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GLOBAL POLICY RESEARCH INSTITUTE INTERNSHIP POLICY BRIEF
ENERGY INDEPENDENCE IN THE USA

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BACKGROUND

During President Barack Obama's first term and throughout the recent presidential campaign, there was much discussion about becoming energy-independent as a nation. Indeed, one of the most pressing issues facing the country today is our energy future. This is especially a concern in areas where mainstream energy sources (coal, gas, oil) do not exist, and thus must be imported. Many believe that this is a problem that communities and states are better suited to tackle than the federal government due to the flexibility and knowledge of state policy initiatives. In this brief I will propose a variety of measures that could be taken to shift Hawaii to an energy-independent future.

Governor Neil Abercrombie of Hawaii recently stated, "Hawaii's most important economic enterprise right now is to pursue energy independence. We will retain a major portion of the billions of dollars that we now spend on imported oil so that we can reinvest it here at home." Currently, the state of Hawaii imports $5 billion annually, mostly oil, to provide fuel and to power electricity throughout the islands. As a result, Hawaii has the highest electricity costs and gasoline prices in the nation. These above-average and rising costs have led to the desire—the need, actually—to become energy-independent. Yet a comprehensive plan on how to realize that end has not been developed. Some of the major reasons for the failure to develop a viable and comprehensive policy are economic challenges, concern for the natural environment, and a lack of consensus on how to address and redress these concerns.

CHALLENGES

This issue goes beyond the need for energy self-sufficiency and a desire to protect the environment; it is tied to all aspects of society. Though many citizens and the government see the need and have the desire to move to a renewable energy future, the lack of effective technology and the cost of current energy practices impede the change. The geographic fact that the state as a whole is not contiguous makes it difficult to generate electricity efficiently using a single source. Each of Hawaii's four major islands has its own power sources and an independent grid, which in turn powers the smaller neighboring islands.

Notwithstanding current efforts to develop more efficient solar utilization, current solar technologies cannot generate as much energy as can be produced from oil, and though developments in solar technology have shown some promise, this form of energy is still years away from being ready for widespread and efficient use. Wind farms, yet another energy alternative, are expensive and are considered to be an eyesore by some. Hawaii lacks a company that produces wind turbines, so these, too, would have to be imported. Both solar and

wind have problems with intermittency, and developing methods to store large amount of energy economically are still ongoing but have proven elusive.
Hawaii has proven to be a rich laboratory to do research on algae, wave, geothermal, and tidal power alternatives. However, all of these forms of energy are still in emerging stages, and if large amounts of research and development money go into developing these alternative forms, it could impede the development of other more fiscally responsible approaches to energy self-sufficiency. Though in the long run it is more economical for Hawaii to move away from imported oil, the upfront cost of switching to other sources makes the transition difficult.

Further complicating the state's goal of energy self-sufficiency is the matter of a growing and constantly changing population. Because Hawaii has a large military presence and a booming tourist trade, island population fluctuates, producing inconsistent demands for gas and electricity. Growing political subdivisions and expansions are utilizing alternative energy sources, such as solar panels, to compensate for fluctuating energy demands. Hawaii also has high transportation costs, due to flying to and among the islands and a lack of a well-developed public transportation system. Though plans for a rail to be built will help relieve an overloaded traffic infrastructure and, by extension, the amount of energy used, the current mind-set of residents is to drive instead of utilize available public transportation.

Hawaii is unique because of its culture, where many people believe in taking care of the land, and the phrase "Keep the Country, Country" is alive and well. Though people want to be less reliant on expensive energy, harmful environmental consequences of various forms of alternative energy sources deter people from taking action. By utilizing geothermal and tapping into the volcanic energy that is ample in Hawaii, there is concern that the equipment will anger the Hawaiian volcano god Pele. Cultural assumptions and concerns have become a large reason why there has been a lack of expansion in the renewable sector.

POLICY HISTORY

In 1977, there was a plan developed that would have made Hawaii energy-independent by 2010. That policy objective has not been realized, and there has not been any subsequent comprehensive policy that has been formulated to update and replace the 1977 program. Recently, there have been a few limited initiatives that address energy efficiency and are gradually moving the state to renewable energy sources. The first was the Clean Energy Omnibus Act, passed in 2009. This was an agreement between the state of Hawaii and the US Department of Energy. The bill calls for a 30 percent reduction in energy use and an increase of renewable energy use to 40 percent by 2030. Hawaii currently produces 12 percent of its energy from renewables, and the first benchmark set by the act is 15 percent by 2015.

The second act is the Solar Water Heater System Requirement, enacted in 2009. This legislation requires single-family homes built after 2010 to have solar water heaters. Finally, the Renewable Energy Technologies Income Tax Credit, enacted by the Hawaiian legislature in 2009, provides personal and corporate tax refunds up to 35 percent for solar equipment and 20 percent for wind turbines.

Various nonprofit organizations, including Life of the Land, have put together plans for energy independence focusing on renewable energy sources, expanding research in tidal and ocean thermal, and increasing energy efficiency. Another, similar initiative is the Ku`oko`a alternative energy plan, which would move Hawaii to be energy-independent in ten years. This plan focuses on geothermal, solar, and wind power. Taken one with another, the proposals are designed to be sensitive to cultural assumptions and environmental concerns.

