

Turning Oil into Salt

How to reduce the strategic importance of oil and why it must be done

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Until the end of the nineteenth century salt was one of the world's most strategic commodities. As the only means of meat preservation, it was fundamental to national economies. Salt mines conferred national power and wars were even fought over their control. Countries that controlled salt aimed to keep production tight and prices high so as to extract maximal revenue for their treasuries. As Mark Kurlansky notes in *Salt: A World History*, some 2300 years ago a Chinese government minister purportedly advising his ruler emphasized the power that the importance of the commodity yielded to his state by saying that “in some non-salt-producing areas people

are ill from the lack of [salt] and in their desperation would be willing to pay still higher prices,” and concluding that “salt has the singularly important power to maintain the basic economy of our state.” Eventually, competing means of preserving food - canning, electricity and refrigeration - decisively ended salt’s monopoly over food preservation and with it its strategic importance.

Petroleum today occupies the strategic ground that salt did many years ago: just replace salt in the above anecdote with oil and China with Saudi Arabia. The U.S. consumes a quarter of the world’s oil yet has only 3 percent of the world’s conventional oil reserves. As a result, it imports some 50 percent of its oil and

this figure is growing. Because the vast majority of the world's oil is controlled by regimes that are undemocratic and/or hostile to the U.S. this dependency undermines U.S. national security. There are also concerns about the negative impact on American interests of China and India's growing demand for energy. The two countries' foreign policies are increasingly driven by the need to secure their energy supply, often at the expense of vital U.S. interests. Oil dependence also impacts the U.S. economy. Oil crises over the last half century – including the last one - have generally been followed by economic downturns. As oil prices approach \$100 a barrel, the International Energy Agency (IEA) has warned that, again, “oil prices are entering a dangerous zone for the global economy.” Oil imports constitute a full half of the U.S. trade deficit. At current oil prices more than one billion dollars –

money that domestically could have created jobs and investment opportunities – is daily transferred overseas to finance America's petroleum requirements.

It's not about imports, it's about salt.

It's not about electricity, it's about transportation.

Oil's status as a strategic commodity does not stem from the magnitude of petroleum imports. The U.S. uses more salt now than ever before, yet nobody is particularly concerned about the magnitude of U.S. salt imports. In 2008 the UK produced most of the oil it needed, yet the global oil price spike affected all consumers, including those in the UK, where it resulted in protests by frustrated truckers. Just as salt's strategic importance derived from its monopoly over food preservation, oil's derives from its virtual monopoly over

transportation fuel. Transportation, not electricity: since the 1970s, the U.S. has weaned its power sector off of oil. Today only 1% of U.S. electricity is generated from oil and only 1% of U.S. oil demand is due to electricity generation.

A strategic commodity dominated by a cartel

In addition to oil being a strategic commodity, oil reserves are dominated by a cartel - the Organization of Petroleum Exporting Countries (OPEC) - which by its very nature is engaged in a deliberate effort to manipulate production to drive up world prices in order to maximize the revenue of its member regimes. Incredibly, despite the fact that OPEC controls 78 percent of world oil reserves and even though the global economy and non-OPEC production have roughly doubled since

the 1980s, the cartel today produces not much more oil today as it did then, about 31 million barrels a day (mbd) accounting for 36 percent of world petroleum supply. OPEC's flush-with-petrodollars members seem unconcerned by the pain inflicted on the global economy by oil's periodic meteoric price rises. OPEC has repeatedly claimed it holds significant spare production capacity. This claim is impossible to verify, thanks to OPEC's notorious lack of transparency. If true, it means OPEC could when prices spike inject a significant amount of oil into the market almost immediately, dropping prices significantly. But this is not what the cartel is after.

Diversifying countries of origin is not enough

Changing the mix of countries the U.S. imports oil from will not insulate the

U.S. economy from oil price spikes, because oil is a fungible commodity. Think of the oil market as a swimming pool: producers pour oil in, consumers take oil out. It is a global market, with a global price. Supply disruptions by terrorists, OPEC decisions to reduce production quotas, affect the price for the entire market and damage the economies of all net importers, regardless of a particular country's particular mix of oil suppliers.

