration, a well-tuned car can use up to 30 percent less gasoline than a poorly-tuned car.

—FEA—

The Federal Energy Administration advises householders to save on electricity by getting the most out of the lamps they use. Remember, clear bulbs spread more light than frosted bulbs. And more light enters the room through light-colored transparent shades than darker shades.

—FEA—

Don't waste hot water—heating it accounts for 15 percent of all the energy we use in our homes. The Federal Energy Administration recommends that household cleaning be done—as much as possible—with cold water. FEA also suggests that cold water be used to operate food disposers and that all leaky hot water faucets be repaired promptly.

—FEA—

The Federal Energy Administration recommends that you clean the reflectors below the heating elements on you stove. They'll reflect the heat better, shorten cooking time, and save energy and cooking costs.

—FEA—

The Federal Energy Administration recommends that windows near thermostats be kept tightly closed. Otherwise your furnace will keep working after the rest of the house has reached a comfortable temperature. And, that means you're wasting energy and paying more for fuel than you should.

—FEA—

The Federal Energy Administration suggests that you defrost your freezer if the frost in it is thicker than a quarter of an inch. Frost on freezer walls takes up usable space and wastes energy by making the motor work harder.

—FEA—

Task Force Helps Utilities Reduce Delays, Save Money

By Frank G. Zarb
Federal Energy Administrator

A Federal inter-agency task force established 14 months ago has helped 16 electric utilities reduce licensing and construction delays and save $300 to $500 million.

The Presidential Task Force on Power Plant Acceleration was established at the recommendation of the President's Labor-Management Committee to assist in removing obstacles to the completion of construction of electric utility power plants.

The task force has provided, when requested, assistance to aid utilities and State and Federal bodies in expediting licensing and construction of approved projects that were delayed.

An interim report recently released by the Task Force indicates that delays were reduced an average of three months for each power plant it examined. Accompanying the report is an inventory of major U.S. power plants now in planning, licensing, or construction. It describes the status of 436 electrical generating units, 143 of which were found to be delayed or canceled.

The types of problems which this Task Force has addressed will continue to exist. Therefore, operations of the group will be extended for another six months to assure that future adequate supplies of electricity are forthcoming with minimum delay and cost.

The program is administered under the overall direction of Robert I. Hanfling, FEA's Deputy Assistant Administrator for Utility Projects, and the Task Force is made up of nine different Federal energy-related institutions. FEA's Deputy Administrator, John Hill, is the chairman and William Rosenberg, the Agency's Assistant Administrator for Energy Resource Development, is vice chairman.

In addition to FEA, the participating Federal units are the Federal Power Commission, Treasury Department, Energy Research and Development Administration, Environmental Protection Agency, the Departments of Commerce, Interior, and Labor, and the Nuclear Regulatory Commission.

National Energy Program Now 'Halfway Home'

By Frank G. Zarb
Federal Energy Administrator

Our national energy program is about "halfway home" as the Nation passes the third anniversary of the 1973-74 Arab Oil Embargo.

We've made substantial progress but much still needs to be done.

At this writing, the President has signed into law three major pieces of legislation: The Energy Policy and Conservation Act, the Naval Reserves Production Act, and the Energy Conservation and Production Act.

The programs authorized by this legislation enable the Federal Government to phase out crude oil price controls and remove price and allocation controls on several petroleum products. They also provide for the conversion of oil and gas-fired utility and industrial boilers to coal and authorize production from three Naval Petroleum Reserves in the lower 48 States and authorize a study of a fourth one in Alaska.

On the conservation side, the new programs:

- Will require manufacturers to provide consumers with energy efficiency information on major appliances and establish energy efficiency targets for the appliance industry.
- Set automobile fuel efficiency standards of 20 miles per gallon by 1980 and 27.5 miles per gallon by 1985.
- Will establish industrial energy conservation targets for the ten leading energy-consuming industries.
- Include a conservation grant program with the States.
- Will tighten mandatory conservation standards for Federal agencies.
- Include the development of mandatory thermal efficiency standards for all new residential and commercial buildings.
- Include a 3-year, $200 million weatherization grant program for insulating the homes of low-income, elderly, and handicapped persons.
- Include a demonstration program to test various ways of encouraging energy conservation improvements in the generation of electricity.

