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© Reuters/Fred Prouser – Oil is pumped from the wells at Port of Long Beach in California.

Rethinking "Energy Independence"

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Some of us are old enough to remember Richard M. Nixon proclaiming that "our national goal" should be "to meet our own energy needs without depending on any foreign sources." All of us, old and young, ought to be startled that, thirty-five years later, it remains hard to find a leading American politician that does not champion more or less the same strange notion as Nixon's. Regrettably, that included two of the nation's most sensible political leaders, President-elect Barack Obama and Senator John McCain. Both of their campaigns repeatedly lamented the nation's "dependency" on foreign oil.

One purpose of political campaigns is to win elections, but another is to educate and prepare the public for the policy challenges to be faced. The 2008 presidential election was uplifting in many respects, but alas, its treatment of the energy issue was not among them. For all the persistent political fascination with "energy independence," the reasoning behind it is flawed. Policymakers ought to recognize that reality and start leveling with the voters about it.

The aim of this essay is to encourage a long-overdue change in the terms of what has otherwise become a repetitious and largely sterile debate.

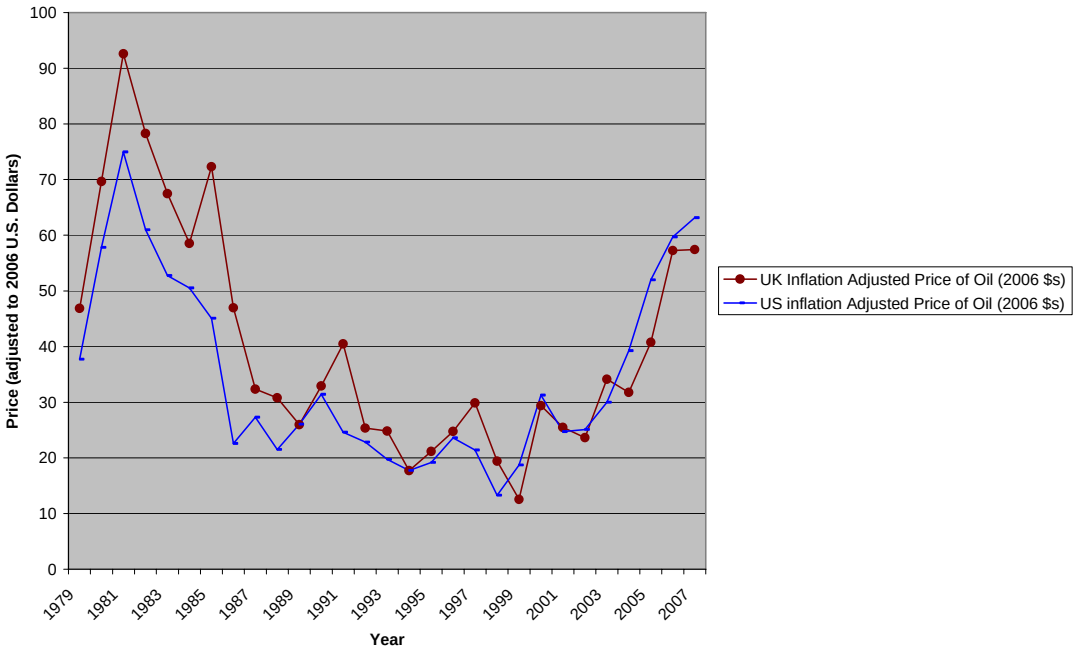
Reality Check

What's wrong with the premise that energy autarky is a path to national prosperity and security?

To begin with, the assumption seems to be that the less oil the United States buys from abroad, the more insulated the U.S. economy will be from the vagaries of the international oil market. By that logic, presumably, if the country imported little or no oil, we would not experience the price fluctuations endured by being too dependent on imports.

A simple way to shatter that myth is to compare the pattern of prices in the United States, which has to buy a lot of foreign oil, with the pattern in, say, the United Kingdom, a nation that has been self-sufficient since 1980. Figure 1 displays the comparison. The ups and downs of prices in the two countries follow much the same paths. So, for example, when global oil prices (adjusted for inflation) rose sharply, from $25 per barrel in 2000 to more than $66 per barrel in 2007, British consumers were no better insulated from the increase than Americans were. Both faced approximately the same conditions. Petroleum is priced in a world market and no country, even a net exporter, can stop the world and get off.

