

Micronesia distributed energy systems

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The bad news is that Micronesia has an energy problem. The good news is that Micronesia has the opportunity to solve that energy problem while improving quality of life, expanding economic opportunities, and preserving traditional cultural values for Micronesians. One of the keys to Micronesia's future is renewable energy. This means energy from sources that grow back or renew themselves. Micronesia is blessed with sun and wind, rain and mountain, ocean waves and depths; all sources of renewable energy for those with the wit and will to harvest them.

Energy from sources such as gasoline or diesel is not renewable because the petroleum they are made from formed over millions of years (hence 'fossil fuel'). Once the current supply of fossil fuels is gone, it's gone forever. Micronesia has no fossil fuel resources, so every gallon of fossil fuel we burn is imported. Many oil-exporting countries, or the supply routes the refined fuel must travel through, are politically unstable; any upset along the way causes shortages and higher prices here.

Micronesia has become addicted to imported fossil fuels. The supply of this 'drug' is becoming more expensive. Just as an addict will do anything to secure the next 'fix', so Micronesia will be tempted into unwise choices if it remains dependent. The wise choice is to kick the habit now, to immediately begin reducing Micronesian dependency on imported fossil fuels.

In 2002 (the last year for which the FSM government has released official numbers) the FSM imported nearly \$15 million in fuels and lubricants, including gasoline, oil, diesel, kerosene, and aviation fuel. Even if demand remained flat, projecting the costs using the known increase in price would put 2006 imports into the range of \$27 million – over a third of Compact funding (\$79 million for 2006).

It's going to get worse. Most experts agree that we have already passed "peak oil" and that global oil production is on its way down, never to recover. Increasing demand and diminishing supply will continue to push prices higher. What will life in Micronesia be like five years from now, when gasoline is \$10 a gallon on the main islands?

Micronesia is on a slippery slope to lower quality of life and reduced economic opportunities, but there is still time to reverse these trends. We need wisdom and foresight. We need to have a social conscience: What is best for the people of Micronesia? We need open-mindedness, to be willing to consider new ideas. We need generosity, to be willing to give up profits and graft from fossil fuel imports. Greed, sloth and stubborn ignorance will condemn us to a downward spiral.

One should probably not take advice from an 'expert' who repeatedly confuses Indonesia with Micronesia. The challenges and opportunities of these small islands are unique, and call for solutions that have been overlooked, devalued or discarded by conventional experts.



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Conventional energy experts tend to favor large, centralized projects. When the US Army Corps of Engineers surveyed Pohnpei for hydropower potential, they found three sites where they could build huge concrete dams – then concluded that it wasn't worth the bother. They failed to identify the hundreds of sites that can each be tapped to provide microhydropower for a few homes or a village, without constructing a dam and for a comparatively tiny investment.

Trying to connect every load, and every generator, to a conventional utility grid is not a wise choice for Micronesia. Distributed power generation is probably a better choice, for technological, financial and social reasons.

A large, centralized system must be designed to power the heaviest possible load attached to it. This means wasted capacity (and wasted money), because not all the electricity generated 'just in case' will actually be used. Smaller systems can be built just large enough for a specific purpose. If you need to power a short-wave radio transmitter that the radio's manual tells you draws 250 watts, you know you won't need to buy a 5,000-watt generator.

Small distributed renewable energy systems are more cost-effective than large centralized generators when the population to be served is scattered over a wide area. Micronesia's few towns on the main islands may be served successfully by large utility-owned generators, but that model does not make financial sense for small villages in the most rural areas or on the outer islands.

Micronesians do not necessarily need or want wall voltage in large amounts, 24 hours a day, 365 days a year. If we break the energy problem down into individual energy needs, far more solutions become feasible. Mechanical power is needed for washing machines and power tools; controllable heat is needed for cooking; electrical power is needed for electronics, computers and communications equipment; and both adults and children need light to read by if Micronesia is to meet its literacy and education goals.

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