

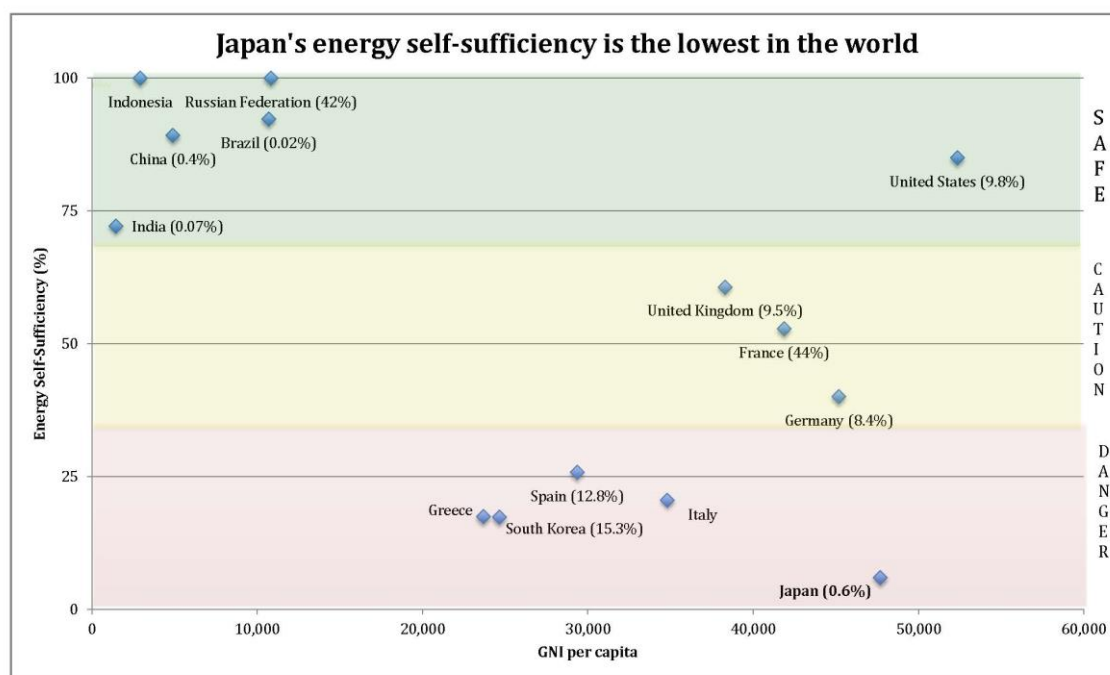
Japan Chair Platform

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Japan Energy Security Post-Fukushima

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Japan has built a commendable energy security program since the 1973 oil embargo, but the Fukushima accident and complete halt of nuclear power threatens Japan's economic competitiveness, environmental quality, and ultimately Japan's national security. The overall trade surplus is up, and harmful environmental emissions are rising. Japan's energy self-sufficiency is the lowest among industrialized countries, and as the chart below shows, compared to other nations Japan ranks among the highest in terms of gross national income (GNI) per capita but the absolute lowest in terms of self-sufficiency.



ⁱ The percentage beside each country name is the ratio of nuclear energy in the total primary energy supply, from the 2013 IEA Energy Balances for OECD and non-OECD countries.

ⁱⁱ Source of energy self-sufficiencies and nuclear share: 2013 IEA Energy Balances for OECD and non-OECD countries.

ⁱⁱⁱ Source for GNI per capita (Atlas method, current US\$): World Bank

^{iv} The IEA Energy Balance 2013 projections for 2012 were used for OECD countries. The IEA Energy Balance non-OECD 2013 data were plotted for 2011 (no projections exist for 2012). The GNI per capita figures selected for these countries are therefore relative to the 2011 and 2012 self-sufficiencies.

^v The IEA projected small nuclear share in 2012 is from Oh's operation from July 2012 through September 2013 (No.3 & 4, 1.18GW respectively).

If one examines the clusters of countries closer, it is clear that European nations possess wealth as well as relative self-sufficiency given North Sea production, the French nuclear program, rising investment in renewables, and energy conservation. Geographically, Europe is connected not only with energy grids but the comfort of NATO. The United States is achieving near self-sufficiency, while enjoying a high quality of economic wealth.

But Japan—virtually 100 percent dependent on energy imports except for local hydro—is geographically isolated and an inviting future target for political and market manipulation by energy producing countries. As a national priority, it is my

view that Japan should restart its nuclear power plants, make efforts to replace oil in the automobile sector, and seek a national goal of 33 percent energy self-sufficiency by the year 2030. This requires expansion of renewable energy sources, maintenance and growth of nuclear power, and vigilance in *mottainai*, the Japanese concept of conservation.