These are a few of the key elements in our national energy program. To make our country virtually embargo-proof by 1985 we must have the entire program in operation. The remaining elements include legislation in the areas of natural gas; synthetic fuels; insulation tax incentives; Alaskan gas transportation; nuclear fuel assurance; Clean Air; and energy impacts assistance.

Buying a Solar Unit? Proceed With Caution

By Frank G. Zarb
Federal Energy Administrator

More than one thousand buildings heated by solar energy are expected to be in use in the United States by the end of this year.

Is solar heating really practical for the average consumer? It's not yet economically competitive with natural gas and only marginally, in a few areas, with oil. It *is* competitive with electricity in many U.S. cities where electricity costs more than four cents a kilowatt hour.

Most regions of the U.S. are suitable for solar heating but it appears most practicable where winter sunshine is abundant, where heat requirements are high, and where fuel is expensive.

The greatest savings for solar energy users are likely to be found in the North Central States, the Mountain States, and parts of New England. Solar heat can provide from 60 to 80 percent of a householder's heating needs in the sunny West. In the cloudier East and Midwest, that figure would drop down to 35-60 percent. In all cases, much depends on such factors as exposure, insulation, and size and type of house.

Any homeowner who is thinking about purchasing a solar heating unit for his home should proceed with caution.

Therefore, I wholeheartedly recommend that homeowners follow these basic guidelines:

(1) Ask for proof that the product will perform as advertised—a report, say, from an independent and reputable testing laboratory or university. Ask an engineering consultant to go over this report.

(2) Examine the warranty carefully. How long does the warranty last and what are its limitations? Don't settle for a promise that any plumber or handyman can provide maintenance.

(3) Be especially careful when buying a solar-heating system piecemeal. Don't try a do-it-yourself kit unless you have a solid mechanical background.

(4) Ask the seller for a list of previous purchasers in your area—then consult these purchasers. Always check with your local consumer protection agency or local Better Business Bureau regarding the reputation of the seller.

(5) Beware of fly-by-night sellers who use post office box numbers. Find out from the seller how long he's been in business, where, and what his financial references are.

Gas Mileage Guide Offers Timely Tips for New Car Buyers

By Frank G. Zarb
Federal Energy Administrator

The Federal Energy Administration and the Environmental Protection Agency are closely following the shipment of new 1977 automobiles from the assembly line to the showroom. The result is a pamphlet designed to help new car buyers select a vehicle that meets their transportation needs and offers fuel economy savings at the same time.

It's the "*1977 Gas Mileage Guide*" for New Car Buyers, made available through the joint efforts of FEA and EPA.

EPA performs the gas mileage tests for each new model car at its Ann Arbor, Michigan laboratories. FEA prints and distributes the Gas Mileage Guide.

More than 12,500,000 copies of the guide are being printed for distribution to approximately 25,000 new car dealers in the U.S. Copies of the guides are now available in dealers' showrooms.

What's new in this year's guide? One principal change, which the Energy Policy and Conservation Act (EPCA) required, is that all vehicles are divided into different size classes, according to their interior size. This will help the buyer compare the fuel economy of similar-sized vehicles.

This interior volume index is an estimate of vehicle interior space considered to be more meaningful to consumers than traditional exterior measurements.

EPA and FEA developed this index, using the Society of Automotive Engineers' measurement techniques for head room, shoulder room and leg room for front and rear seats plus trunk space.

Another new addition to the guide this year is the average annual fuel cost for each car. This figure is an estimate of what a new car buyer will pay for fuel in one year, driving 15,000 miles and paying 65 cents per gallon for gasoline or 55 cents per gallon for diesel fuel.

The EPCA further requires, and makes mandatory for the first time the following: That all new 1977 and later model year automobiles, and light trucks, at the time they are offered for sale, carry a label disclosing the fuel economy of the vehicle, the average annual cost for operating the vehicle, and the range of fuel economies for its comparable class.