Figure 1: Crude Oil Prices in the U.S. and U.K.



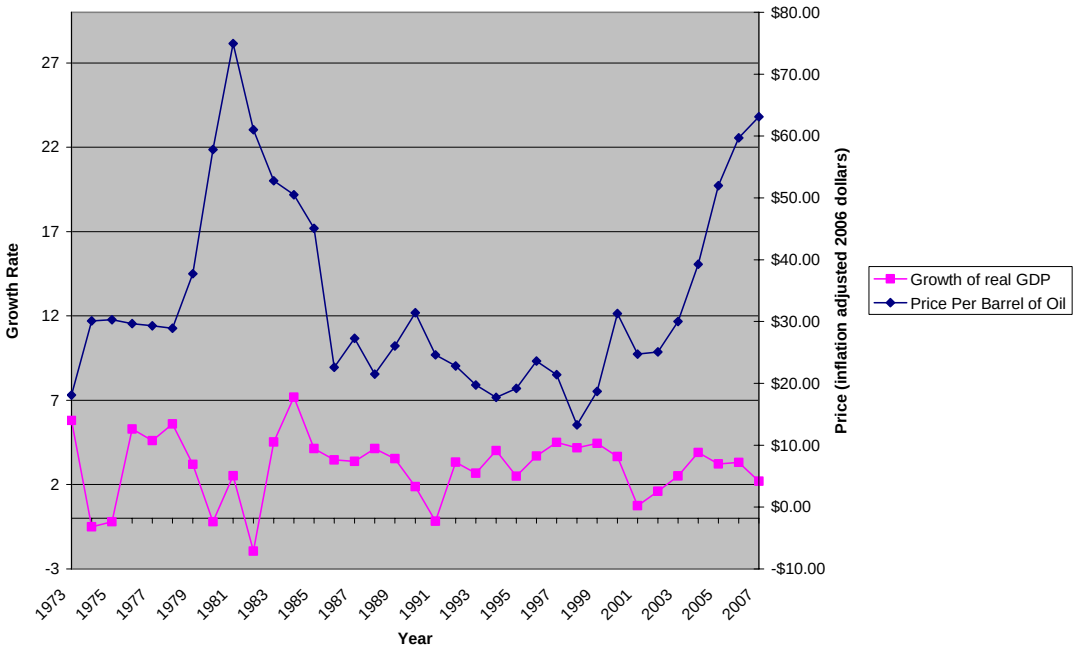
That's the first point to make about the quixotic quest for energy independence. Here is a second: Although the U.S. economy today has to import 60 percent of the oil it consumes, it is actually *less*, not more, sensitive to rising international oil prices than it was in Nixon's day when imported oil amounted to only a third of U.S. consumption.

If you have a hard time believing this, consider Figure 2, which shows the relationship between movements in oil prices and U.S. rates of economic growth. Following the first energy crisis—the price shock that followed the Arab oil embargo in 1973—the United States fell into recession. When prices skyrocketed with the Iranian Revolution in 1979-80, U.S. growth plunged sharply again. The same effect occurred, albeit less markedly, after oil prices ticked up around the time of the Gulf War in 1990. After that, however, an intriguing thing happened: Sharp new spikes, like the great run-up starting in 1998, evidently took much less of a toll on the economy. In fact, GDP growth in the four years from 2003 through 2006 was relatively solid despite soaring oil prices. The economic decline that began afterward had less to do with those prices than with the subprime mortgage debacle and the ensuing meltdown in financial markets.

The U.S. economy's sensitivity to energy shocks has dimished because a nation's so-called energy intensity, not the share of fuel supplied by foreign sources, determines our relative capacity to minimize damage from surging energy prices. To produce a dollar of Gross Domestic Product, America requires about 40 percent less energy than it did some 25 years ago. With energy inputs

now playing a proportionately smaller part in generating overall output, the economy absorbs higher fuel prices more easily.

Figure 2: Price of Oil and Changes in US Real GDP



The inflationary (and then contractive) effects of energy-price hikes, in short, seem to have subsided over time. In any event, for purposes of ensuring economic stability, sound monetary management and a further reduction in energy intensity are more promising than a struggle to curb dependence on imports.

