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Solar Power, Lakota Empowerment

Text and photos
by Gary Wockner

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Cleo Weasel Bear smiles widely as she shows visitors the cluttered living room of her trailer home on a bright March day. “This is where I make my star blankets,” she says, and picks up one of her prized creations, an antique-white quilt with a shimmering blue star stitched onto its surface. Star blankets are valued highly in Lakota culture—they symbolize a deep reverence for celestial bodies that watch over the Earth—and Cleo’s face glows with pride. “But I’ve hardly been able to work in here this winter. No heat,” she says. “I sleep next door at my daughter’s.” Like many women on the Pine Ridge Indian Reservation, making and selling arts and crafts is her sole source of income.

Cleo faces additional challenges beyond heat. She was recently diagnosed with cancer, and doctor visits as well as ongoing treatments cloud her future in unknown ways. The smile on her face belies these material hardships. She briskly escorts her guests—two contractors and an anthropologist from Colorado, and me—through her trailer and around her yard. Her words brim with optimism.

We’ve come to Cleo’s at her invitation, to decide where to place a solar heating system. Tomorrow and the next day we will come back with a crew, tools, and materials. But as we tour her surroundings, we can’t help but notice more. Clothes are piled high in all the rooms; a few flat spots are swiped clean for sitting or sleeping. Windows are broken and covered with plastic, as are holes in the walls. The water isn’t working. Outside, the trailer is surrounded by detritus—household trash,



Pine Ridge: mostly upland rolling prairie with buttes and ridges covered in Ponderosa pine.

junked cars and trucks, and broken toys. Several friendly dogs follow us and lick my fingertips as we walk around.

Across the reservation this scene replays itself. Later that afternoon, we drive to the village of Porcupine to inspect the small home of Shirley Bisonette, who has also requested a solar heating unit. Shirley is not feeling well and stays in the bedroom; her wheelchair sits outside the bedroom door. Angel, her boyfriend, escorts us around.

Shirley’s house is in even worse shape than Cleo’s. The roof leaks and the ceiling is literally falling in, patched with stapled-up plastic to hold back the sagging insulation. A few broken windows are also sealed with plastic. The interior walls are punctuated with holes and show years of grime. The kitchen stove and sink are broken. A small hot plate serves as the main cooking appliance, and a partially broken woodstove is the only heat source.

Outside, dogs again trail us as Angel gives a brief tour of the house’s south-facing wall. Several junk cars, mounds of trash, and a large pile of household garbage clutter the yard. A heap of painted scrap lumber lies out front. When things get desperate and the family can’t afford firewood, they burn this scrap for heat.

Yet through both of these reservation households, one very bright element offers additional hope. The sun, called *wi*



The Lakota and TWP both draw on established worldviews to create a new one. The Lakota resurrect the buffalo from their ancient traditions, while TWP offers solar heaters, the technical fruit of modernism.

in Lakota, floods the reservation and showers the south-facing walls of Cleo's and Shirley's houses. Tomorrow, *wi* will change these women's futures.

Many Hands, Light Work

The next day starts early. We are staying at Richard Sherman's home in the village of Manderson on the reservation. Richard is a wildlife biologist who now works as a Lakota guide and also manages the tribe's buffalo herd. Last night, Richard and I talked at length about the Lakota's buffalo, a recent project he undertakes in conjunction with native activist Winona LaDuke's organization, Honor the Earth. Buffalo represent a new (but also very old) culture of sustainability to many Lakota people, a concept of increasing interest at Pine Ridge. Sustainability, too, has drawn our group to the reservation. 🌱

As Richard leaves the house for his morning buffalo chores, our visiting group loads up tools and equipment and drives over to Oglala Lakota College (OLC) in Porcupine for a morning meeting and solar training session. Accompanying me is Cindy Isenhour, an anthropologist who recently completed her master's thesis about the reservation. Cindy works as director of development for the Fort Collins, Colorado-based non-profit Trees, Water & People (TWP), which operates a Tribal Lands Program at Pine Ridge. She serves as cultural liaison for the group's Pine Ridge programs.

Joining Cindy and me are Alison Mason, a solar engineer/installer and TWP contractor, and Don Alvarez, also a TWP contractor/installer. Alison operates a small solar company in Fort Collins and works for TWP's Tribal Lands Program as the brain-trust who designs and implements the solar program. Although her impact today in Porcupine may be small, it is creating ripples beyond this reservation. For this project and others, Alison recently received the "Solar Woman of the Year" award from the American Solar Energy Society.

