

NEW DIRECTIONS FOR ALASKA ENERGY POLICY

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INTRODUCTION

Dramatic changes have occurred in world energy markets in the last nine months, changes that will have far-reaching consequences for energy policy in Alaska. The precipitous drop in the world price of oil has sharply reduced the discretion of the state to fund energy-related projects. It has shifted the immediate prospects for the economic viability of private energy projects. Most importantly, it has altered the perceptions of experts as to the long-term evolution of supply and demand for petroleum, and with it the price of oil, the single-most important variable which has been driving energy policy making in Alaska.

The possibility of a sudden fall in the price of oil was totally ignored in the formulation of energy policy in Alaska. Decisions have been made on the basis of an ever increasing price of oil, an assumption which makes Alaska energy more attractive, valuable, and expensive with the passage of time. The sudden and complete negation of the validity of that assumption in a few short months has left people reeling. Many people see neither the immediate implications of this change nor the longer-term implications for state energy policy. This change is so basic, however, that it is necessary to completely rethink what Alaska energy policy can and should be in a world where oil is just another commodity, rather than a magic liquid with a forever increasing price.

The purpose of this working paper is to begin to lay out some of the implications of lower oil prices for Alaska energy policy and to analyze the energy policy of the state in light of these developments. From this may emerge the information to begin a dialogue on what the new directions of energy policy for Alaska should be.

OIL MARKETS IN THE NEXT DECADE

We can no longer expect the price of oil to continue to grow at or in excess of the rate of general inflation from a mid-1980s level of about \$30 a barrel. Petroleum is a commodity subject to the laws of supply and demand. When its price increases, new sources of supply will enter the market, and demand will be reduced as consumers switch to cheaper alternatives. Petroleum is unusual only in the long period of time associated with the adjustment of both supply and demand to higher price. On the supply side, when the price of oil goes up, the incentive to produce oil increases, first from existing capacity, but also from additions to capacity. It is these capacity additions which take time to enter current supply, for example, in the case of the North Slope of Alaska, anywhere from five to ten years. At the same time, an incentive is created to substitute energy from other sources for energy from oil. On the demand side, the consumption of petroleum is largely done in conjunction with a stock of investment capital--cars, furnaces, engines. An increase in the price of oil will induce consumers to use less oil, but they will do so largely through the purchase of more energy-efficient capital equipment when the existing equipment wears out.

The result is that market adjustments to petroleum price changes take many years to reach a new equilibrium. This final equilibrium will be at a lower price and greater supply than initially anticipated. The period since the increase in the price of oil in 1979 is a good example of this adjustment process. Consumption growth has been curtailed, and supply growth has accelerated in response to the price increase. Some members of OPEC have decided that the price was too high to allow them to maintain their market share. Consequently, one interpretation of recent events within OPEC is that it represents a calculated attempt to set the price at a level which will reduce not only conventional sources of oil outside of OPEC but also the incentive to invest in new supply and alternative energy sources and the incentive to pursue conservation.

Using this rationale, the OPEC ideal price for oil is one that maximizes the revenues they will receive over the long run--not so high that it induces either serious alternative resource developments or excessive conservation and not so low that they are giving the oil away as a cheap substitute for coal. It appears now that a price of \$30 rising in real terms over time would be high enough to induce those adjustments, and consequently there is at least one economic, as opposed to political, reason for OPEC to adopt a strategy which keeps prices within the range of \$12 to \$20 in real 1985 dollars over the next ten years.

THE CURRENT SITUATION

For the past nine months, all attention has been riveted on the current oil price situation. The obvious reason is that before the price of oil began to tumble, about 85 percent of state and a large proportion of local government revenues in Alaska were derived from oil and gas taxes and royalties. In addition, the petroleum industry is an important private employer in the state and generates large demands on other sectors of the economy, primarily construction, transportation, and wholesale trade and business services. The fall in the oil price contributed an additional blow to an economy that was already "soft," coming off the investment boom of the early 1980s. For state energy policy, the immediate concern was the continued ability of state government to fund energy projects such as Susitna and the power cost equalization program.

The lower oil price means less public money and less private money for the petroleum industry and for other energy industries dependent upon oil prices, such as coal and natural gas. This translates into a reduction in the rate of growth of the economy and with it, the demand for energy in the state. The slowdown in the economy also means that growth in personal income and business income will slow. Households and businesses will increasingly look for ways to cut costs, and one way will be to conserve on their use of energy.

The most obvious implications for state energy policy of oil prices in the \$12 to \$20 range for the next ten years are as follows:

- The amount of public money available to subsidize energy projects and programs will decline sharply.
- Energy demand growth will be much slower than it has been historically because of slower economic growth, reducing the need for large-scale projects to meet the demand.
- Market forces will resurface as the most important factor in the allocation and consumption of energy in the state.
- The need to subsidize energy programs and projects will decline as the real price of energy goes down relative to other goods and services and income.
- The viability of development of Alaska energy resources for export will be reduced.
- Energy conservation will continue to be an important method for reducing the cost of living and the cost of doing business in the state.

