

What Is The True Energy Picture?

By ROBERT C. ANDERSON

The energy situation is probably the single most important issue facing our society today. The basic issue is whether adequate energy supplies will be available at a reasonable cost to drive the economy or whether shortages and unnecessarily high prices will act as constraints to development. Our actions during the next few years to resolve our energy problems will determine the level and type of economic development that will occur both at the State and national levels in the future. They will also determine, to a large extent, our standard of living and life styles.

As recent events have shown, we are at a crossroad concerning energy. We can no longer afford to take either availability or price for granted. We are moving from a situation of abundant low cost energy to a future of energy-related supply problems and uncertainties.

From an economic development standpoint, it is feasible to maintain a healthy and growing economy with a much lower rate of energy consumption than we have had in the past. This will require that the transition to lower growth rates in consumption be properly managed.

We know that: Energy, in most cases, is still a relatively small percent of total production costs. Industries can adjust to gradually rising prices. Industry has great difficulty in adjusting to rapid price increases or precipitous reductions in supply, etc. We need to develop programs that will result in gradual adjustments over time, rather than create disruption.

As Energy prices rise, as a matter of business and basic economics, energy efficiency will improve substantially. By energy efficiency, I mean more output per unit of energy input.

It will mean more fuel efficient cars, more efficient buildings and products and placing greater emphasis on the development of new and improved industrial techniques as well as conservation. It does not mean a back-to-the-caves reduction in amenities, quality of products, working conditions, etc. At the consumer level, it will mean less of some things as consump-

tion patterns are adjusted to compensate for higher energy prices and more limited supplies.

Increasing energy efficiency in the industrial sector, as well as the residential and commercial sectors, would reduce or moderate (notice I don't say eliminate) the need for new mines, power plants, refineries, and synthetic fuel plants, and reduce the capital outlays required for expanding our supplies of energy.

This capital could be plowed into other productivity enhancing investments that might be more economic and socially desirable, i.e. creating new employment opportunities and new and improved technology. Energy conservation is capital conservation.

A *Business Week* article discussed the current situation in terms of capital requirements of investor owned utilities. These utilities produce 77 percent of all U.S. power (May 28, 1979 "A Dark Future For Utilities").

- The article stated that "Even under the lowest growth forecast, the investor-owned utility industry figures that it will need at least \$500 billion over the next 15 years to build enough capacity to meet demand . . ." (data in current dollars).
- The same article discussed the experience of Pacific Power and Light Company in Portland, Oregon, that was recently granted authority to approach customers with an offer to insulate their homes free. In return, the utility would be granted a lien on the homeowner's mortgage to recover the cost of insulation when the home was sold.
- As of May 1979, 1,000 houses have been retrofitted (insulated), and 6,900 homeowners wanted to sign up for the program.
- The company estimates that insulating an electric home in its service area costs 1.5 cents per kilowatt hour saved, compared to more than 4 cents for producing

that same amount of power with new capacity. As the company has stated, "If we can in effect generate kilowatt hours from your house by insulating your ceiling cheaper than we can by building new power plants then it's in everybody's interest to do it."

- Other utilities, including PUD's, are looking at this and other means of load management—it's the coming thing.

It is innovative ideas such as this example, coupled with development of alternative sources of energy supplies, that are going to help the region and the nation make the required energy adjustments. This transition will not be totally smooth and not without false starts, but I'm sure that we will make it.

Washington State is not a producer of either petroleum or natural gas. We depend on our supply from domestic production in other states, Canadian and other foreign sources. Our future supplies of these energy sources are tied to the national and international energy situation. The energy resource which makes Washington and other Pacific Northwest states unique is our hydroelectric capacity. It is renewable and low cost.

It was the excess capacity in hydro generating capacity which resulted in much of the industrial diversification that occurred in Washington during and after the Second World War. Our per capita consumption of electricity is double the national average while our total energy consumption is close to the national norm. The Pacific Northwest holds 35 percent of the nation's installed hydroelectric capacity. About 80 percent of the region's total electrical power is produced by these facilities. This compares with a national average of roughly five percent.

Economic growth in the region continues to place increased pressure on this resource. We are in a situation where there are essentially no new large scale hydroelectric sites available for develop-

ment. For all practical purposes, the potential of the Columbia River system has been fully tapped. Power requirements continue to increase with growth in population, employment and industrial output. Moreover, as we found out during the 1977 drought, we are not immune to shortages in critical water years.

Various forecasts have been made and are developed on a continuing basis on the long-term needs of the region for electrical power. Additional generating units in some of the existing hydroelectric projects can be used effectively for peak energy requirements. The base load for increased firm energy will come from thermal sources. The Bonneville Power Administration has given notice of insufficiency to meet additional requirements to its preference customers, the public and municipal utilities after 1983. BPA has announced that it will not be renewing direct service customer contracts to industry. These direct contracts go essentially to the aluminum companies.

