

The Energy Crisis- a Marxist view

By Steve Zeluck

This article was written before the most recent phase of the energy crisis. The writer is associated with a group of comrades who recently left the International Socialists.

The development of a Marxist view of the energy crisis can be approached through a critique of the three currently dominant views of the subject: (1) the populist "radical" view — that the U.S. government and the oil monopolies are partners in a giant rip-off to preserve oil corporation prices and profits; (2) the conservative capitalist view — that there actually is a real physical shortage in the offing; and (3) a view, widespread among environmentalists, that shortage or not (there are differing views on this) consumerist society values, including the search for cheap energy, must be resisted as a threat to the quality of life.

To start with the first, the oil monopoly rip-off theory in collaboration with the state. Even most sectors of the Marxist left swallow this theory. Some go even further. To them, the OPEC act of 1973 was an affair staged by Kissinger, et al., to help reverse the U.S.'s declining economic competitive position. This goal would be met by forcing a sharp rise in the price of oil in Europe and Japan, our main competitors, thus increasing *their* price structure relative to that of the U.S. The U.S. would suffer less, according to this "theory," because the others were totally dependent on imported oil, whereas the U.S. provided more than half of its own oil at less than import prices. (Of course, the fact that U.S. prices also increased along with the world price was simply overlooked by these Marxists.)

There are three major objections to this monopoly-rip-off-with-aid-

of-the-state theory: (1) the role of the state in capitalism, (2) empirical economic objections to the theory, and (3) objections rooted in the theory of monopoly — more precisely, in the false theory of monopoly so nearly universal in the left.

Oil and the Theory of the State

The Marxist view of the state is that, in the last analysis, it is an instrument which looks after the interests of the capitalist class as a whole. That is not to say that we think this happens automatically. Not at all. As part of that process of arriving at the interests of the class as a whole, we witness repeated and constant struggles of two kinds: differences as to what the common interests really are (like differences on the war, or on welfare, etc.); and differences arising from different interests among different sectors, different industries, and even *individual* corporate interests, who try to use the state for their own purposes and not those of the capitalist class as a whole. Two current examples come to mind — the fight between the trucking industry and the rest over truck deregulation, and the fight between the gas producers and corporate gas consumers.

So we have to be very careful. In this case, does government policy really represent the long-run interests of capitalism, or has one industry, the oil monopolies, temporarily gained control of the state? It is not hard to see the truth in this case. It can be detected simply by looking at Carter's program. That will show that in fact, at this time, the state is acting, or trying to act, in the interests of the whole class, because it proposes policies which are not, primarily, in the interests of the *oil* corporations.

A main thrust of Carter's many

proposals is to find ways to reduce the demand for oil. This is hardly a policy the oil corporations could want. Similarly, the attempt to find alternatives to oil is again not a policy the oil corporations could favor (with the *possible* and partial exception of those investing in other fields). Nor is the policy to reduce the import of oil and gas a big boon to the major oil corporations which get most of their income from *imported* oil. *Domestic* oil production is shared with a large and influential class of *independent* oil producers who have *always been* for import controls.

The decision to try to reduce oil imports runs counter to giant oil corporations' interests in still another way. The U.S. has a balance of payments problem stemming in part from oil imports. The capitalist class as a whole therefore favors such restrictions to help the balance of payments. The oil corporations have a different and contradictory interest. And in this case, they have clearly lost.

Before proceeding, there is a common objection which should be addressed. "Since the (oil) corporations now also own coal fields and uranium, they no longer need to object to oil import controls." But the fact that a corporation hedges its bets and attempts to secure a falling situation by a second-best fall-back policy does not mean that they welcome the attack on their primary business, but only that they are resigned to it. To which one must add, what about the large sector of the oil industry which owns no coal?

A Second Objection to the monopoly rip-off theory. Not only is the government not encouraging the rip-off, but the oil "monopolies" have in fact been incapable of such a rip-off in the modern period (leaving aside the normal, under capitalism, advantage which any

corporation takes of short supply conditions *in a market economy*). What is the evidence for this unpopular statement?

(1) Even before 1973, i.e., even before OPEC, when the oil corporations were considered nearly all-powerful, profits were not what they were supposed to be. So between 1950 and 1965 the average rate of profit in oil was 11.5%, compared to 10.5% in all manufacturing. But between 1965 and 1973, the oil rate of profit fell to 10.1% vs. the manufacturing rate of 10.4%. Hardly a picture of a *monopoly* rip-off (leaving aside, of course, the fact that all profit is, in a sense, a rip-off).