"Energy Security"

Proponents of energy independence, however, advance additional rationales. One is that by substituting domestically produced fuels for oil from overseas, America could help improve the global supply, thereby dampening the world price. The proposition rests on the fact that this country consumes about a quarter of the world's oil, so *ceteris paribus* any appreciable U.S. reduction would transform the international marketplace.

The trouble with this thesis is that only in utopia can *ceteris* be *paribus*. In the real world, other big consumers keep emerging and will erase much of the slack America could imaginably cut. Think about China. The gap between Chinese GDP and ours is projected to narrow dramatically by 2027. China, which consumes 7.6 million barrels of oil each day, could be on track to add another 3.5

million barrels a day to worldwide demand by 2017. Such an increase alone would offset more than three-quarters of the 4 million barrels per day the Bush administration had proposed to displace by a combination of conservation and alternative fuels. With China, India and other colossal new customers coming on line, schemes like Bush's "Twenty in Ten" plan might shift the projected global demand for oil to a lower trend line, but it would still climb at an impressive rate. In sum, even if the U.S. kicked its "addiction to oil"—lowering consumption by 20 percent, as the Bush program envisioned, and then holding it flat at approximately Europe's projected level—*worldwide* demand would nonetheless resume rising robustly once the global economy recovers from its current downturn.

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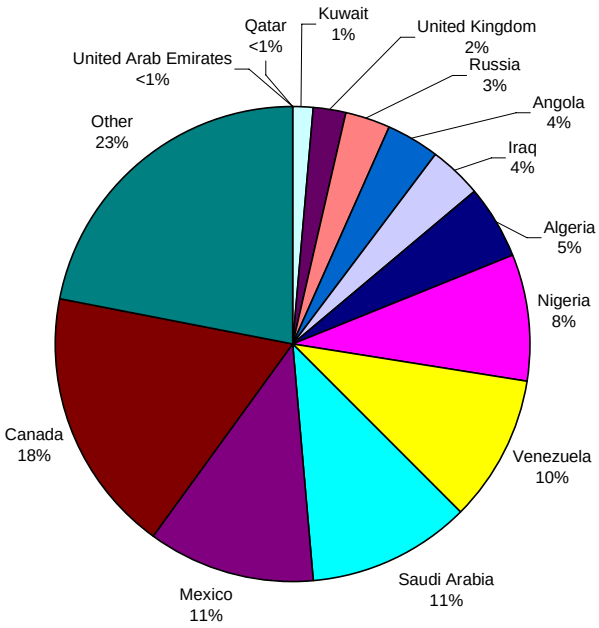
When confronted with this inconvenient truth, the proponents of independence repair to yet another argument: Granted, whatever energy measures we take will eventually be dwarfed by global demand, but at least, as Sen. Hillary Clinton explained as she prepared to enter the presidential primaries, we would become somewhat less "dependent on regimes that are going to undermine our security." Presumably, the likes of Iran, Venezuela and Sudan would exert less leverage in international affairs if their oil revenues declined. America could help cut these derelicts down to size by lessening the U.S. footprint in the market for their oil.

Would that matters were so simple. The offending oil regimes will enrich themselves whether or not America does business with them. Iran, for example, has not sold a single barrel of oil to the United States since the hostage crisis in 1979. Yet the Iranians continue to rake in money from the oil they sell to Europe, Japan, China and other major clients. The result? Tehran remains defiant, disagreeable and emboldened. So much for us reaping any geostrategic advantage by abstaining from Iranian oil.

Likewise, as Figure 3 indicates, America purchases no oil from the rogue regime in Sudan. However, the Chinese, among others, buy plenty. So long as the Sudanese can peddle their petroleum to *somebody*, U.S. policymakers will remain just as powerless to slow the flow of revenue to that country—and just as wobbly in mobilizing the international community over the atrocities in Darfur—as if the United States were one of Khartoum's direct customers.

Figure 3 does show that a non-trivial share of the oil the United States imports—10 percent—comes from Venezuela. The coffers of Hugo Chávez are being filled, to an extent, by our petrodollars. But suppose we ended that practice tomorrow morning. Venezuela would promptly sell its oil somewhere else, and Chávez would continue to be, well, Chávez.