Current planning calls for 11 nuclear plants and three coal units in the region plus additional coal plants just outside the region. This will shift the hydro-thermal mix from 80/20 to 50/50 by the end of the 1980s. Delays and rapidly increasing costs for these plants have been common. New energy from these sources obviously will be very costly, but that is true of any future energy development, regardless of type.

There are various power-planning proposals which would permit regional planning and distribution of power from thermal plants mixed with existing Federal low cost hydro. These plans and proposals have generally met with opposition from public agencies which benefit from a preference clause established 40 years ago. Such legislation probably will be passed by the Federal Government next year."

Washington State's economic development interests would be well served by a Federal system that:

- Provides for existing energy intensive industrial users.
- Reflects a recognition of the need to achieve a balance between overall load growth and generating capacity.
- Reflects a forward looking attitude on the part of the region to

seek longer-term solutions to this important facet of the region's business climate.

- Reflects a willingness to deal with power availability issues on a long-term basis.

In terms of power availability issues, we have a number of them facing us today. Construction of new facilities such as nuclear and coal fired power plants are meeting opposition based on issues such as nuclear safety, coal impacts on health, etc. If we are to meet our immediate electrical energy needs, we will have to complete these projects without additional delay. Forecasts show that with a critical water year (may or may not happen), we will be in a deficit position even with these plants on line as currently planned. Additional work will need to be done to increase our supply capabilities.

Meeting regional energy needs will require some very tough policy decisions to more expeditiously resolve issues relating to energy supply by both industry and government leaders. Conservation and other demand considerations will also have to be addressed to bring our regional situation into balance.

These policy decisions relating to energy are made even more difficult by what I view as a false perception of the problem common to many experts and the public in general. Ask your neighbors what the energy problem is all about and they will probably tell you that it is about shortages. Shortages of gasoline, of heating oil, of electricity, of natural gas, etc. Higher prices are also of major concern. Ask an expert such as an oil company executive or government energy official and they will express concerns about future energy "gaps" as well as current shortages. They will talk of future energy requirements and needs and how future supplies will fall short of demand. They talk about rates of return on investment, high developmental costs, etc.

The difficulty that I have with this perception of the energy issue is that shortages and gaps are not acts of nature that just sort of happen. They are the consequences of deliberate government policy choices. I say this because basic economics tells us that at some price the energy market will clear.

This matter has been well stated by Professor Milton Friedman who said:

"Economists may not know much, but we do know one thing very well—how to produce shortages and surpluses. Do you want to produce a shortage of any product? Simply have government fix and enforce a legal *maximum* price on the product which is less than the price that would otherwise prevail . . . Do you want to produce a surplus of any product? Simply have government fix and enforce a legal *minimum* price above the price that would otherwise prevail."

I think there is some general agreement that government policies have had no effect on the U.S. oil market. State production restrictions, Federal import quotas and Federal leasing policies kept oil prices higher than the market level in the 1950s and early 1960s. As surplus domestic oil capacity declined in the late 1960s, import quotas were loosened, and prices were held down first by informal pressures and rising imports and then by mandatory price controls. While capacity was declining, public policy shifts dictated more imports and lower prices than the true market level. This stimulated demand and increased our dependency on foreign oil."

A similar case can be observed regarding U.S. natural gas production. After prices rose through most of the 1950s price ceilings were placed in effect in 1960. The low ceiling prices increased demand drawing down existing reserves. Low gas prices meant declining exploration for new reserves, since this was becoming more expensive. By 1970, available supplies were falling short of demand.

Nationally, the cost of electrical power generation, although to a lesser degree, has a similar history. By the late 1960s, the decline in production costs associated with hydro generation were reversed as more expensive thermal plants were brought on line. In addition, there were added costs of meeting environmental constraints. These added costs were not reflected in all cases in electrical rates. In many states, rate increases were denied outright by Public Utility Commissions, and the average increase granted has been in the range of 50-60 percent of the original request.

Prospects for investment in private utilities have been reduced. Consequently, needed sources of supply are not being developed. Public utilities, with tax exempt bonds are generally in better shape.

My point is that past policies and institutional frameworks have helped us consume more energy of all types since the late 1960s by generally keeping prices below the true market level. Also, lower prices and rates of return have discouraged long-run investment in new sources of supply. As we make necessary energy adjustments, it is helpful to keep this bit of history in mind. Had higher prices (as determined by the energy market) been allowed to occur, the adjustment process that we are now facing would have been underway for some time. The transition would have been much more gradual.