(2) It is often forgotten that between 1950 and 1969 the price of oil (and electricity) was falling relative to the price of other commodities. Again, this should at least give pause to the rip-off theory.

(3) A similar phenomenon appeared in the prices charged by the other oil "monopoly," OPEC, which despite its "monopoly power" also experienced falling relative prices, i.e., the price of oil rose far less than the rate of inflation during 1973-78.

(4) One has to recall that in fact the so-called monopoly position of the oil corporations had been badly hurt long before the events of 1973. The famous Seven Big Sisters (Exxon, Gulf, et al.) controlled 90% of all oil outside the U.S. 20 years ago. Today that figure has shrunk to 60% (not counting of course the loss of *ownership* of Mid-east oil). So much for the pricing of oil at the whim of the oil monopolists.

There is a Third Objection to the monopoly rip-off theory. The theory rests upon a confusion of monopoly with "concentration and centralization." There can of course be little doubt that capitalism is indeed characterized by increasing concentration and centralization. But it does not in the least follow from this that capitalism is now essentially monopolistic. It is an error to view capitalist society as

one which passes from a stage in which it is "competitive" to a second stage in which it is essentially "monopolistic" (as Paul Sweezy and many others have done; Lenin is ambiguous on this and Bukharin conies pretty close to this error). In fact, capitalism is *both* competitive and monopolistic from its birth, from day one, and continues so to this day. There are two major reasons for this:

(1) Capitalism rests on monopoly from the start with its total monopoly of the means of production (something bourgeois economists deny; they tell us that workers can also, if they wish, hire capital just like anyone else, in the market place). It is *this* monopoly which the capitalists are trying to defend when they resist the formation of unions, since unions are in a sense an attempt to form a counter-monopoly, and, obviously, the existence of a second, related monopoly always weakens an existing one. The more monopolies there are in an economy, the weaker each one is, since each monopoly has to buy from another monopoly as well as sell to it. In this sense, universal monopoly is a contradiction in terms, under capitalism.

(2) Monopoly is organic, built in to "competitive" capitalism in a second fundamental way. The search for profit in a market economy compels capitalists to constantly seek technological change, innovation, including new products. As soon as he succeeds in this process, the capitalist instantly acquires, even if only momentarily (even if prolonged by patents) a real monopoly compared to other capitalists. As a result, his costs are usually cut and he can, *even though charging the normal market price*, make a higher than average profit, *due to* his monopoly over the new technology or new commodity. Of course the victory is temporary. Sooner or later, the new technique spreads to other producers, and so the first capitalist loses his economic edge and with it his monopoly profit. But under capitalism this

process is a permanent one — a constant struggle for monopoly position and a constant loss of that position through competition. And this process continues to characterize capitalism *whether the economic units are small or giant*, i.e., this process is not halted by concentration or centralization. In fact it can be speeded up and intensified by them (as Lenin *did* understand in contrast to Kautsky — the real ancestor of "Marxist" monopoly theory).

There is a parallel here to the Marxist theory of the state. The state does represent the ruling class as a whole, but this rule emerges only out of a process of struggle between different sectors of the class — an unending and constantly shifting struggle despite the fact that (like competition) the intra-class struggle *tends* to end up with class-wide interests dominant and having their will.

It follows from all this that, schematically: (1) prices are essentially NOT set by monopolies. It may appear to be so, but actually they are doing little more than *ratifying* a price set by economic law. Barry Commoner is one of the few ecologists to recognize this and to face up to the fact that oil prices are not a monopoly plot; (2) prices are NOT administered prices (which every liberal believes and so he opposes monopoly, but not capitalism); (3) concentration and centralization do not necessarily lead to monopoly price-fixing; and (4) it is not just prices, but inflation as well, which are NOT a plot by capitalism to get at the workers.

What all this means for how oil prices are actually determined is another matter deserving close attention. Bob Fitch's suggestion that Marx's theory of industrial rent plays a central role in this process is very persuasive.

