

A N ENERGY VISION

ENERGY INDEPENDENCE AND ELECTRICITY SOVEREIGNTY

Indian tribes throughout the United States are stewards of vast natural resources such as oil, gas, coal, and precious metals, yet they often reap very little from these holdings. But perhaps more valuable in the long run are the mighty renewable energy resources American Indian tribes possess – including the perpetual power of the sun.

Several tribes have formed their own utility enterprises, a component of which is sometimes solar energy – photovoltaics. Illustrated on these pages are some of these highly visible and growing activities, destined to play an even greater role in tribal sovereignty in the future.

The Navajo Tribal Utility Authority, in operation for more than 40 years, is the largest Native American utility in the United States. It was created in 1959 as a department of the Resources Division of the Navajo Nation. Randy N. Medicine Bear serves as only the fifth general manager in the history of the NTUA, and Paul Denetclaw leads the engineering department. Headquartered in Fort Defiance, Arizona (with district offices throughout Navajo lands), NTUA provides power options for the tribe — primarily conventional electric power, but a considerable number of residential photovoltaic systems have been installed over the last decade or so. Solar energy accounts for more than a million dollars in assets and saves NTUA millions in line extensions. *(Photos courtesy Southwest Technology Development Institute and Sandia National Laboratories)*



▲ In the spirit of cooperation, students from San Juan College's renewable energy program help NTUA staff troubleshoot a PV system. *(Photo courtesy San Juan College)*



TRIBES THAT	Oneida	Fort Mojave
HAVE	Navajo	Rosebud Sioux
ESTABLISHED	Yakama	Warm Springs
ELECTRIC	Ak-Chin	Jicarilla Apache
UTILITIES	Mescalero	Tohono O'odham
	Cow Creek	Flathead Salish / Kootenai
		Metlakatla Alaska Natives

"All energy on earth derives from the Sun."

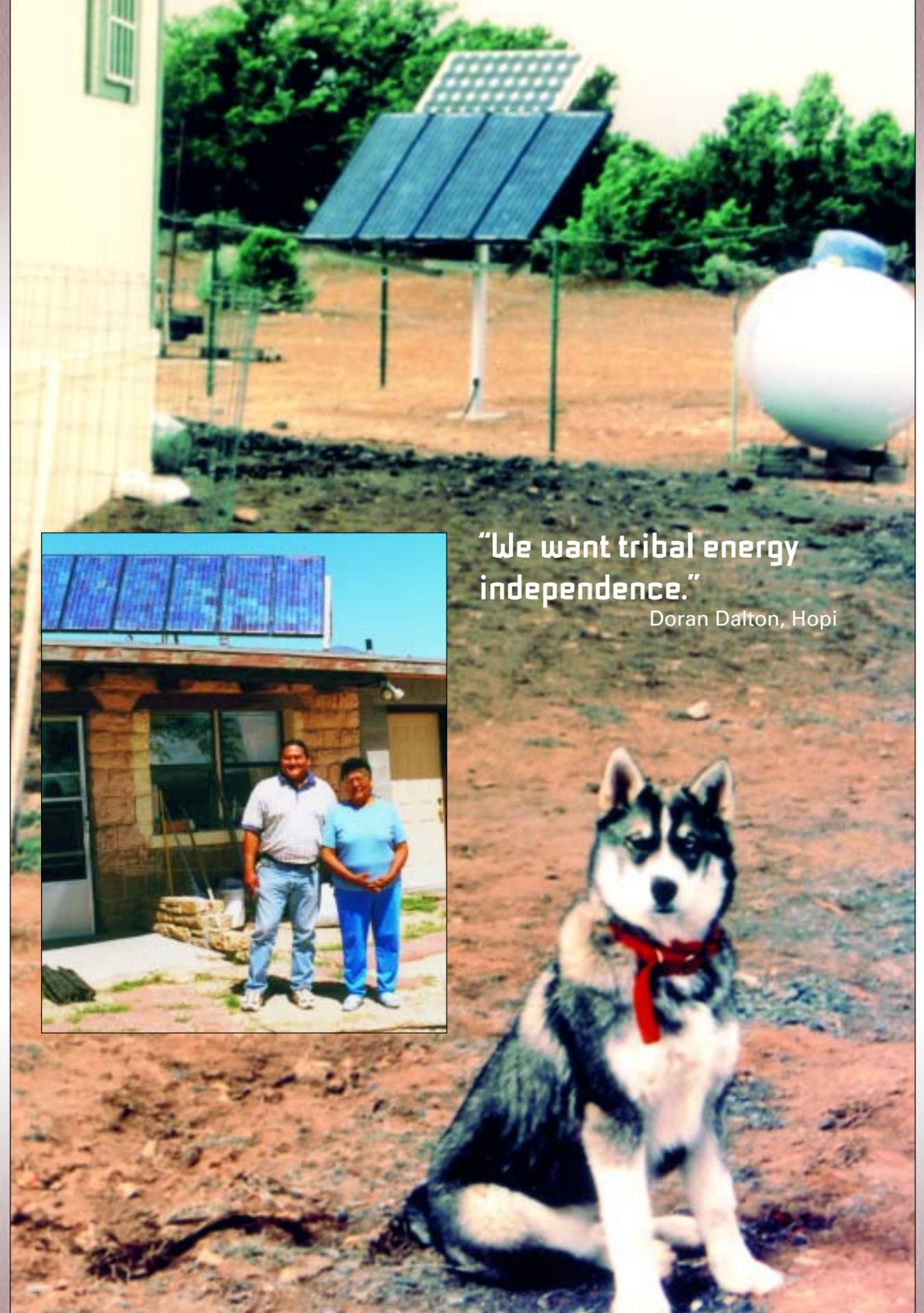
David Lester, Council of Energy Resource Tribes