Manufacturers are required to affix, and dealers are required to maintain, the sticker labels on a side window of the vehicle. In previous years, many automotive manufacturers participated in a Voluntary Fuel Economy Labeling Program.

ENERGY SENSE TIPS

You'll save heating energy and money if your windows are air-tight. Here's an easy way to check them, according to the Federal Energy Administration. On a cold day, run your fingers around the windows. If you can feel cold air blowing in through cracks between the window frame and the wall, caulk the cracks. If air blows in between the window sash and frame, or between the upper and lower sashes, weatherstrip the windows.

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In your home, blocked radiators or hot air registers cost you money. The Federal Energy Administration recommends that you make certain draperies and furniture do not obstruct the free flow of warm air into a room. If they do, your furnace will work overtime, and that's expensive.

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Take advantage of the sunshine in cold weather. The Federal Energy Administration recommends that drapes, shades, and shutters be opened during the day to let the sunshine in. But close them at night to minimize heat loss.

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Shorter days mean greater use of electric lights. The Federal Energy Administration suggests that consumers guard against higher electricity costs by burning only essential lights. Remind youngsters to turn off the lights when they're the last to leave a room. And remember to do the same yourself.

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The Federal Energy Administration advises householders that they will waste energy if they flush food through their sink disposer with hot water. Cold water costs less, and also solidifies grease, so it can be ground up and washed away more easily.

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The Federal Energy Administration recommends that fireplace dampers be kept tightly closed during the heating season unless a fire's going. In moderate winter climates, an open damper in a 48-square inch fireplace can let up to eight percent of a house's heat escape up the chimney.

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The Federal Energy Administration suggests that self-cleaning ovens be cleaned while they're still warm from cooking. The ovens will need less heat to reach the required cleaning temperature—and energy will be saved.

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The Federal Energy Administration suggests that cold water be used for as many household cleaning chores as possible. You'll save the energy needed to heat the water you would have used.

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A dirty thermostat will not maintain proper indoor temperatures. That could cost you fuel money. If you haven't checked your thermostat lately, the Federal Energy Administration recommends that you remove the cover and carefully blow away the dust.

There's More to Conservation Than Meets the Eye

by Frank G. Zarb
Federal Energy Administrator

There's more to conservation than meets the eye . . .

For example, by following a few simple conservation practices with regard to your home and car, you can achieve a significant reduction in your total energy bill.

In your home, you can accomplish considerable savings by improving your conservation habits with regard to heating, air conditioning, insulation, the use of hot water heaters and the like.

A few examples:

• *Heating*—About 3 percent of the energy required for heating will be saved for every degree the thermostat is lowered.

• *Air Conditioning*—About 3 percent of the energy required for cooling will be saved for every degree the thermostat is raised.

• *Storm Windows or Insulating Glass*—Installation of storm windows or insulating glass can reduce the heat escaping through single pane glass by 50-55 percent. In other words, if it's 28 degrees outside with a 15-mile-an-hour wind and 70 degrees inside, the temperature on a double-glazed window will be 53 degrees compared to 38 degrees for a single-pane window.

• *Hot Water Heater*—Reducing your hot water heater from 140 to 120 degrees will save you from $5 to $45 a year, depending on the type and cost of your fuel.

• *Caulking and Weatherstripping*—This inexpensive remedy—when installed around doors and windows—can reduce home energy bills by 10 percent.

• *Insulation*—Adding 6" of fiberglass or equivalent insulation to an attic which has none, can save up to 20 percent of your heating and cooling costs.

These savings are general estimates. Precise savings will depend upon severity of temperature, energy costs in various regions of the country, types of fuel used, and how "energy-efficient" your home may be.

You can also save a considerable amount of money by practicing energy efficiency in the use of your car. Examples:

• *Car Pooling*—By merely "doubling up," you can save $275-300 per year.

• *Tune-ups*—By having engine tune-ups at intervals recommended by your car's manufacturer, you can save 4 percent a year.

• *Driving Habits*—You can save $40-$100 per year by (1) avoiding quick stops; (2) driving at the speed limit; (3) not letting your car idle; (4) driving at a steady pace; (5) not overfilling your gas tank; and (6) using your car's air conditioner sparingly or not at all.