But one should not leave this abstract view on monopoly without supplementing it, however briefly, with some empirical evidence. Just three points for the present:

First, the history of prices among

the "monopolies." (We have already dealt with the to-some-surprising history of prices and profits in oil, above.) In fact, the "astonishing" history of electricity prices (notoriously monopolistic), in which they have over the past 50 years fallen relative to other prices, is hardly as exceptional as one might think. The history of prices of AT&T is another case — the price of phone service has also dropped relatively. Equally significant are the histories of prices of other "monopolies" such as copper, aluminum, etc. They have fluctuated sharply in response to market conditions in a manner which monopoly theory could hardly explain, as have their profits. The steadily falling prices in the highly concentrated communication-information industry are another case in point.

Second, it is important to call attention (if it is news to anyone) to the history of monopoly in the U.S. in the post-World War II period. A few months ago, one of the last monopolies, Western Union, passed from the scene; the 40-year monopoly situation in the trucking industry is clearly on the road to extinction through deregulation. (The result should pose a real problem for the monopoly theorists, since the *regulated* industry, though monopolistic, was full of relatively "small" companies, while the *deregulated* industry [*demonopolized* in the sense of no longer fixing prices and controlling routes, i.e., more competitive] will certainly become *more* concentrated and centralized —

banking industry in the world; IBM, which a decade ago controlled 65% of the information industry, is now sharply cutting prices, as its share of the market is falling toward 45% — and Japan has not yet entered the scene; the railroads, monopoly and all, have lost out, largely to airplanes, busses and trucks; the airlines have *shared* in the decision to deregulate and are now as competitive an industry as there is or can be; and lastly, the much-vaunted rise of the supermarket and consequent destruction of the small retail stores has been radically misunderstood. It does of course represent a huge case of concentration, but *not* monopolization. Quite the contrary. It is today a less-than-average-profit industry. In a sense, the mom-and-pop store in a ghetto is more of a monopoly than Safeway. The former can and does charge higher prices in large part because it can and does offer monopoly services, such as location, open all hours, and credit to the poor. Indeed, to close this point the Xerox corporation was a real monopoly only briefly, on the basis of its new discoveries, *when it was a relatively small* concern. Today, as a giant in the information industry, it is just one among many, and no longer the glamour stock it once was.

Third, preliminary studies of the history of price-fixing cartels shows a dramatic *decline* in their role over the past 30 years.

Let us proceed to the second theory of the energy crisis — the view that there actually is an oil-gas

capacity to increase food supply. The population would rise geometrically, while the food supply would only increase arithmetically, due to the fact that constantly poorer, less productive land would have to be used to raise food. Within 15 years of his prediction, the world experienced the great potato revolution, vastly increasing the amount of calories which agriculture could generate for the poor and bringing Malthusian fears to an end for a hundred years — until revived by Keynes and other liberals. The latest expression of this view emerged in the famous Club of Rome warning in 1975 about the fatal world food shortage in the works. But by 1977, the Club at least had the decency to apologize and retract its prediction.

The plain fact is that where *capitalist* agriculture exists, the rate of increase in productivity has been double that of industry in recent decades.

Still, we can be told, true enough for food, but oil, unlike food, is a non-renewable resource. Therefore we can not preclude, in theory, the possibility of a *real* oil shortage, a physical one. So let us look at the matter more closely.

The first thing to note is that in just the past ten years, four giant pools of oil have been brought into production: Alaska, the North Sea, Nigeria, and Mexico — enough to raise doubt as to *world* scarcity.

Of course that does not preclude the possibility of a U.S. exhaustion of oil. Still, in 1910, the first of many Senate reports announced that

...universal monopoly is a contradiction in terms...

but *less* monopolized!)

AT&T, the monopoly par excellence, is in the throes of losing that monopoly, due to technological innovation; before the war, there was one aluminum corporation in the U.S. — today there are four; the U.S. banking industry, contrary to expectations, is by far the most competitive, least monopolized

shortage and that depletion is a real threat. This view of a material, natural shortage is just the latest example of an historic bug-a-boo.

Some 40 years or so after Adam Smith, the founder of the science of economics, the economist Malthus arose to warn that population was inevitably bound to outrun the

the U.S. had no more than a 20-year supply of oil reserves. In 1934, a U.S. Senate report warned that there was now, after 24 years of use and drain, "only" a 30-year "reserve." And in recent years, the same prediction: a 30-year reserve is all that is left. Taken together, these reports can only raise doubt as to the actual merit of the re-

ports. And a closer examination will reveal that our doubts are not based on cynicism at all.