The OLC campus in Porcupine is a small building with administrative offices and six classrooms. In one, 30 students listen intently as Alison gives a brief discussion of global warming, then describes the specific solar installation that will take place later at Shirley Bisonette's. Most of the students are college-aged men and women in either a carpentry or electrical program at OLC. Another, younger, group of students is from Youth Build, a tribal program to help students earn a high school equivalency degree and skills beyond.

TWP's mission on the reservation is unique and provoc-



Two Oglala Lakota College students building the frame for a solar panel.

ative. In 2002, the group arranged a meeting with several tribal agencies and leaders to investigate a potential reservation-based program. "Our goal," says Cindy, "was to approach the reservation with no presumptions or agenda. We wanted to start a program and we wanted the tribe to help define it." Many groups and agencies, she explained, come to the reservation with their own agenda and programs, but like many "outsider" development schemes in the United States and abroad, success is often limited or short-lived.

"What also came out of the meeting," Cindy continued, "was that many Pine Ridge residents have trouble meeting their home energy costs. Many poorer residents' homes are heated exclusively with wood or electricity, both of which are expensive. In some situations, up to 50 percent of household income is spent on heat."

Armed with this information, TWP put together two programs consistent with its broader environmental mission: a solar heating program and a tree-planting program. The solar heating program is designed to offer immediate, tangible assistance. In addition, TWP hopes to find and incubate local Pine Ridge entrepreneurs to build and install the heaters. To accomplish these goals, Cindy and Alison have secured grants from the U.S. Environmental Protection Agency, the Bob and Kati Rader Foundation, the Bush Foundation (no relation to the presidential family), and many of TWP's individual donors. Several solar installations were completed prior to our visit, and several more are planned.

After the training session at the college, Alison and Cindy leave to give another session to a different group of students in Pine Ridge Village, the seat of the reservation's government. Don and I stay in Porcupine to help with and supervise the installation at Shirley Bisonette's.



Shirley Bisonette's house in Porcupine. The pile of painted scrap lumber fuels her kitchen stove.

As we drive to Shirley's, I quickly review Alison's plans and sketches. I'm not a member of TWP, and this is my first visit to the reservation. Cindy has allowed me to come along and write about this trip on condition that I help install the systems. I've brought along a box of carpentry tools and am trying to look the part. Don has installed two units before, so I pepper him with questions as we drive.

Alison's simple, low-tech solar heating system uses a large collecting panel mounted on a south-facing exposure. The back of the panel is painted black, a glass surface is on the front, and heat is collected in the three-inch airspace between these two surfaces. Using flexible ductwork, air is sucked into the unit from the house, blown through the panel, and pushed back inside. An indoor thermostat and controller-switch regulate the temperature. This is a daytime-only heat source, suitable here on the reservation where most residents, especially women, work inside. At night, households rely on traditional heating, usually wood.

As we unload the truck and talk through the project with the students, my job begins to look easier. The OLC and Youth Build students are a friendly, can-do bunch of carpenters and electricians who know much more about climate control than I do.

Don supervises the crew, dividing us into three groups: outside installers who will mount the panel on the house, ductwork installers who will cut holes and mount ducting, and electricians who will wire and mount the blower. Beyond listening and watching, I run a tape measure and a pencil for the ductwork crew. These young Lakota men and women are eager to do the job, and our many hands make light work.

We banter and joke throughout the afternoon as a mix of rock-and-roll and traditional Lakota music flows from Shirley's kitchen over KILL, the reservation's radio station. To my suburban ears, the drum beats and high-pitched Lakota songs pro-

vide a surreal, almost eerie, feeling to the open prairie around Shirley's house. It takes me a while to realize how ironic my reaction is; rock music has been around for fifty years, Lakota for a thousand or more.

After three hours, the job is nearly complete. All that's left is for Alison to come back in the morning to inspect the installation and hook up the final wiring. We stand back and admire the panel. It's been a good day of work—energy well spent with tangible, visible results.

After the students leave and Don and I load the truck, Angel invites us in for a cup of coffee. Shirley is still in bed when we enter the kitchen, and when I inquire about her, Angel simply says, "She's not feeling well." Angel is about 60 years old and has a huge, scabby burn on his arm as well as several visible tattoos. "I slipped and fell into that woodstove last week," he says, pointing to the burn.

