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Essay by **William Hogan**,
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Energy interdependence is a core fact that should guide policy for energy security. This stands in sharp contrast with the oft repeated calls to seek energy security through energy independence, vaguely conceived in the United States as somehow disconnecting the nation from the world energy market, especially the market for oil. From the announcement of Project Independence by President Richard Nixon, who set out a goal of zero oil imports by 1980, to the asserted policies of both candidates nominated to succeed President George W. Bush, eliminating dependence on foreign oil has been a rhetorically prominent policy goal. However, despite the repeated calls for reducing oil dependency, U.S. oil imports actually rose from 35 percent to 58 percent of products supplied.

The failure to achieve energy independence is best seen not as a failure of policy implementation. The whole enterprise was misconceived from the beginning. It soon became clear that eliminating oil imports for the United States would not be realistic, and the stated goal ignored fundamental characteris-

tics of the world energy system. The problem was not dependence on oil imports. If imports alone were a problem, then the whole enterprise of expanded world trade in even more essential commodities like food would be called into question. The reality was inescapable vulnerability to energy shocks because of events that could shake the stability of oil producing nations.

Geology constrains us all, and the geology we are blessed with has much of the large volumes of low cost oil and natural gas deposited in geographic regions like the Persian Gulf where governments are currently or potentially unstable. In some cases, such as with the Chavez regime in Venezuela, instability is coupled with hostility towards the policies of the United States. In other major oil producing countries like Nigeria, the curse of oil abundance breeds domestic political problems that undermine good government and precipitate interruptions in oil supply.

Although there are ample endowments of oil and gas in the world as a whole, including large deposits of tar sands and other non-conventional supplies, the deposits of cheap oil and gas are disproportionately located in trouble spots. Production is under pressure from the growing demand for oil and natural gas to satisfy the needs of large

economies in developed countries, and to slake the booming thirst of developing economies like China and India. The growth in world demand is evidence of good news, part of the process of lifting hundreds of millions out of poverty, but the confrontation with limited supplies of easily accessible oil precipitated record world oil prices.

The forces of supply and demand work slowly in energy markets, but the forces are relentless. Through a combination of improved efficiency and increased supply, leveraged by the high cost of reduced economic growth, record high prices for imported oil will be followed by a correction. But the drop in oil prices is not likely to be all the way down, and the cycle will return to higher prices.

To a good approximation, oil flows in a world market and events anywhere affect the price of oil everywhere. There is no escaping these oil price shocks. Even if the United States were to substantially reduce its own oil consumption, there would be no immunity from the effects of high world oil prices that would determine domestic energy prices and ripple through the world economy.

In addition, the flow of huge revenues through the oil coffers of hostile governments would not be much affected by the oil policy of the United States. A heroic effort to reduce oil imports could have some effect on world oil prices, but not enough to choke off the revenues to conventional oil

producers. If anything, the impact at the margin would fall on the marginal sources of supply, which for a long while would be the expensive unconventional oil supplies of more stable regions, rather than the much cheaper conventional oil reserves. Hence, the impact of reduced world oil demand would fall more on tar sands producers in Canada than conventional oil gushers in the Persian Gulf. If we are worried about how oil producers are spending their money, reducing world oil demand is a blunt instrument of policy.

Beyond petroleum, political rhetoric supporting climate change policy has been adapting to include global warming and its effects under the rubric of energy security. Greenhouse gas concentrations are increasing, and the consensus analysis sees a warming planet and changing climates. The impacts of climate change are likely to be unevenly distributed throughout the world. Some low lying regions might face catastrophe from a significant rise in sea level or greater incidence of violent storms. By contrast, colder regions might see net benefits. Hence, in addition to the potential negative consequences on average, the disparities across the globe could be a source of conflict among nations.

Gathering climate change under the rubric of energy security would reinforce the central theme of interdependence. The concentration of greenhouse gases in the atmosphere is a global problem, and emissions of greenhouse gases anywhere affect the

concentration everywhere. The problem of global warming is the extreme example of an externality where the benefits of emissions are concentrated and the costs of climate change are widely dispersed. For the climate, there is no energy independence.

Going further, there are the matters of war and peace. International security is connected to control of energy resources. Japan's worries about oil security contributed to World War II. Saddam Hussein's invasion of Kuwait presented the motivation of acquiring control of large oil deposits. The two Iraq wars that followed were motivated in part to prevent strategic use of oil revenues for purposes inimical to international security. The resort to arms, rather than energy policy, reflected the difference between sharp and blunt instruments. Oil underground in the Middle East makes everything that happens above ground of greater importance for geopolitics and security that goes well beyond energy policy narrowly defined. And the development of the nuclear alternative to oil and gas raises profound security concerns dealing with proliferation of nuclear weapons.

Starting with an emphasis on energy interdependence would produce an energy policy perspective without the focus on reducing oil imports. An organizing principle would be to strive to make energy more like an ordinary commodity. Capturing wealth for citizens is an obligation of governments in oil and gas producing countries, but it is not synonymous with creating a gov-

ernment monopoly. Commercialization of state-owned companies and resources is better than treating energy as a strategic sector. Providing transparency of revenue flows and stabilization through investment funds would help towards mitigating the curse of energy abundance. Liberalizing energy markets to allow entry and competition would be better than just commercialization. Integrating energy in normal trade relations would help advance the robustness and flexibility of the energy system. Regulating energy in ways that support markets would minimize the costs of government control.

A significant contributor to growing world oil demand is the policy of oil price subsidies adopted by many oil producers. Saudi Arabia, Iran, Venezuela and many others provide gasoline to their domestic markets at a fraction of the value of the oil if exported. Indonesia has seen its domestic oil subsidies contribute to its conversion from a net oil exporter to an oil importer, with now dramatically different interests in the world oil market. A general policy of rationalizing energy prices within producing countries would provide a long run economic benefit to those countries and contribute to energy security throughout the world.

The European Union initiatives in energy markets illustrate the direction of a policy recognizing energy interdependence. The European policy is to liberalize and integrate energy markets. The technical details of markets and institutions, especially in the case

of electricity, are formidable but do not present insurmountable obstacles. But success depends in part on Russian adoption of compatible policies for trade in natural gas and oil. Recent concern over threats to energy security arising through Russia's expansion of government control of its energy sector and disruption of supply to its subsidized neighbors illustrates the dangers of energy politicization and the advantages of making energy a normal traded commodity and not a strategic asset. The European response has been to press Russia to adopt more open and commercial energy policies. The success of these efforts is uncertain, but at least it is an attempt to address the fundamental issues.

The extension to climate change policy reinforces energy interdependence as the better policy framework. Action by one country is almost irrelevant if it is not accompanied by similar policies across the critical mass of everywhere else. Furthermore, it matters not at all where reductions in greenhouse gas emissions occur. Renewable energy targets by state are much less efficient than equivalent targets by the nation, and national targets are less efficient than a target for the world as a whole. The focus on reducing oil imports has produced the policy of taxing ethanol imports from Brazil and subsidizing domestic U.S. production. By contrast, from an energy interdependence perspective, cheaper ethanol production from Brazil would be seen

as enhancing security. Trade in renewable energy and emissions reductions should be the norm, not the exception.

Energy is important, but energy independence is a dangerous myth. The U.S. National Petroleum Council recently observed: "There can be no U.S. energy security without global energy security." Geology and politics make the world deeply interdependent and policy should be crafted to promote and secure energy interdependence. Real energy security comes from robust energy systems with diversity and flexibility, not through isolation and energy autarky.

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