To start with, it has to be understood that the term "proven reserves" does not mean what it appears to mean. The term "proven" refers to the amount of oil available for extraction *at a given price and at a given technological level*. If either of these factors were to change, then the amount of "proven reserves" would rise *even without the discovery of a single new well*. Thus, for example, in 1968 U.S. "proven reserves" totalled 40 billion barrels, while at the same time the geologists affirmed that physically there were 150 billion barrels in the pools.

ural" response to declining profits or the search for higher ones. It is this capital shift which is responsible for the "shortage" — a shortage which is mainly political and economic. But is it geological?

If this is the source of the U.S. oil crisis, then why not solve it by the import of oil from areas where production and exploration costs are lower? Unfortunately there are difficulties to this "solution" which recent events in Iran highlight only too well. OPEC oil is not so reliable. To start with, there is the danger that in case of war, U.S. supplies could be endangered. There is the danger of social revolution in a oil-producing country. There are problems arising

of capitalism as a result of its increased dependence upon "foreign" oil in case of war or social revolution.

(2) A tendency will arise to further reduce the rate of growth and technological change. We know that increased wages have as one effect a tendency to increase the use of machinery and labor productivity. The rising cost of energy will have an opposite effect. It will result in slowing down the increase in use of machinery which depends on cheap power, and increase the attractiveness of using labor. But since that labor, at home in the U.S., is high-cost labor, the rising cost of energy will intensify the transfer of capital

...there is no absolute shortage of oil...

Similarly, the amount of reserves even in physical terms is also not absolute. It depends in large measure not only on the price of oil, but on the cost of finding it. So, in 1934, it cost \$20,000 to drill a well; by 1970 the cost had risen to \$1 million, and by 1976 to \$2 million. Between 1965 and 1975, the cost of producing and discovering had risen by 300%. So the actual amount of oil available, or discoverable, is unknown to anyone. We conclude that there is no basis as yet for saying that there is an absolute shortage of oil even in the U.S., much less the world (even leaving aside the oil-bearing shales and sands, and low-grade coal).

But if there is no absolute shortage of oil, there *are* rising costs of production and exploration. One has only to remember that, after having spent \$1.5 billion in the Baltimore Canyon, commercial oil has yet to be found by Exxon or any of the others. It is these rising costs which are real indeed, which are responsible for the *appearance* of an oil shortage in the U.S. — this because a rise in costs tends to result in a shift of capital for exploration and refining to areas outside the U.S. All this is a perfectly "nat-

from the fact that many of these countries are trying to industrialize, and so trying to gear their pace of development and oil exploitation. Too much oil extracted is partially wasted, since it is paid for in devaluating currency (mostly the U.S. dollar). So a barrel of oil underground is worth more than one above and sold. Then there is the danger of an actual exhaustion of oil (a possibility in any given location). And lastly, even in the absence of these difficulties, the U.S. can not force increased oil production to fit its needs. In this post-Vietnam period, the U.S. can not treat Khomeini as it did Mossadeq in 1953.

So the crisis is real, even if not primarily geological, and not a rip-off. It has its roots in the economic mechanism of capitalism, the search for profit and the use of the market as the mechanism for the allocation of resources.

But before looking at the capitalists' solution to their problem, we must look briefly at the consequences of the energy crisis, because these consequences will shape the solution the capitalists opt for.

(1) The first consequence, already alluded to, is the weakening

to low-wage areas, to underdeveloped areas. This means a tendency to slower growth at home. But it also means a general tendency to a slower rate of growth or productivity.

(3) Who will pay for the oil crisis and how? When oil is purchased, it can be paid for in two ways — in dollars or by the export of goods to OPEC countries. Let's take each case separately.

Payment in Dollars. What happens when imports (of oil) exceed exports of goods in return? The result is well known — a negative balance of payments with all the attendant dangers. Not least of these dangers is that the consequent export of U.S. dollars serves as a powerful stimulant to inflation in Europe. This occurs because those dollars are exchanged by their recipients for domestic currency of each country, causing an artificial "unnecessary" currency expansion with inflationary consequences.