Above the table hang numerous snapshots of children. "These are my children and grandchildren," Angel says, his face glowing. The curling and torn snapshots are the centerpiece of the kitchen. In fact, there is little to do here but look at them—only one chair sits against the table, and the rest of the walls and surfaces are covered with clothes, holes, and grime.

Angel has nine children, most of whom are grown and living elsewhere. Only one son lives in the house. A few of the people in the pictures have died, including a two-year-old granddaughter, Estrelita.

"My father had 20 children," Angel says. Don and I voice a collective "Wow!" and almost choke on our coffee. Angel has lived in Porcupine for much of his life. His son attends Porcupine School down the road. Another daughter recently graduated from Porcupine, and her graduation tassel hangs beside her picture, its small metal attachment reading "Quills," the school's mascot. Porcupines are important animals in Lakota arts and crafts. Their quills are gathered and dyed and used in many types of jewelry-making.

As our banter becomes more friendly, Don says, "My high school was the Ketchum Indians." We all snicker at the obvious connotation. And then I remember my high school and add, "Mine was the Watseka Warriors." Angel immediately takes off his cap and points to his bald head and says, "You guys want to scalp me?" We all burst out laughing.

At Pine Ridge, laughter hasn't always come so easily.

Hope Amidst Poverty

The Pine Ridge Indian Reservation has been, and continues to be, ground zero for America's complex relationship with its indigenous peoples. The Oglala Lakota were the last to succumb to white advancement in the late 1800s, an era that

ended with the “Massacre of Wounded Knee” in 1890. The current reservation boundary, sitting in the southwest corner of South Dakota and including Wounded Knee, exists due to a long, convoluted history of broken treaties and shrunken homelands.

Over the last century, this relationship has been marked by all-too-familiar problems at American Indian reservations, including forced relocations, forced English-language boarding schools, and stark U.S. government inconsistencies. Many older Pine Ridge residents grew up in the boarding schools and remember the will, if not the mantra, of the original sentiment used to create the schools. “Kill the Indian, save the man” was the motto of General Richard Pratt, the former commander of an Indian POW camp who founded the first off-reservation federal boarding school in 1879.

In the 1970s, this history helped galvanize tribal politics and lead to the growth of the American Indian Movement at Pine Ridge. The reservation again became ground zero, culminating in the 71-day armed standoff at Wounded Knee in 1973, often referred to as “Wounded Knee II.” The ensuing months of mayhem were marked by a large FBI presence and the subsequent murders of FBI agents for which Lakota member Leonard Peltier was convicted in 1975. This chaos was immortalized in several books and films, and through all these stories the reservation is depicted as a center of power struggles and conspiracies both within tribal ranks and between tribal members and the U.S. government. Even our soft-spoken host, Richard Sherman, had strong words about these events. “It was a very difficult time on the reservation,” Richard said. “A lot of people were killed. Everyone carried guns, including my parents, who were school teachers.”

Our travels on the reservation took us by Wounded Knee several times. The small village is a dense cluster of government-issued houses and apartments. Just down the road is the Wounded Knee historical museum, a brightly painted many-sided building in the traditional hogan form. Across the street from the museum stands the metal sign commemorating the 1890 chaos. Where the sign once said “Battle of Wounded Knee,” a piece of metal with the word “Massacre” is now riveted over the word “Battle.” Beside the museum on a small hill, a large stone commemorates the mass grave of the massacred.

In the past five years, smaller conflicts have flared up on the reservation. Armed Lakota militants have at times taken over tribal headquarters in Pine Ridge Village as a show of resistance against the tribal government, which many Lakota

believe is too closely aligned with federal overseers. During my visit, I heard three open discussions on KILI about why the tribal government should be overthrown. Also recently, a militant, armed group of Lakota has taken over the southern unit of Badlands National Park, which lies within the reservation boundary, and has intermittently fired at visitors and Park Service employees. These militants claim the Park Service is pilfering sacred archaeological sites.

Although Pine Ridge’s violent turmoil has largely subsided, the conditions that spawned it have not. Unemployment rates hover around 80 percent; homelessness, alcoholism, and suicide rates are very



high; and the reservation has been home to America’s poorest county for the last 40 years. Additional tangible ills, such as chronic disease, are epidemic across the reservation. During our visit, more than half the older adult residents I met had diabetes.