Salt Domes Help Solve U.S. Oil Storage Problems

By Frank G. Zarb
Federal Energy Administrator

The Early Storage Reserve Plan recently sent to Congress by the Federal Energy Administration will provide a 150-million barrel reserve of stored petroleum products to protect the Nation in the event of future embargoes.

This Early Storage plan is an interesting topic to explore. Much of the early stockpile would be buried underground in huge caverns hollowed out by geologic structures known as salt domes. At least 350 of these domes are scattered around the Gulf Coast areas of Texas, Louisiana, Mississippi, and Alabama.

The domes took shape millions of years ago when masses of concrete-like salt pushed upward toward the earth's surface, dislodging overlying rock. Sometimes the tops of these salt intrusions—which generally measure one to three miles across—are right at the surface or a few feet below. Other salt domes have several thousand feet of cap rock and sand above the salt.

Preparing a salt dome for storage is similar to drilling an oil well. Fresh or sea water is pumped down an inner "string" of steel tubing; the rock salt is dissolved and brine is withdrawn from the annulus to create the storage chamber. When the cavern is completed to some specified volume, oil is pumped into the dome, forcing out much of the remaining brine. The oil floats on top of the brine which remains at the bottom of the cavern. To get the oil out, new or fresh water is injected under pressure and the oil is displaced and forced back out.

Salt and limestone mines in the South and Midwest may also be used for storage. Total storage facilities with the ultimate capacity of 200 to 300 million barrels will be purchased by the FEA initially to allow the early storage reserve to reach 150 million barrels in place by the end of 1978.

Our agency estimates show that existing salt caverns have a capacity greater than 200 million barrels, 127 million of which could be converted and filled by December of 1978. Existing underground mines have an estimated capacity of 170 million barrels, of which approximately 75 million could be utilized in time for the Early Storage Reserve.

If facility preparation remains on schedule and necessary Congressional appropriations are made, FEA plans to store 60 million barrels in calendar year 1977 and 90 million barrels more in calendar 1978.

Oil placed in storage will fall into one of several categories of sulfur content and gravity so the specific crude oil needs of refiners likely to be affected by an embargo can be met.

ENERGY SENSE TIPS

Is your house adequately insulated? If not, this is a good time of year to make improvements. You'll save energy and the money it costs, summer and winter—for years to come. Proper insulation can increase cooling and heating efficiency by as much as 20 to 30 percent.

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When you're buying gasoline for the car, don't let the station attendant "top off" your tank. If he does, it could overflow—and the gasoline you lose is pure waste.

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You can save about one-third of the energy and operating costs of your dishwasher simply by turning it off after the final rinse. Your dishes will air dry quickly if you prop the door open a little.

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If you're in the market for an air conditioner, it's wise to check the EER numbers of the models you're considering. These are the energy efficiency ratings approved by the Federal Government which appear on labels or tags on many of the machines. The higher the EER the more energy-efficient the machine is, and the lower its operating costs. This can add up to considerable savings over a period of years.

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A small leak in a water faucet can waste as much as 60 gallons of water in a week. And if the leak is in the hot water faucet, is also wastes the energy and cost of heating the water. Repair all leaking faucets, especially hot water faucets, as quickly as possible.

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Whenever you buy a new appliance, study the owner's manual and follow its maintenance and operating instructions. You'll increase the life of your appliance and save energy as well.

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If your washing machine has a "suds saver," use it. It saves energy, and operating costs, by allowing you to use one tubful of hot water for several loads.

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Install room air conditioners on the shady side of your home. They'll use less electricity than they would if they were on the sunny side.

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Save energy in your home workshop. Keep cutting edges of your tools sharp. A sharp bit or saw cuts more quickly, and therefore uses less power.

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Skimping on air and gas filters for your car is poor economy. Dirty filters reduce the car's miles-per-gallon efficiency and increase fuel use and costs. Replace the filters, or clean them, before they're clogged.

Petroleum Reserves Act Is Key Element in Reducing Dependence on Imports

by Frank G. Zarb
Federal Energy Administrator

President Ford's recent signing of the Naval Petroleum Reserves Production Act of 1976 puts into place another key element in a national program to reduce American dependence on foreign oil.