REVIEW OF CURRENT POLICY

The objective of energy policy is to provide energy at the lowest possible cost while ensuring that all citizens have access to at least minimum amounts of energy. Because of the vast amounts of money available to state government in recent years, however, cost never was the primary consideration in policy decisions. Income

redistribution and employment generation became the primary, though unstated, criteria for policy formulation. The primary objective was to spend money to create jobs and to provide income to individuals using energy programs as the vehicle. The result was a mish-mash of programs and projects which have been generally costly and contradictory, or at best poorly designed to serve their purpose. We have spent literally hundreds of millions of dollars for programs which have produced a legacy of expensive excess capacity and energy prices which distort household and business energy production and consumption decisions.

Three examples will demonstrate this: Several hundred million dollars of state funds were used to subsidize the construction of hydroelectric projects in Southeast and Southcentral Alaska. The primary benefit of this expenditure was the creation of a large number of construction jobs. The power provided by the dams is priced low because the subsidy has paid most of the cost, but the real cost of power from these dams is very high because so much money was spent on the dams. In addition, they have resulted in considerable excess and unused capacity. These dams have been a success only in the sense that their construction created a lot of jobs. The same amount of power that is consumed in those systems today could have been purchased at much lower cost to the state and its citizens. If consumers had to pay the full cost of generation of electricity from those dams rather than a rate subsidized by the state, the rates would be as high as in many parts of the Bush.

At the same time that the state was subsidizing the construction of high-cost hydropower in the Southeast and Southcentral, it has been giving consumers in rural Alaska money through the power-cost equalization program to consume high-cost electricity. Like the construction of hydropower, the apparent purpose of this program is to help consumers to pay the least price possible for their electricity. The result is that the cost of electricity now appears to be low to consumers, and they use a lot of it. There is no incentive for consumers to conserve on the consumption of a commodity that is costly. This puts additional demand on generating capacity, and new capacity is added to the system. Since the government rather than the consumer is picking up most of the cost, however, there is little or no incentive for the utility to get the cheapest or most efficient generating unit. Investments in conservation which should be made are not made, and investments in additional capacity which should not be made are made.

The third policy is the energy audit program. Under this program, households and businesses could have an audit of their energy consumption patterns performed, which included an analysis of savings from both the installation of different energy-saving devices and the institution of various conservation practices. Grants were available for the purchase of equipment and supplies which could be shown to be cost efficient. This program was designed to produce rational energy-use decisions by being targeted toward purchases which would make energy consumption more

efficient. Its shortcoming was that it was poorly administered, and, like hydroelectric construction and power cost equalization, it was primarily viewed as a combination job-producing and income-transfer program. The jobs produced were for a cadre of auditors who, because they were paid on a piecework basis, had every incentive to complete the audits as rapidly as possible. Clever auditors headed for the condos, where there were many identical units and an audit of a single unit could serve for the whole development. The income transfers were the grants for storm windows, insulation, etc. We conclude that these were the real objectives of the program based on the fact that there was never any attempt to monitor the success of the program in terms of how much energy was actually saved. No one seemed interested in whether the program was cost effective. The question of how much it was costing the government to save on energy in this manner was never asked for this program.

Of course, it would have been extremely difficult to answer that question because this and other programs primarily designed to conserve energy were operating at exactly cross purposes with those policies which subsidized the consumption of energy. One agency of government was paying consumers, either directly or indirectly, to use more energy, while another was paying consumers to buy energy-reducing equipment. Pity the poor analyst asked to measure the effectiveness of policy in this environment.

THE LEGACY OF BAD POLICY

The problem with these policies has not been that they resulted in the creation of construction jobs or that they provided increases in income to construction workers, auditors, and households in rural parts of the state. These may be valid ways to spend public money if there is money left over after necessities such as education and public safety have been funded. The problem is that by furthering these objectives under the guise of an efficient energy policy (delivering the jobs and the income through programs that subsidized the uses of energy), not only were job creation and income transfers provided inefficiently but also, as a consequence, we now have an inefficient stock of energy-using capital and distorted consumer behavior with regard to energy consumption. We could have simultaneously done a better job of creating jobs and transferring income, while at the same time creating a legacy of more efficient capital stock to meet future energy needs based upon the real cost of energy.

It is important to recognize a significant difference in the impact of the two energy programs for subsidizing consumption--the subsidization of large capital-intensive projects and the subsidization of consumption in rural Alaska. This relates to the ability of the state to continue subsidizing these programs when revenues drop. The large capital projects are in place and have been paid for. They are relatively cheap to operate and, although costly to construct, the rates based on operating costs are low.

The cost of having resource misallocation in this case has already been paid. (For the state as a whole, the continuing cost is that there is now less money in the state treasury for paying for necessities in these leaner economic times.)

In contrast, the subsidized rates in the bush, however, are a continuing obligation of the state. If and when the subsidization is discontinued, these consumers will face electricity rates which reflect the full cost of power generation. This full cost now includes the cost of the expanded generating capacity, which has been added to meet the subsidized demand. At higher rates which include the full cost of generation, demand will drop significantly. This will require further rate increases to cover costs, eventually to a level higher than they would have been if the subsidy had never been in effect. In addition, consumers now have a stock of electricity-using capital, which is not as efficient as it should be. Again, the artificially low price gave those consumers the wrong signal about what things they should have been buying. In the worst cases, people will have switched from traditional methods of space heating to electricity because of the subsidy. Such capital investments will be very expensive indeed when the price of electricity again reflects its real cost.