However, it is possible that the extra dollars used to pay for the oil will be sent back to the U.S. by OPEC and placed in U.S. banks. In that case the negative balance of payments (and the above scenario) would seem to disappear. But that is hardly the solution it seems to

be. With the declining value of the U.S. dollar, these OPEC funds lose their value, so there can arise a tendency to withdraw them in favor of Swiss or German banks. Should that happen, the U.S. balance of payments could suffer a massive shock at a time when it is already in crisis. This is not just a theoretical possibility. It is exactly what happened to England in 1975. From 1973 to 1975, the Arab states, for historic reasons, kept their surplus funds in British banks. This served to conceal the drastic negative balance of payments England was suffering at the time. When in 1975 the Arabs suddenly withdrew these funds, it sent England into a crisis from which she was saved only by a vast IMF loan.

Payment in Goods. Instead of paying for oil in dollars, OPEC could be, and has in part been, paid by the export of commodities. In that case the question arises, where would these goods come from? And the answer is, much if not all would come from the working class.

This would happen mainly in two ways: *First*, an increased price of energy can and will be met by workers in part by a decrease in their demand for other goods. In this way, resources (labor, raw materials, etc.) are "released" for goods for export to OPEC. (This process is one source of the fact that real wages in the U.S. have not risen in a decade.)

A *second* way in which workers pay for goods which are exchanged for the oil is through the effect of increased energy prices on inflation. We have argued earlier that increased costs can *not* ordinarily be passed on by capitalists in the form of increased prices, because competition would not permit it (and also because under the labor theory of value, increased wages do not produce increased value and therefore do not increase prices). But this does not apply to a cost increase which is universal. Oil, unlike wages, has an international, uniform price. If *all* corporations

experience increased costs due to the rise of oil prices, then competition will not prevent a rise in price (though the value is unchanged). So the general level of prices will rise, and we get inflation. As a result, the capitalists who pay more for goods they buy will also get more for the goods they sell, and so they will break even. But the worker will lose by higher prices. His real wage will fall unless the class struggle intensifies beyond the level it has reached to date in the U.S.

Given the above, we can understand U.S. capital's solutions: (1) conservation (encouraging a decline in demand by increasing the price); (2) increasing prices to encourage increased exploration and thus increased supply; and (3) alternative energy proposals.

The push for nuclear energy (limiting ourselves for the present to nuclear fission, not fusion) brings us to the third theory of the energy crisis — that held by many populists and the ecology movement. There is much that is new and much that is true in their theories. But, as Heine suggested, "what is new there is not true, and what is true is not new." Socialists support the ecology movement, but not uncritically, because that movement focuses on the "excesses" of capitalism and does not see the ecology problem as endemic to capitalism as such. The arguments around nuclear power provide a good example of this.

It is commonly argued that the costs of nuclear energy are greater than the costs of fossil fuel energy generators. But if this is true, then why do the utility corporations opt for nuclear power?

The populist-environmentalist answer is: utilities' profits are determined by state regulatory commissions which set the price of electricity at "cost plus fair return on capital." If the capital costs rise, the utilities will be granted raises in rates and profits to make up for it. As a result, according to

this theory, the more an energy plant costs, the better for the utilities. It is a mindblowing theory (for Marxists) and a false one, because:

(1) In actuality, the utility industry today (and for the past few decades) has displayed an opposite pattern of behavior. First, the utilities have had great difficulty getting capital on the market. The market thus disciplines them. So they can not be "wasteful" of the available capital. Secondly, the utilities have for the past 40 years had a record as a highly efficient industry, one which has experienced the lowest rate of increased prices of any major industry in the U.S. (except for the technologically explosive information industry). From 1947 to 1970, the price of electricity per kilowatt hour rose a mere 5%.

(2) Many studies during the 1950's and early '60's showed that nuclear fission energy was substantially cheaper than fossil energy for plants over 500,000 KWH (average size for a new plant today). This was true even before the six-fold increase in oil costs since 1973. (Uranium fuel costs have risen far more moderately and are a lower share of energy costs in nuclear plants.) Therefore the capitalists were, given the information available at that time, *technically*, in capitalist terms, right to wish to build nuclear plants.

(3) But this "correct" decision of the capitalists was based, as we know, on their out-of-pocket costs, their private costs of production, which do not reflect the real social costs of a nuclear plant (any more than the capitalist cost of mining coal represents its real social cost). Thus, if we add to the normal (capitalist) costs of production the additional costs of disposing of waste fuel (which the government had been expected to absorb); the additional costs of real safety devices; the real insurance costs in case of accident, etc., then the real *social* cost of the plant rises and can easily reach a point where it is

more expensive than a fossil fuel plant.