With that dependence now at 40 percent and climbing, it's easy to see why we need to get moving on developing our own resources and creating a reserve oil supply. We're more dependent on foreign sources of petroleum now than we were two and a half years ago when we experienced the disruption of an oil embargo.

Our Naval petroleum reserves had special importance when they were established more than 50 years ago to guarantee an adequate supply of oil for the U.S. Navy. Today, these reserves have even greater importance to the whole Nation because they can help reduce our dependence on imported oil and help stem the outflow of American dollars and jobs.

For one thing, this new Act directs the Secretary of the Navy to launch a vigorous production program from the three Naval Petroleum Reserves located in California and Wyoming. The Act also redesignates the fourth Naval Petroleum Reserve in Alaska as a National Petroleum Reserve and transfers jurisdiction to the Department of Interior in June, 1977. Production from the Alaskan Reserve is not authorized at this time, but the Act specifically calls upon the President to submit a study to the Congress together with any proposed legislation necessary to implement the recommended development procedures.

The new Act also makes it possible for production from the Naval Reserves to contribute to the creation of the Strategic Petroleum Reserve authorized in the Energy Policy and Conservation Act signed by the President last December.

The new *Strategic Reserve Plan* will make needed petroleum much more readily available in the case of an emergency for our Armed Forces and for other critical national needs.

When they're in full production, the three Naval Oil Reserves in California and Wyoming may provide as much as 300,000 barrels of oil per day. The development and production of Naval Petroleum Reserve No. 1 in Elk Hills, Calif. will make the biggest contribution.

This Act represents an important step toward reversing our declining domestic oil production and it's yet another sign that we're making progress.

Computer Plan to Cut Energy Bills Will Bear Watching

by Frank G. Zarb
Federal Energy Administrator

A new FEA computer home energy savings plan being introduced this year to more than a million homeowners in Massachusetts and New Mexico will bear watching by consumers in the other States as well.

It's called "Project Conserve" and it already has drawn an enthusiastic response in Massachusetts where 107,407 homeowners have responded to computerized questionnaires designed to help them save on their heating and cooling bills. FEA plans to start up a similar campaign this fall in New Mexico.

The computerized questionnaire system actually analyzes a home's energy use, heating and cooling bills, and thermal characteristics. An evaluation will be made for each homeowner based on local utility rates and construction costs, which will tell the homeowner how much he could save in terms of energy and money by taking a few simple conservation actions such as adding insulation or storm windows.

Our estimates here at FEA indicate that nearly 80 percent of the Nation's 47 million single-family homes are inadequately insulated. Home heating and cooling account for 13 percent of total national energy use, and therefore, reduction of energy consumption in the single-family residential building sector is a major FEA goal.

Under Project Conserve, a homeowner completes his questionnaire comprised of 29 questions, and receives in return a free analysis of his home and specific recommendations for relatively inexpensive improvements that will help him save energy and money. He'll also receive a range of cost estimates for either having the work done by a contractor or by himself, and an estimate of potential savings.

Homeowners who follow the cost-effective recommendations of Project Conserve can expect to save 15 to 30 percent of their total energy consumption our research indicates.

We began our Project Conserve campaign late in 1975 when we sent letters to the Governors of all 50 States. Proposals were received from 24 States and we chose Massachusetts and New Mexico as pilot states because of the quality of the proposals they submitted to carry out the program. State characteristics such as the extremes of temperature, and the number of single family homes, were also important factors in our selection of these States.

Massachusetts has played an extremely active role in energy conservation, with its program, in many respects, "a model for the Nation."

New Mexico is ideal, too, because it will operate as a "flexible laboratory" for testing the statewide effect of Project Conserve by its 226,000 single family homeowners.

ENERGY SENSE

Tough-Minded Approach Can Help Us Achieve Energy Independence By 1985

by Frank G. Zarb
Federal Energy Administrator

Can we Americans achieve energy independence in the next decade without sacrificing our economic objectives?