Figure 3: U.S. Imports by Country of Origin, Total Crude Oil and Products, 2007



At the end of the day, America's bilateral shopping decisions matter less than is widely assumed in the vast global energy market. All the main suppliers have plenty of other greedy buyers waiting in line. Yes, there could be trouble if one or more of the foreign sources abruptly interrupted its flow of supplies not just to us but the rest of the world. The price of oil would spike again. It is impossible to rule out a crisis of that sort. A devastating terrorist attack on Saudi Arabian oil fields, for example, could precipitate it. So could a willful decision by a country with an oddball ruler, bent on wrecking everyone's economy including his own. It is worth noting, though, that even the likes of Ahmadinejad and Chávez show no signs of pursuing a course so masochistic. The fortunes of their regimes depend on pumping oil, not hoarding it. Whatever the case, this much is clear: The effects of a disruption would be felt in the United States, like everywhere else, regardless of whether or not we are part of a particular supplier's clientele.

In sum, it is far from clear how much security is likely to be achieved by becoming more self-sufficient. Now, let us consider the other side of the ledger: what we stand to lose.

The Cost of Cobbling At Home

None of the skepticism expressed so far would be fatal if the search for independence had a minimal economic downside. Unfortunately, the added cost

of relying increasingly on homemade fuels is large.

Nearly all of what propels the nation's electric generators—coal, gas, nuclear power, hydropower and non-hydro renewables—is made in the U.S.A.

First, a few fundamentals. Seldom acknowledged amid the political rhetoric is that the United States of America produces the bulk of the "energy" it needs. True, imports of oil have increased (mostly because Americans choose to drive far more, and use much less efficient motor vehicles, than do consumers in other industrial countries), but imported oil is just one part of the picture. Nearly all of what propels the nation's electric generators—coal, gas, nuclear power, hydropower and non-hydro renewables—is made in the U.S.A. For example, in stark contrast to Western Europe, about 85 percent of our primary heating fuel, natural gas, is domestically produced (almost all the rest comes from Canada).

When we are told "we must reduce our dependence on foreign sources of *energy*," what does that mean? Is 70 percent self-sufficient too little? Is 80 percent the magic number, or 90 percent or 100 percent? More likely, the intent of the statement is: America purchases too much foreign *oil*. But even that proposition gets tossed about carelessly. Glance again at Figure 3, which delineates the various sources of the oil we import. The portfolio is very diversified. Nearly 90 percent of total usage is met by U.S. wells and those of suppliers outside the Middle East. Both our NAFTA trading partners supply us more oil than Chávez's Venezuela does, and they supply more than Saudi Arabia as well.

The unstable Middle East—that is, Saudi and other Persian Gulf production—meets less than 11 percent of America's needs. Whether you think that is a large share, or a comparatively small one (Japan, by contrast, imports nearly 90 percent of its oil from the region), it makes eminent economic sense. Saudi Arabia and other Gulf countries hold a comparative advantage; they are the world's lowest-cost producers. Not to purchase at least some portion of our crude-oil inventory from them—and instead, contorting ourselves to displace their oil with home-grown fuels—would be a little like me deciding to cobble my own shoes instead of "importing" them from a shoe store.

It is wasteful to insist on fabricating in-house commodities that we are better off acquiring through international trade. To cease trading for oil, including with various Middle Eastern sources, would be hopelessly inefficient, diverting scarce resources into fundamentally noncompetitive enterprises and leaving fewer for other industries—ones that could put those resources to more productive use. In the end, living standards are lowered, not secured, by a monomaniacal pursuit of energy independence.

Pause to ponder the U.S. ethanol industry. Some 3.9 billion gallons of ethanol were produced from corn in 2005. This is a drop in the bucket; it amounts to less than 3 percent of total gasoline sales. So many prominent politicians wish we would jack that quantity way up. But what these enthusiasts don't advertise is the cost.

Ethanol's energy content is appreciably less than that of ordinary gasoline: You need 1.5 gallons of ethanol to drive the same distance you would go on a gallon of gasoline. And if you allow for the substantial subsidy in effect since 2004, ethanol's expense clearly exceeds that of conventional gasoline. In the spring of 2006, for instance, the wholesale price of gasoline was about $2.20 a gallon. That of ethanol, counting the subsidy, was more like $3.16.[1] In some states, the figure is much more.