Reducing the strategic importance of oil: tactical approaches aren't sufficient

Historically the U.S. has since the Carter Doctrine focused from a foreign policy perspective on ensuring uninterrupted access to oil including by military force if necessary, and from a domestic policy perspective, on policies that increase either the availability of petroleum or the

efficiency of its use. These approaches are tactical rather than strategic. Reducing oil demand through fuel economy absent competitive markets - in transportation fuels, transportation modes, or both - while it serves to reduce the trade deficit as well as emissions, is insufficient to change the strategic status of oil or the influence of OPEC. When oil-consuming countries reduce net demand (or increase non-OPEC production), OPEC can respond by throttling down supply to drive prices back up. The 2008 oil price spike provided a good example of how OPEC responds to reduced demand. Oil soared to \$147 a barrel, and gasoline and diesel prices at the pump increased accordingly. Consumers, responding rationally to higher prices, drove less. In response to weakening demand, OPEC cut production by 3mbd in an effort to send prices back up.

Needed: a competitive market

To fully de-fang this cartel, consumers must have viable choices that enable them to respond quickly to changes in oil prices, rendering the cartel's machinations ineffective. Drivers can't rapidly change the fuel economy of their vehicles, but, with vehicles that enable fuel competition if they choose to do so they could quickly change what fuel their vehicles use.

A competitive market among transportation fuels would place a de facto ceiling on the price of oil once market penetration of vehicles that enable fuel competition is sufficiently high: If oil surpasses the threshold price at which competing fuels are economic (on a cost per mile comparison,) then consumers whose vehicles enable choice will prefer to purchase these competitors. Consumers faced with high

petroleum fuel prices could immediately choose to fuel with substitutes.

Fuel competition

For a cost of roughly \$100 extra as compared to a gasoline-only vehicle, automakers can make virtually any car a flex fuel vehicle (FFV,) capable of running on any combination of gasoline and a variety of liquid fuels, made from a variety of feedstocks. As one example, the liquid fuel methanol, a globally traded commodity primarily made from natural gas and coal, has a spot price of around \$1.10 a gallon. Accounting for its lower energy content as compared to gasoline, and adding costs of distribution, taxes, and a retail markup, at today's prices it would cost the consumer approximately \$3.00 to drive as far on methanol as on one gallon of gasoline, a significant cost savings. This fuel can also be made from biomass and

in the future, perhaps recycled carbon dioxide. Should the economics of natural gas in the U.S. remain favorable due to progress in shale gas extraction, delivering that natural gas to the vehicle would be most economic from an infrastructure and vehicle perspective if it is converted to methanol and vehicles are flex fueled. Flex fuel vehicles can handle a variety of alcohols, including ethanol.

Flex fuel vehicles provide a platform on which liquid fuels can compete, thus placing a variety of commodities in competition at the pump and letting the market determine the winning fuels and feedstocks based on economics: comparative per-mile cost. The proliferation of flex fuel vehicles in Brazil has driven fuel competition at the pump to the point where in 2008, when oil prices were at record highs, more ethanol was used in Brazil than gasoline.

Drivers in Brazil were able to defend themselves from high oil prices by choosing a different fuel: they compared the relative per mile costs of ethanol and gasoline, found that ethanol was less expensive, and adjusted their fuel purchase choice accordingly.

An Open Fuel Standard which ensures new cars are gasoline-ethanol-methanol flex fuel vehicles thus serves as a low premium insurance policy against excessive oil price rises and is a critical policy to breaking oil's virtual monopoly over transportation fuel and thus reducing its strategic importance.

Electric cars and plug-in hybrid electric vehicles (PHEVs) place electricity - which in most oil importing countries is for the most part not generated from oil - in competition with liquid fuel. Vehicle electrification holds great promise and should be viewed as complementary to liquid fuel choice. Combining the

technologies into flex-fuel plug-in hybrid electric vehicles enables electricity and alcohols from a variety of energy sources to compete against petroleum based fuel every time the consumer makes a fuel purchase.

Such competition will not only drive down the price of oil, it will also alter the geopolitical balance of power in favor of oil importers and developing countries with resources to become producers of fuels that compete with petroleum-based gasoline and diesel.

As economic growth resumes and the global appetite for oil grows, we can expect prices to hit record highs again, to the detriment of the global economy. A fleetwide deployment of vehicles that enable fuel choice could take place relatively quickly. But such a transformation will not happen without committed leadership and government

action to work in concert against anti-market forces and coercion by non-democratic energy exporters.