We can—but only if we adopt a tough, aggressive approach. If we are realistic and dedicated to our goals, we'll be able to reduce our imports and increase production enough to eliminate our vulnerability to future embargoes.

The National Energy Outlook, the Federal Energy Administration's 500-page update of last year's *Project Independence Report*, makes the following key points which lend credence to our energy independence hopes:

1) The supply of oil from existing onshore reserves will decline as older fields are depleted. However, more extensive use of secondary and tertiary recovery and new fields could keep onshore production about constant. Alaska will be the greatest new source of oil, while Outer Continental Shelf Production could more than double by 1985.

2) Supplemental gas supplies could play an important role in the 1980's and beyond. Alaskan gas could supply about 1 trillion cubic feet before 1985, if necessary transportation systems are completed, while liquefied natural gas could supply as much as 2 trillion cubic feet by that year.

3) Western coal production, mainly from strip mining, could increase from 92 million tons in 1974 to 380 tons in 1985. Large-scale development in the West could have significant social and environmental effects, or may be inhibited by State or regional restrictions. Eastern production could increase by about 30 percent with most of the increase coming from underground mining.

4) Solar, geothermal, and synthetic fuels will contribute only about one percent of domestic supplies by 1985. Major contributions from these and other emerging technologies will not be realized until after 1990.

5) Electricity, which provided 28 percent of the Nation's energy in 1974, could provide 37 percent of U.S. energy in 1990. The use of coal in electricity generation could increase by 77 percent in the next 10 years. Nuclear power could generate about 26 percent of our electricity by 1985, compared to 8.6 percent in 1975.

Those wishing to obtain fuller details about our energy future may wish to purchase a copy of *The National Energy Outlook*. Copies may be purchased for $7.30 each from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (GPO Stock Number 041-018-00097-6).

ENERGY SENSE

The Auto Industry Must Keep Responding

by Frank G. Zarb
Federal Energy Administrator

The automobile industry has responded commendably to the urgent need for more fuel-efficient vehicles. Detroit, however, cannot rest on past accomplishments. Over the next 10 years, it will have to work to achieve its goal of a 27.5-mile-per-gallon average gas mileage by 1985. And, of course, the industry still has some catching up to do. Foreign-made cars have tripled their share of the market during the past decade.

In order to achieve its goals, the industry must make certain that plain dealing and productivity go hand-in-hand and this has not always been the case. The car-makers, for example, have at times described certain goals as unattainable and then gone on to attain them. Thus, in a way, the industry has become a victim of its own abilities.

Every time something like that happens it chips away that much more at the industry's credibility. Eventually, it comes to the point where the people—and their representatives in Congress—view the industry as capable of anything—of building, at the same time, fuel-efficient cars, safe cars, non-polluting cars—and all of these at yesterday's prices.

If a temporary decline in gasoline prices has slowed the trend toward small cars in the United States, it's a condition that won't last.

Detroit can produce cars that meet—and even beat—the fuel efficiency standards set out in the Energy Policy and Conservation Act. And it can do that not because these standards are mandatory—but because in a free enterprise system they will satisfy a need and earn a profit.

And those are still legitimate words in the American vocabulary.

ENERGY SENSE

The Trend of All Energy Prices: Not Down But Up

by Frank G. Zarb
Federal Energy Administrator

Recent news reports have conveyed the twin messages that (1) gasoline prices have been lower lately and (2) America's love affair with big high-powered cars is far from over.

We shouldn't be deceived by such beguiling reports. The Organization of Petroleum Exporting Countries has proved its staying power, and—despite the recent reduction in the price of gasoline at the pump—the trend of all energy prices is not down but up. That trend is the inescapable result of the relationship of supply, demand and price.

By the same token, we shouldn't be deceived by the recent downturn in sales of small cars. Higher prices at the pump point to an increasing market share in the future for smaller, more energy-efficient autos. The automobile industry increased fuel efficiency by 26 percent over the past two years because the marketplace demanded it. Future demands will be for even greater fuel economy.

The reason is that the state of domestic energy supply is far from encouraging.

Oil production in this country is roughly one million barrels a day *less* than at the start of the 1973 embargo. This means that some 20 million gallons of gasoline per day are being refined from imported oil.