Some of this price premium might be worth footing if production of corn-based ethanol yielded a significant net reduction of greenhouse gases. Sadly, that is not the case. The lower emissions of carbon dioxide obtained by substituting corn for oil as the feedstock for motor fuel are largely offset by additional emissions of other pollutants, such as nitrous oxide, a potent greenhouse gas. (Nitrous oxide is a byproduct of the nitrogen fertilizer used to grow the corn.) Further, when ethanol refineries are coal-fired (witness the new big plant in Richardson, N.D.), their effect can be to add, instead of subtract, carbon emissions.

Because relying on corn-based ethanol promises, at best, only a minor mitigation of greenhouse pollution, biofuel advocates are exploring alternatives to corn grains—fuel derived from cellulose, for instance, or from soybeans, switchgrass or even an odd mixture of prairie vegetation. A team of ecologists at the University of Minnesota claims that an eclectic assortment of prairie grasses could offer a bigger environmental payoff; the root structure of this biofuel source, these experts say, acts like an efficient carbon sink.

We don't know enough about the economics of every imaginable substitute for corn. But we do have indications about some. The production cost of ethanol from cellulose, for example, presently surpasses that of traditional ethanol, to say nothing of traditional gasoline (see Figure 4). Spending so much for options like fuel-from-cellulose or soybeans, and consequently crowding out extensive acreage used for food production, can be justified only if the resources thereby diverted are really being allocated to their most-valued use. It strains credulity to stipulate that they are. Think of it this way: Doggedly devoting vast swaths of food-producing farmland to supply motor fuels effectively presupposes that society values filling the tanks of SUVs with the derivatives of grains, beans or other agricultural commodities more than ensuring affordable grocery bills for hundreds of millions of human beings.

Finally, pursuit of such perverse priorities also has wide-ranging political implications: It inspires a host of other lobbies to assert that they, like the ethanol coalition, have a legitimate part to play in the great energy-independence game.

The Energy Pork Barrel

To succeed without outsized subsidies, government policies to encourage homemade energy would have to be buttressed by a prolonged period of steep market prices for fossil fuels and also by a long suspension of politics as usual. Don't bet the ranch that either of these conditions will prevail.

Recall the original "National Energy Policy" that Bush had advanced earlier in his presidency. The ink on it was barely dry when market prices shifted unexpectedly. Natural gas, which had run to $10 per 1,000 cubic feet in early 2001, was closer to $3 by that summer and, for a while, headed lower. Crude oil prices plunged from about $30 a barrel in early September 2001 to around $17 a barrel by mid-November. Everywhere, including California, where spot prices of electricity had soared during that state's crisis in the first part of 2001, prices softened. Suddenly it looked as if Bush's plan, replete as it was with incentives to goose energy production, had run into the headwind of market forces. The plan's financial practicality, as well as its urgency, quickly faded. Presently, it looks as though a similar train of events—the current collapse of oil prices—will strand new proposals like those that more recently captivated Congress. Whenever energy prices tumble, as they have repeatedly, the government's latest best-laid plans are bound to follow yesterday's into the boondoggle bin.