The village of Porcupine reflects Pine Ridge’s housing and social ills. It has about 150 houses—some newer government housing, many trailers, and several, like Shirley’s, in very bad shape. Across the reservation, census statistics and other federal, state, and tribal reports paint a similar picture. Of the roughly 3,500 houses on the reservation, maybe 1 in 50 is in extremely poor condition like Cleo’s and Shirley’s. At least half are in better shape but still need significant improvements in structure or utilities.

Amidst this poverty, the reservation has had no shortage of help and attention. The list of international, federal, state, and tribal agencies that have created funds, programs, charities, and scholarships is pages long. Likewise, non-profit and



Youth Build students posing in front of the completed solar panel.

religious groups have come, gone, and stayed by the dozens. Many individuals—some former reservation residents, some not—have made the fight against Pine Ridge’s poverty and housing problems a major life commitment.

Attention has also come from Hollywood, which has a fascination with Pine Ridge’s Oglala Lakota. Several fictional movies and many documentaries have been filmed here. During my visit, I met several people who had either brushes or ongoing relationships with Hollywood filmmakers. Every craft-maker we met could point to a nearby piece of jewelry or clothing and say, “This piece was used in the movie *Thunderheart*” (or some other film). At one point, Leonard Peltier’s prison paintings were selling among Hollywood glitterati for thousands of dollars.

Political leaders have also “found” the reservation. In 1999, President Clinton became the first U.S. president to visit an Indian reservation in 50 years, and the first to visit Pine Ridge since Calvin Coolidge in the 1920s. He was flanked by senators, representatives, and corporate executives. During his speech, Clinton made strong remarks about several prominent corporate CEOs who were proposing economic programs at Pine Ridge, and about the federal government’s ongoing commitment to the reservation.

Yet little has changed: the poverty persists.

Given this history and more, Trees, Water & People faces both the material circumstances on the reservation and the skepticism of the Lakota people. When the group approached the reservation, they learned quickly that the landscape and its people are hesitant to embrace yet another development scheme, program, or make-work project.

TWP also faces the traditional challenges of simply deciding who gets what. As in any environmental service endeavor, the line between providing help and “social engineering” is grayer here than anywhere. Should TWP provide “that extra little help” that will put a household in the black, or should it put resources where most needed? Should the householders be required to help install or pay for the project? Should resources go into a household that suffers from alcoholism, where the money might just buy more beer? Who is at fault here—the individuals, Lakota culture, the tribal government, the state, the U.S. government? If fault could be determined, how should that change TWP’s

efforts? Should TWP work with other organizations as part of a cohesive household reconstruction strategy, and if so, how to organize and fund that coalition? Questions, not answers, prevail.

Like any non-profit environmental group, TWP relies on individual donors as well as foundation and government grants, all of which are highly competitive and require specific, fundable proposals intended to create tangible, accountable, and reasonably short-term results. Complex coalition-building and long-term social engineering projects rarely fit these criteria.

Despite these challenges, TWP has succeeded with this program. Beyond the solar installations completed so far, two Lakota men approached TWP during our visit with an interest in building and installing the solar collectors. Two other Pine Ridge residents have also expressed strong interest in helping TWP spread the word and lead the workshops. These residents, like Cindy and Alison of TWP, believe solar power can help the Lakota people further extend their traditional connection to nature and the land.

Since the American Indian Movement activities of the 1970s, a small but strong Lakota movement at Pine Ridge is working to re-establish links with its traditional culture. Richard Sherman’s buffalo herd and Winona LaDuke’s Honor The Earth organization are integral parts of this movement. Some Lakota have moved back to the reservation from other U.S. cities, and some have moved back onto their rural land to re-establish small family clans, or *tiyospaye*. In fact, a few of the previous recipients of TWP’s solar heaters sought out the program precisely to stay in their rural homes, close to families, connected to the land, in hopes of maintaining their traditional culture. In a nutshell, if implemented properly, solar

power offers the Lakota autonomous, sustainable energy that is virtually free. Solar power can lead to Lakota empowerment. *Wi* may help restore a culture.