Overall, America's per capita energy consumption today is six times the average of the rest of the world. Through 1950, the U.S. was totally self-sufficient in energy. But imports of crude oil and petroleum products accounted for 15 percent of total domestic consumption by 1960 and they stand at 35 percent of total consumption today.

We also must get the rest of our energy strategy for the future into action. We must use *all* of our energy reserves—oil, natural gas, coal, and nuclear power. And we have to pursue our objectives on two fronts—resource development and energy conservation.

In conclusion, then, we cannot afford to pretend that the worst is over and our energy crisis no longer exists. The energy problem is no casual, passing affair. We may still have a passing fancy for big cars but we're married to the energy crisis for a long time—whether we like it or not.

ENERGY SENSE

Coal as a Future Energy Source: a Few Hard Facts

by Frank G. Zarb
Federal Energy Administrator

As this long Bicentennial winter ends, we might well examine a few hard facts about coal that every consumer can readily understand . . . and how they apply to our Nation's energy needs.

- Coal is our most abundant fuel and it's a key stepping-stone along the road to energy independence.
- At the rate we're burning it now, we have more than a 300-year supply of coal left in the United States.
- By contrast, we have only about 10 years of proven oil and natural gas reserves remaining.

These facts augur well for the future of coal. But basic questions remain if coal is to realize its full potential in our energy future. For example, can we mine coal in the quantities required? Can we convert coal to other forms of energy?

With regard to the first question, two methods of mining coal are currently in use. One is strip or surface mining. The other is deep or underground mining. Current coal production is almost evenly divided between these two methods.

Vast coal reserves exist in the Western part of our country, but they are far distant from the centers of energy demand in the Midwest and the Atlantic and Pacific Coasts.

One key word in developing our western coal reserves is *reclamation*. If we can assure that the land on surface mining sites is properly restored, we'll be able to mine coal to its fullest potential while satisfying the need to protect the environment.

At the same time, we must consider the need to postpone temporarily the attainment of certain stringent emission standards, while still preserving the quality of the air we breathe, so that we may more fully develop our coal reserves at the earliest possible date.

Can we convert coal to other usable forms of energy? Certainly we should be able to achieve this. We can convert coal to synthetic oil and gas, and improved processes are being developed for such conversions at lower costs. Gasification techniques are more fully developed than liquefaction methods but both are potential major sources of energy for the future.

This poses a significant challenge to raise the needed capital, find and train the manpower, and increase the Nation's transportation capabilities. But it's a challenge that can be met.

ENERGY SENSE TIPS

Don't waste hot water in your dishwasher. The average dishwasher uses 14 gallons of hot water per load. To use it economically, be sure the dishwasher is full, but not overloaded, when you turn it on.

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If yor've just bought a new appliance, take the time to study the owner's manual. Maintaining and operating an appliance properly will increase its durability, and its energy efficiency.

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Are you getting the fuel economy you should on your car? Check it out frequently. Make a note of your mileage when your tank is full. Then check it again when you buy more gas to fill it again. By dividing the number of miles you've traveled by the number of gallons you've bought, you get the miles-per-gallon your car delivers. If the m.p.g. number is too low, you may need a tune-up or other adjustment.

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Save cooking time and energy by cleaning the heat reflector below the heating element on your stove. Accumulated grease or dirt increases cooking time.

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Whenever possible, use major appliances such as washing machines or dishwashers during early morning or late evening hours or on weekends. This helps conserve the Nation's evergy supply because when householders, schools, offices, and factories use a lot of energy at the same time, utilities must use less energy-efficent equipment to meet the high demand.

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Don't peek in the oven any more than you have to unless your stove has one of those convenient oven windows. Every time you open the oven, the temperature drops 25 to 50 degrees —and wastes energy.

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Here's one way to reduce energy consumption in cooking. Use pans that entirely cover the heating element. This way more heat enters the pot and less is lost to the surrounding air.

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Is the snow season over in your part of the country? If you haven't already done so, remove the snow tires from your car. Snow tires reduce gasoline economy.