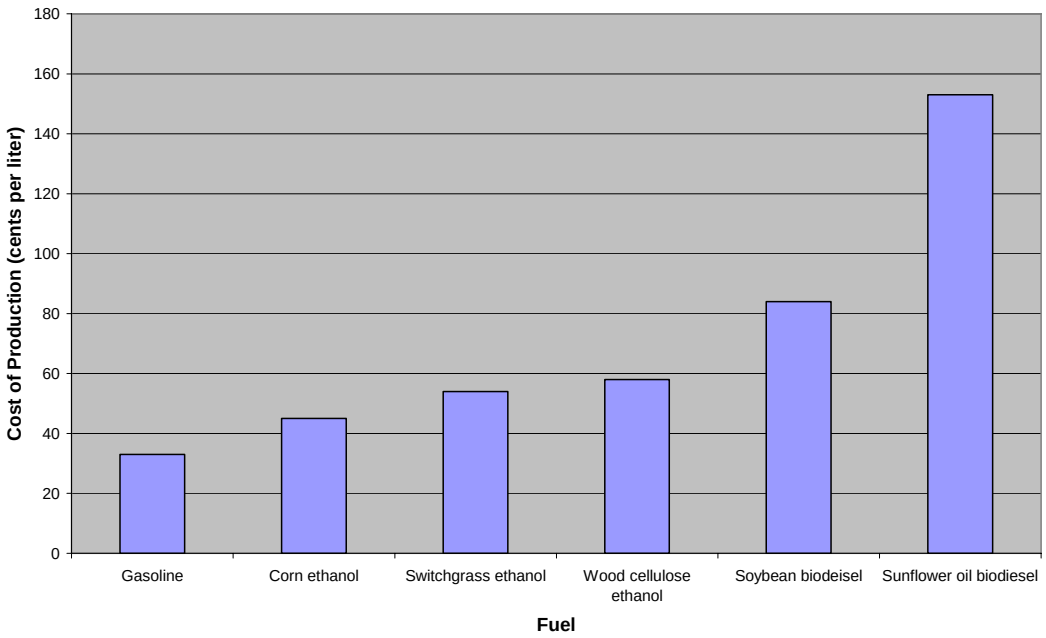
The caprice of the marketplace frustrates energy planning. So does the fact that legislative efforts to promote energy self-reliance are perforce politicized. During the troubled 1970s, the Carter administration mounted the most concerted and sustained campaign to enact a national energy plan. Scrambling to create the coalitions needed to pass a bundle of bills, Congress heard from almost all comers seeking a piece of the action. The queue of claimants included energy producers of nearly every shape and description but also other supposed stakeholders. Truckers, for instance, lobbied for extra incentives to pay for windscreens on cabs and trailers. The intercity bus-line industry sought to get its axles greased with tax benefits, on the grounds that using buses conserves oil. Barge operators on waterways lobbied to secure their own tax preferences, arguing that they, like the buses, were energy-savers. Even opponents of school integration got into the act; they labored to graft anti-busing amendments onto bills on the theory that those measures, too, would spare fuel. In the end, to be sure, not every lobby got its appetite satisfied. The prospect of federal subsidies and dispensations, however, had clearly invited a feeding frenzy by interest groups—and many would keep circling Washington for decades.

Thus, a quarter-century later, the pursuit of energy independence (or, for that matter, "security") remains vulnerable to similar political manipulation. Legislation before Congress in recent years illustrated the extensive logrolling. H.R. 3221 was stuffed with loans, loan guarantees, grants, procurement mandates or tax advantages for small businesses, green-building retrofitters,

railroads, bicyclists and electric vehicle manufacturers, as well as ethanol plants and planters, bio-diesel producers, renewable energy manufacturers, and developers of hydrogen technology and nuclear power.

Figure 4 estimates the costs of at least some of these alternate energy sources. They are uneconomic in comparison with conventional sources. At a time when the government is running up colossal deficits, devoting large sums of money to prop up the costly homespun alternatives for fossil fuels requires, at a minimum, a more compelling justification than just the mantra of "energy independence."

Figure 4: Cost of Production for Transportation Fuels, 2005



Bottom Line

Neither the economic nor the security interests of the United States are likely to be well served by any national energy strategy that force-feeds, in effect, a buy-American approach when international trade can meet a sizable share of our energy requirements at a lower cost. Time and again, events have vindicated this conclusion.

Does that mean there is no reason to rework the nation's energy policies? A serious effort to lower this country's level of carbon emissions—not just from the combustion of petroleum products but, also importantly, coal—*is* worthwhile, especially if it could encourage other big polluters (China, for example) to participate in a global assault on greenhouse gases. That's because climate change—unlike "foreign oil"— indisputably is a problem, one beckoning for

every major economy to take action.

The actions required to combat climate change, however, are rather different from the policy biases that have long dominated Congress's energy agenda. More support for ethanol production or reliance on flawed conservation programs, such as America's corporate average fuel economy (CAFE) regulations for motor vehicles, are not steps in the right direction. Instead, a serious energy initiative to slow global warming would include a genuine inducement to curb the burning of all fuels that warm the earth's atmosphere. That inducement is called a carbon tax.

[1] Michael B. McElroy, "The Ethanol Illusion," *Harvard Magazine*, November-December, 2006.

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