The Japanese public remains concerned about nuclear safety, and this is legitimate given the horrors surrounding 3/11. But energy security has and will require risk taking. No energy source is completely safe. Consider coal's impact on health. Recognize that 61,000 U.S. soldiers have been killed or injured in wars in the Middle East and Afghanistan since 1991. And remember that the pricing of energy does include these externalities—health, safety, and war. As U.S. energy independence increases with greater domestic production of shale gas and oil, it is no wonder that the war-weary public wishes to withdraw from its overseas obligations. This is a major topic of NATO, and it should be a major concern of Japanese national security and economic leaders. If one considers the “real cost” of oil imports, prices could rise to as high as \$300 per barrel for U.S. consumers, who not only pay the energy price but the security price in terms of defense budget and cost of lives.

Today, almost 90 percent of Middle East oil exports is headed to Asia—a reversal of the situation of the 1970s when most oil went to Europe and the United States. And as the world grows, it is clear that most of the new energy demand will come from industrializing countries that seek higher quality of life and the fruits of economic success. Competition for energy will remain a priority for nations such as China and India.

On the supply side, we do however see opportunities for energy development in less politically volatile nations. As Japan restarts its nuclear power program, it can also draw on resource rich and dependable nations such as Australia, Canada, and the United States. Japan can diversify its sources to include more renewables and coal. However, the fact remains that Japanese energy security will be incomplete without nuclear power. The restart of nuclear power will require completion of the Rokkasho reprocessing facilities and the greater use of mixed oxide (MOX) fuel in nuclear reactors, thereby reducing Japan's plutonium surplus in line with nonproliferation objectives.

A key issue confronting Japanese policymakers is enabling nuclear power during a time of greater electric utility deregulation. Costs of decommissioning older plants, as well as support for completion and startup of Rokkasho, should be factored into corporate, regulatory, and government planning. One example is the operation of U.S. national laboratories, which operate as a government owned/contractor operated (GOCO) partnership. “A GOCO partnership allows each partner to perform duties for which it is uniquely suited: the government establishes mission areas while the private sector implements the missions using best business practices.”¹

It is recognized that the Japanese public is recovering from the shock of 3/11 in much the same way that it has taken a decade for the United States to recover from 9/11. These two events were shocks to our societies. They should not be underestimated, and public opinion should be respected. As a father of a son that was a doctoral candidate at Kyoto University in Japan during 3/11 and for the three years following, I was certainly concerned about his safety and health. I sent anti-radiation pills to him and was glued to the television set in the aftermath of the Fukushima accident.

At the same time, I was grateful that he was actually quite safe in Japan and thought of the other mothers and fathers who had sent their sons and daughters to conflicts in Iraq and Afghanistan, never to return. Sadly, energy security has a price not only in terms of money but lives. And one might ask the question: would a parent want his child living near a nuclear power plant or engaging in peacekeeping by patrolling the Strait of Hormuz and protecting U.S. interests in the Middle East.

Japan is a strong nation, one that has shown strength over the last 70 years in successfully recovering from World War II and the events of 3/11. As Japan faces the future it will encounter historically significant opportunities. The population of the planet will increase from 7 to 10 billion people by 2100. 2 billion people do not have electricity today. That means that the world will need to build infrastructure for 5 billion new consumers within the next 80 years. Accompanying the growth will be the greatest expansion of the need for consumer products the world has even seen. Imagine the number of autos, appliances, stoves, refrigerators, air-conditioning units, and flat screen televisions the world will need, recognizing that Japan produces the most efficient products offered globally. Japan can succeed not only by helping itself but by helping global consumers obtain clean energy and efficient products.

Finally, the U.S.-Japan alliance must remain strong as it remains the most important bilateral relationship in the world. At every stage, the United States and Japan should work together to generate clean and safe energy, to collectively form business relationships to take advantage of the huge economic growth that will be experienced in the coming years, and to finally achieve “peace through strength”—a nice motto from the early days of Ronald Reagan and Yasuhiro Nakasone. Achieving this will require Japan to invest heavily in its own energy sector to achieve 30 percent self-sufficiency. By doing

¹ Sandia National Laboratories, “Government Owned/Contractor Operated Heritage,” <http://www.sandia.gov/about/history/goco.html>.

so, new opportunities will be present themselves not only Japan, but to U.S.-Japan relations and ultimately improve global safety, prosperity, and security.

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