POLICY ANALYSIS

Cost-Benefit Analyses:

To assess the economic challenges and feasibility, the state would have to begin with a cost-benefit analysis. For example, it would compare the energy benefits of everyone buying solar panels to power their homes in order to stop relying on oil-produced energy in relation to the long-term costs. Hawaiian Electric (HECO) producing all energy from wind farms or biofuels would also be evaluated. This would be a comparative approach to decide how to move forward. Cost-benefit analysis could also be used to create policies to which people "hypothetically consent." Alternatively, the person, group, or corporation with the most logical and persuasive argument on what would be best for the state and its energy future should assist the government in implementing that strategy. It would then become an issue of finding this "best argument."

Ending Subsidies and Tax Measures:

The cost of importing oil is made cheaper than wind and solar energy sources because transportation costs are subsidized. However, curtailing these subsidies could unwittingly lead to worse environmental conditions and the existence of greater economic disparities (Templet 2003). That is, the government could eliminate these subsidies, it could implement taxes or fines on HECO for every kilowatt of energy created by imported energy sources, or it could tax the companies importing the sources. According to Pigouvian analysis, these solutions would either make importing oil less economically attractive or companies would just pass along the cost of these taxes and fines to the rate payers, dispersing the fees over the masses (Sagoff 2004). Alternatively, the government can tax citizens who use oil-created energy, instead of those who produce energy from alternative sources. Yet if oil became too expensive too quickly, alternative sources would not be in place at that time, which could result in a statewide economic crisis. Setting a technological and economical foundation for a shift away from imported energy sources is vital before substantive efforts to discontinue oil imports.

Energy Cooperatives:

The state of Hawaii could make electricity a common property item. Everyone in a subdivision would contribute to purchase solar panels to be installed throughout the subdivision, or to the creation of a solar panel field, the electricity of which would be evenly distributed across the development. This issue is whether this small-scale system could be extrapolated and applied effectively to the larger regional community as a whole or to a single island. Cole (2002) lays out proposed developments that would result in successful common property systems and describes what type of people are likely to organize to support and create such a system.

The larger, more problematic question is whether this approach is feasible on a statewide basis. A single island of Hawaii varies in population, because of the fluctuation of the massive tourism and the growth and ebb of military industries. Assuming there could be a shared sense of benefit (and most islanders are very alike), and with energy independence an important issue to most people, this approach might prove feasible. For example, everyone would invest to build a wind farm, and in return, each household would have an allowance of how much electricity they are allowed to consume without charge. This would turn the wind farm and the electricity it generates into a common property system. Yet common property systems are regulated by the

shared norm of reciprocity. If one member of the community decided to exceed the household's monthly quota of electricity, theoretically, they would be liable to penalties imposed by other participating members. Thus the norm of reciprocity and mutual, individual cooperation does not seem feasible on a large-scale regional or statewide basis. Effective enforcement would be most effective if left to private or public ownership, which by extension would undercut the principle and practice of a consumer-driven common property system.

Even on a more modest scale, the common property system proves to be problematic. Not every household may be able to afford a solar panel, which would limit if not preclude adequate electrical power for that household. If some homeowners were able to generate an amount of energy in excess of their household quota, theoretically, they could sell it to their more needy neighbors at extremely high prices.

Government-Driven Initiatives:

The Hawaiian government could help regulate and resolve these issues by implementing and utilizing market-based systems. Instead of taxing groups for doing something the government does not want (importing oil and energy dependency), it could give incentives to individuals to do things the state desires (energy self-sufficiency). By providing grants or tax breaks to homes that install solar panels, the government could encourage Hawaiians to transition to different sources of energy. To enact this type of policy the government would need to find a way to fund these initiatives. By ending transportation subsidies to imported oil, the government could reallocate those funds to individual and block grants and tax breaks. Alternatively, the government could increase individual taxes in order to provide solar panels to communities. Both these state-driven solutions raise questions in the first scenario of who receives the tax breaks, and in the second scenario, what should the tax rate be and would Hawaii citizens be willing to share the burden for a presumed common good?

CONCLUSION

All proposed state-level solutions are imperfect and come with disadvantages. Each begs the question of whether becoming energy-independent is something that an individual unit needs to do, or is it a societal movement? If the "best answer" is taken, on what commonly agreed criteria does the government decide which solution is the best? The government could use eminent domain to create a wind farm. On the other hand, Hawaiians themselves could be involved in various ways in the development of the state's energy future. Community groups or Hawaii-based nonprofits could fund research for energy produced by algae or ocean power, for example. On the other hand, civil society or collective involvement may also prove to be a double-edged sword, (Aldrich and Crook 2008), opposing and forestalling any commonly agreed approach resolving the state's dependency on imported oil. The destruction of natural beauty by wind farms and possible harm to native plants and animals by algae or ocean power could prevent communities from allowing these technologies to be developed. Nevertheless, civil society would have a large say in what forms of energy Hawaii decides to move to, where to create the energy source, and who develops the source. Civil society may shape the policy that is formed and be the body that decides which solution is the best.

I think that Hawaii needs to use an "all of the above" approach to become energy-independent. Some communities can choose to grow biofuel in their backyards and share the energy produced by it. The government can decide to tax oil imports to make them unattractive, slowly increasing the rate, while at the same time incentivizing individuals to produce their own energy through solar panels. The government can require HECO to have a certain percentage of their

energy produced through alternative sources by purchasing wind farms, or requiring them to fund research into viable efficient sources. I believe that every approach has its benefits and every solution has its flaws. By mixing various solutions, Hawaii can maximize the benefits while minimizing the flaws.

States have the ability to implement flexible policies that relate specifically to the needs and resources of the area. Because of this, states, in collaboration with civil society and the local private sector, are more fit to secure energy independence than a federal policy. The state can utilize various strategies of policy including regulations and market-based approaches to do what is best for Hawaii specifically.

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