ENERGY SENSE

The New Energy Law and the Consumer

by Frank G. Zarb
Federal Energy Administrator

After almost a year of negotiation between the Administration and Congress, President Ford signed the new Energy Policy and Conservation Act last December 22 and America took its first step on the road to energy independence.

What does the new act mean to the average consumer?

For one thing, the Act requires labels to be placed on certain household appliances indicating the amount of energy they use, so a buyer can make an intelligent choice. The FTC is responsible for prescribing labels for covered products.

Consumer products covered under the Act include refrigerators, freezers, dishwashers, clothes dryers, water heaters, room air conditioners, home heating equipment, and television sets. Other products include kitchen ranges and ovens, clothes washers, humidifiers and dehumidifiers, central air conditioners, and furnaces.

FEA is responsible under the Act for conducting an energy conservation program for consumer products. This includes developing test procedures and setting energy efficiency improvement targets for covered products.

Also included in the Act is a State Energy Conservation program.

Each State will be allowed to develop a plan to reduce its projected energy consumption by 5 percent by 1980. The Act authorizes an appropriation of $50 million a year for three years to fund the development and implementation of acceptable plans.

To be eligible for some of this fund, the act stipulates that each State plan shall at a minimum contain:

- Lighting efficiency standards for public buildings and thermal efficiency standards and insulation requirements for all new and renovated non-federal buildings.
- Programs to promote the availability and use of carpools, vanpools, and public transportation.
- A traffic law or regulation which permits motorists to make right turns at red stop lights after stopping (to the maximum extent possible consistent with safety).
- Standards and policies to govern procurement policies of the States and their political subdivisions.

The act also provides for mandatory automobile mileage standards.

All of these measures in the new act will save energy. However, one change that American motorists are likely to welcome is the act's provision that allows drivers to turn right on red lights after coming to a full stop. Experience has shown that right turns on red can be made safely at most intersections. Experience also has shown that right turns on red have significantly reduced delays previously encountered by motorists who were compelled to wait for green lights or green arrows.

However, the main purpose is to save gasoline. It is estimated that if all States adopted a right-on-red traffic law or regulation, the Nation might save as much as four million gallons of gasoline per day.

ENERGY SENSE

An Energy Insurance Policy for America

by Frank G. Zarb
Federal Energy Administrator

The "strategic petroleum reserve" provision of the Energy Policy and Conservation Act of 1975 gives all Americans a valuable insurance policy against future oil embargoes. This key provision will help diminish our vulnerability to severe energy supply interruptions.

The strategic reserve program will establish storage of at least 150 million barrels of petroleum within three years, and ultimately a billion barrels—enough oil to cover an embargo of 3 million barrels per day for a year. Although not related directly to production from the Naval Petroleum Reserve at Elk Hills, Calif., legislation now before Congress makes an important connection between production from Elk Hills and the strategic petroleum reserves.

In addition to this reserve program, the new Energy Policy and Conservation Act contains several other major provisions. These include:

(1) *Standby energy emergency authorities* that provide most of the actions requested by President Ford to deal with severe emergency supply interruptions that may arise in the future.

(2) International energy authorities which are necessary to permit the United States to participate fully in the International Energy Program.

(3) *Coal conversion authorities* to permit the conversion of oil and gas fired utility and industrial boilers to coal.

(4) Appliance labeling provisions that will require appliance manufacturers to provide energy efficiency information to consumers on major appliance and set energy efficiency targets for certain types of appliances.

(5) *Automobile efficiency standards.* These gradually-rising standards will require an average automobile mileage of 20 miles per gallon for 1980 model cars, and higher standards for 1985.

The Act also contains several other important provisions including:

—Establishment of industrial energy conservation targets for the 10 most energy-consumptive industries in the U.S.

—Authority for the issuance of coal loan guarantees to qualified companies opening new coal mines.

—Conservation grants to the States to assist in the development and implementation of energy conservation programs.

—Mandatory conservation standards for Federal agencies to further improve the energy practices of the Federal government.

This new law—including the provisions I have just described and the equally-important pricing provisions—will assist our country in meeting a substantial portion of the mid-term goals for energy independence set forth by President Ford in his first State of the Union Address of January 15, 1975.