The question is how do industrialized countries manage to shift to a new generation of energy technologies in an era of gradually declining world oil and natural gas production? These shifts will be accompanied by higher prices which will require further adjustments in energy use. These developments will obviously require certain types of government policies at the national and local levels. How well these policies work will depend in part on what we have learned from our past experiences.

Several government-sponsored programs are being proposed and discussed at the Federal level to alleviate the energy problem. On the supply side, research and development on alternative sources of fuel, i.e., solar, synthetics, nuclear, (such as the program suggested by the President rivaling the space effort in magnitude) are being proposed.

Also proposed are programs such as tax incentives, laws to remove obstacles to the siting of facilities, new leasing programs for Federal lands and even direct exploration of Federally controlled resources. The value of each of these proposals can be tied directly to the extent that it expands our energy supply.

On the demand side, there are proposals to reduce unnecessary consumption of energy. Some proposals require higher insulation standards, further support of rapid transit, more efficient automobiles and requiring more energy efficient production processes. The value of each of these proposals can be tied to the extent that they reduce consumption.

It should be obvious to all of us that there are numerous combinations of supply expanding and demand reducing pol-

icies that will do the job, that is, alleviate our short and long-term energy problem. Each interested party can rank policies in terms of self-interest and choose a combination that will accomplish what needs to be done while maximizing his own personal well being (or minimizing his personal disruption). This presents a dilemma for those who develop energy policies. All people are not in the same boat in terms of energy and any policy action can create hardships on one hand while benefiting someone else. Because of different circumstances, everyone does not benefit equally.

I don't know the total answer to this dilemma, but I think that the following concepts are helpful to keep in mind as we address the energy problem.

First, balance is necessary, that is, one cannot simply choose options from one side of the equation. Supply and demand considerations must be viewed together. We should appreciate the fact that at higher prices, consumers really do buy

less and producers offer more. These tendencies are not so weak that only astronomical prices will assist in correcting the problem. For example, it is estimated that price rises so far this year for gasoline have brought demand down 2.5 percent.

A market-oriented approach (particularly for petroleum) is an essential ingredient of a sound Federal energy policy. Exposure to realistic prices will be a reminder to us all that we are entering a new era, and abundantly available and cheap energy is fast becoming a thing of the past. It will result in a better allocation of the resource and prompt the development of alternatives. The mechanism of the marketplace is far better than government threats and pleading in inhibiting consumption, encouraging conservation, matching supply and demand, and offering incentives to find more oil or develop oil substitutes. This would apply equally to other forms of energy.

Such a shift in government policy, however, would not be without adverse impacts to some segments of our society.



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Letting prices rise to their market level has been long recognized as having the potential to create a great hardship on lower and fixed income citizens. However, a means of direct assistance to alleviate these hardships could be accomplished through additional government programs and policies. A gradual approach or temporary phase out of controls would also soften impacts and make them more manageable.

It may already be too late for some effective government policies, at least for now. As the present shock wears off, people will tend to forget the problem. Articles are becoming more prevalent in newspapers, etc., such as "plentiful petroleum" with headlines proclaiming that the shortage of oil is over for now. Consumption is down; production is up. Above-ground inventories are moving into the "normal" range. Spot prices for crude are declining and most of all these articles, however, if you read them carefully state that problems remain for the long run.

This good news in the short run might suggest bad news for the long term if we are not careful. Energy experts are rightfully concerned that the change in our current circumstance, may effectively torpedo efforts in the U.S. and the rest of the world aimed at dealing with the long term petroleum problem.

Most worrisome, is that this will result in a resurgence of demand and once the recession is over, we will be back to square one, that is, right back to our current situation. More problems in Iran, reductions in OPEC production to a sustainable level, etc., are other variables that could effectively create a shortage situation. As Kuwait's oil minister put it, "The imbalance between the supply of crude oil and demand will not be that great, but given the world's insatiable appetite for oil, it does not take a lot to move from feast to famine."

In closing, I would like to suggest that we make the necessary adjustments to carefully go on a diet, and escape the

feast or famine routine. If we do this, we can work our way out of our long term energy problem starting now, and not merely postpone the day of reckoning. This is what is needed to assure that energy will be available to drive our economy in the 1980s.

It will take strong leadership at all levels of government, cooperation from the private sector and it will take time. It will require that we all become better educated about basic economics and this complex set of problems. We should also be prepared to support the right programs even if they hurt. There are no easy and inexpensive solutions. Policies that merely postpone the adjustment are not in our best interest.

In the end, the behavior, patience, and understanding of an educated public will be the determining factor in how well we make the required adjustments. The fate of our country, and probably the free world, hangs on whether or not we collectively get our act together!



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