NativeSUN Solar was created in 1985 within the Hopi Foundation, as one of several projects designed to meet the needs of the Hopi and to encourage self-sufficiency. Through its photovoltaic installations on homes and businesses among the thousands who are living without electricity of any kind, NativeSUN has been an overwhelming success. What began as a non-profit enterprise, is moving forward as a for-profit corporation. According to Doran Dalton, chair of the Hopi Foundation, NativeSUN moves the people toward empowerment and greater self-sufficiency. Among the first to purchase a solar electric system was Dalton's mother (shown with Dalton and her 15-year-old system). Kevin Begay, who now heads NativeSUN Solar, lives off-grid in a home powered by PV, as does Debby Tewa, previous head of the solar enterprise. Also depicted are other examples of solar electrification among the Hopi. *(Photos courtesy Hopi Foundation and Sandia National Laboratories)*

"Self-sufficiency is the greatest Native American concept."

Doran Dalton, Hopi



"We want tribal energy independence."

Doran Dalton, Hopi





▲ More than a decade ago Shan-Diin Solar, an early-day, private PV enterprise of the Navajo Nation, was organized within the Torreon / Star Lake Chapter of New Mexico. More than 50 photovoltaic systems were installed to provide electricity for lights and television. Unfortunately, Shan-Diin Solar ceased operations due to non-technical challenges, but the effort illustrates the great need for electrification that solar energy can provide for rural American Indians. *(Photos courtesy Currin Corporation)*

▶ Three traditional ways of lighting a Zuni home – a kerosene lamp, a propane lantern, and natural sunlight through a window. *(Photo courtesy Sandia National Laboratories)*



THE CERT NATIONAL TRIBAL ENERGY VISION

The Council of Energy Resource Tribes is an organization comprised of 47 federally recognized Indian tribes (and four Canadian First Nations). CERT members all own substantial fossil, hydro, and other energy resources. Publication of the National Tribal Energy Vision 2010 emphasized tribal sovereignty and the opportunity to participate fully in the changes that utility restructuring brings.

◀ Laura Manthe's home on the Oneida Reservation, Wisconsin, is an example of how tribes might approach a variety of energy conservation activities in conjunction with the use of solar electricity on tribal residences. Ms. Manthe took out a \$10,000 loan for the purchase of a 300W PV system, a solar hot water system, and weatherproofing for her home. The 300W PV system with back-up batteries and inverter power a well pump, septic system, sump pump, and one kitchen light. She uses a solar hot water system with a PV pump for hot water needs. Insulation, caulking and weather stripping were upgraded to lower the fuel need. The loan increased her mortgage payment by about \$40 a month, but she estimates she has gained about \$55 a month in energy savings. Following Laura's success, the Oneida Solar Energy Project adopted a policy that all future housing on the reservation that participated in the solar program undergo a similar energy audit. *(Photo courtesy Oneida Nation)*