Until recently, social costs were and could be ignored by the corporations, on the assumption that we, the public, would pay for them, as we pay for other pollution costs of production. But today, as a result of the anti-nuke movement and the rising awareness among the public of the real costs and dangers of nuclear energy, it is increasingly difficult for the utilities to expect that they will be able to shift their costs onto the public. They may well have to absorb these costs and in doing so increase their private costs of production. As a result, the advantages of nuclear energy recede and we witness a sharp decline in the number of plants projected. (The decline in rate of growth of demand for electricity is also in part responsible for this retreat on nuclear power construction.)

The problem reduces itself to the fact that only socialism can scientifically, rationally determine whether or not to build nuclear plants, because only socialism makes economic decisions on the basis of social cost, not private cost. In fact that is a hallmark of socialism. It is an indication of socialism's true rationality, as opposed to the spurious, market rationality of capitalism.

Incidentally, we have here also an example of technology's non-neutral and class character. Under capitalist rationality, "nuclear" is technologically logical; under socialist rationality, nukes are irrational and probably would not be used at all.

(4) The matter can be taken one step further to the issue of nuclear vs. solar energy. Under capitalism today, solar energy is irrational because the *private* costs of solar energy (except for rooftop water-heating units) for generating electricity are far higher than either fossil or nuclear fuel plants. That is why the government spends 20 times as much money researching nuclear (fusion and fission) energy than it does solar energy.

But though solar *private* costs are indeed high, the *social* costs of solar energy are relatively low. That, however, is *and must be* a matter of indifference to the capitalist, since he is only interested in private costs, and so he chooses to produce nuclear plants instead of solar plants, *today*. It must be obvious from what we have said that, once again, to the socialist society, governed as it is by social cost, solar energy is economically preferable to nuclear, and would get priority in research and all else.

(5) In place of this analysis of solar energy, the populist-environmentalist tells us that capitalists reject solar energy because they "can't own the sun," as they do coal mines, etc. Once again, we are asked to regress economically to the days even before Adam Smith.

To start with, capitalists need not own the sunlight to be able to charge for it. They do not charge for coal because "they own it." The cost of coal arises from the fact that labor is involved in making coal available to society — otherwise coal would, like air, be a free good. The same for sunlight. Light, if it is to be used for electricity, must, like coal, be changed by machinery, i.e., by labor, and it is from this necessary use of labor that the capitalist would draw his profit in the light-to-electricity conversion. So free sunlight is no bar to capitalist exploitation of solar power.

It is this understanding of the contradiction between private cost and social cost (an expression of the contradiction between social production and private appropriation) which is at the root of our differences with so many ecologists. Only socialists can understand truly why the capitalists prefer nuclear to solar energy today. And these understandings lead us to propose the need to socialize (which is not the same as nationalize), i.e., (among other things) to begin to use social cost as the measure for decision making.

It remains only to make a few comments of a programmatic character. Marxists will reject Malthusian notions of an objective energy shortage. To the extent that this exists, it is a function of the capitalist mode of production. We therefore reject the plea of theorists of the affluent society that our society consumes too much. Wasteful it certainly is. But it does not follow that we ought to or want to reduce consumption. Quite the contrary. The case for socialism is in part that capitalism can not expand production either adequately or rationally — that the vast majority of humankind is desperately in need of greatly expanded production *and energy*, not a reduction. But it must also be an expansion which does not threaten a planetary catastrophe such as is implicit in fossil-fuel-generated Carbon Dioxide, which could overheat the atmosphere and melt the ice caps.

The necessity of nationalization of the energy industry is apparent today to most Americans, even George Meany. But it must be equally clear that such nationalization, today, would hardly solve anything. Bourgeois nationalization means essentially operating an industry by the rule of the market, and so it changes very little (except when the nationalization is used as an indirect subsidy to the rest of industry). What is needed is (1) a rational, planned exploitation of the available oil on a world scale in the interests of all people, and not a conflict among states and societies over shares of the pie — a conflict which under capitalism is left to the tender mercies of the market and the profit system; and (2) the determination of an efficient, rational energy production on the basis of real, social costs, not the private costs organic to capitalism.

In short, the solution to the energy crisis is inseparable from humankind's struggle to impose its rationality and mastery over nature — the struggle to establish itself as the subject, not the object, of history.