The individuals making these choices should not be blamed for making bad decisions. Rather, it is the fault of the state's energy policy for providing the incorrect incentives for consumers and

businesses. This is a perfect example of how the availability of a lot of public money has reduced the efficiency of the economy by allowing the government to temporarily change the price structure in such a way as to channel investments and consumption into irrational ways. Consequently, the government has an obligation not to terminate this program abruptly, leaving the affected communities with the dual burden of inefficient electric-generating facilities to pay off through high rates as well as an inefficient private capital stock.

NEW ENERGY POLICY

If \$15 to \$20 a barrel is a reasonable prognosis for the future of the price of oil and this slows the growth of the Alaska economy, the general outlines of a new energy policy emerge. This policy is less ambitious than past efforts for the simple reason that there will be less money to devote to the problem. It is more rational because it is a policy divorced from the objectives of job creation and income distribution. It is also more efficient because it places the primary responsibility on the energy industry and the private sector to make energy production and consumption choices based upon market-determined prices.

1. Market Reliance. The market should allocate energy because it can do it most cost effectively. Market prices, in general, reflect the real cost of producing and consuming different types of

energy, and decisions should be made on the basis of the real costs. We should buy and consume the lowest-cost energy.

2. Minimize Market Failures. The existing institutions do not always operate in such a way as to allow the signals of the market to reach consumers. There are a number of reasons for this: first, various types of production or consumption may produce side effects such as acid rain or excess smoke, which have costs that are not included in the price because these costs are not paid by the producer or consumer. The costs are borne by some third party who is not part of the transaction. For redressing many of these imbalances, the federal government is the proper level for government involvement. There are others which require state, or local, intervention. Policy should concern itself with the need for as well as the form of that intervention.

Second, it may be cheaper for a natural monopoly to produce, transmit, or distribute energy. If it is in the public interest to have only one firm in a market, that firm must be regulated. Policy questions center on the nature and extent of that regulation.

Third, the utilities and the energy-producing companies may have objectives which do not coincide with the objectives of individual energy consumers. In addition, these institutions may have a competitive advantage, established by law rather than by the realities of the marketplace, which prevent free competition among alternatives.

For example, the objective of a utility is to provide energy to the consumer at the lowest possible cost consistent with safety and reliability considerations. In reality, the success of a utility is often measured by the absence of rate increases. However, for the consumer, the lowest possible energy cost need not be consistent with the lowest possible rate for utility-provided power.

Consider a hypothetical electricity conservation device which could be installed at nominal cost in a house and reduce utility electricity demand by 50 percent. Most households would be interested in such a device because it would reduce their need for utility power. The utility would not be interested in such a device, however, because if a household installed one, demand and with it revenues would fall, and rates would need to rise to cover fixed costs of plant and equipment. This rate increase, of course, would not bother the consumer with the conservation device whose total bill for energy services is still lower than before, even with a higher rate for energy from the utility. Government may have a role in the stimulation of conservation in this case and in adjusting the "rules of the game" of the marketplace in general.

Finally, market information is not always available to all consumers and producers because the collection of information involves a cost. It may be cheaper for government to collect and disseminate information about options and costs of alternatives.

3. Single Objective. Energy subsidies should not be used as a means to redistribute income or to create jobs. Rather, if there are households or regions which are deserving of assistance because the cost of energy is high and incomes are low, a direct income subsidy is more appropriate than the subsidization of energy. The subsidization of energy promotes excess use and waste while a direct monetary transfer, since it can be used on any good or service, does not distort the use of energy. Since it may be difficult politically to separate these criteria, a compromise policy might be the subsidization of a lifeline level of energy consumption in very targeted instances.

4. Sensitivity to Legacy of Problems from Old Energy Policy. The distortions created by past decisions should be phased out in a way which minimizes the adverse impacts of the transition. There are households and businesses that will need to adjust their consumption patterns. The past misallocations must be recognized, and government must also recognize the good faith adjustments that consumers have made on the basis of those policies. For example, the power cost assistance program phase-out should be done in such a way as to minimize the impact on electricity rates. One possibility would be through a grant to the impacted utilities to pay off the cost of the generating equipment newly put in place during the years of subsidy.

5. Large Projects Unnecessary. The requirement to construct large projects today in anticipation of increases in demand for

energy or in anticipation of the exhaustion of existing sources of energy is no longer valid. Demand growth uncertainty will continue in Alaska, impacted both by the changed prospects for the growth of the economy and by the increased availability and incentive to use energy-saving devices. Alternative supply sources for electricity can be examined at a more leisurely pace if the growth of demand is slower, as existing supplies will last for a longer time. Decisions on new capacity can be postponed, allowing time for the development of new techniques for generating power in new, different, and more efficient ways. When expansion does become necessary, new capacity should be the most cost effective over the life of the facility, assuming both reasonable energy prices and energy demand.