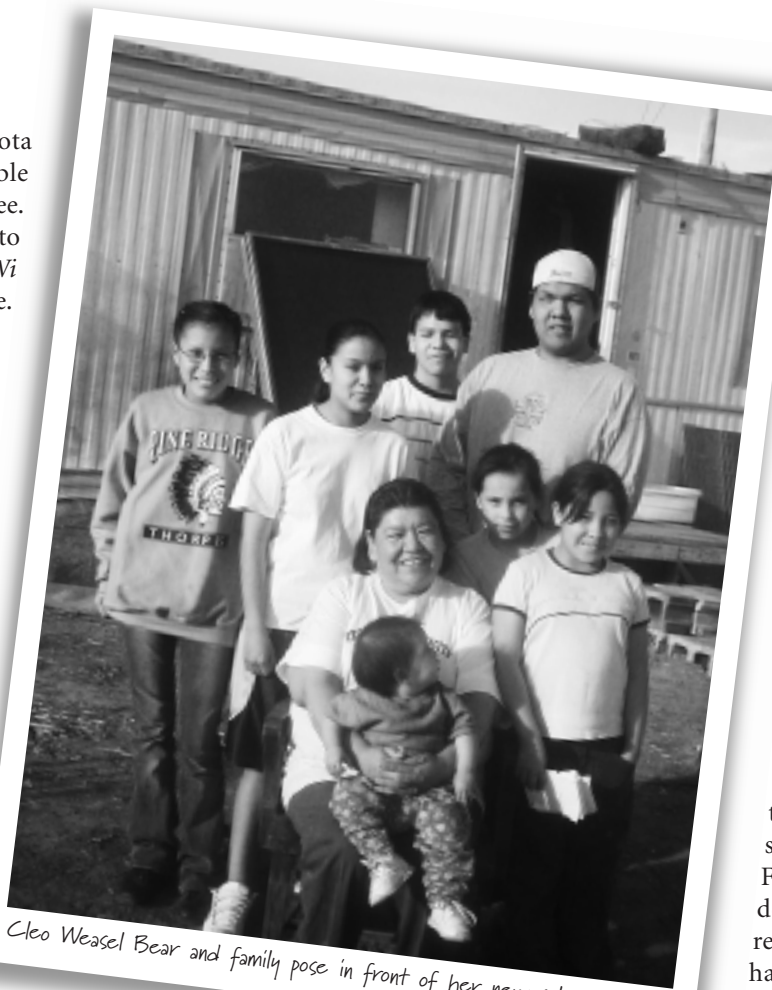
A New Day

The next morning, Alison and Cindy join Don and me as we leave Richard's house, drive through Wounded Knee, and return to Shirley Bisonette's to finish her new system. Several students from Youth Build have shown up to assist us and see the finished product. While a few of us work on Shirley's unit, other students put together the blower and electronics for the system that will go in at Cleo Weasel Bear's later in the afternoon.

This low-tech solar heating system is relatively inexpensive, as the panels were used previously. Altogether, the system costs about \$1,000 with used panels, \$1,700 with new. The data Alison has collected suggests the systems can save between 20 and 40 percent on home heating costs. Using the panels will also decrease reliance on firewood, a dwindling and expensive resource on the reservation. Shirley's household will probably save \$75 a month, hopefully enough to wean them off burning painted scrap-lumber, which fills their chimney with creosote and is surely poisonous.

As we finish Shirley's installation, the Youth Build students pose in front of the new collector, as do Angel and Shirley's son, Joel. Cindy, TWP's liaison and development director, is adamant that "we need Lakota faces in these pictures. No whites. The donors want to see Lakota faces." An interesting statement, it symbolizes the complex nature of non-profit environmental work and the complex relationship America has with its indigenous peoples. "Lakota faces" sell the programs and generate money.

Today, meeting Cindy's needs is not hard. Lakota faces outnumber white six to one, and the Lakota students are eager to help, dig in, and get the job done. Afterwards, the Lakota stand back, as do Don and I, and revel in the accomplishment. Donors and funders can rest assured: this project works. In the world of environmental service projects, rarely is



Cleo Weasel Bear and family pose in front of her new solar panel.

such progress made in such a short time with this amount of money. If only all of Pine Ridge's ills could be cured so easily.

When we walk back in the house, Shirley is out of bed and apparently feeling better. She sits in her wheelchair in the kitchen, next to the hazardous woodstove. Her crutches lean against the wall beside her.

"Shirley, come take a look at this," says Angel, and he wheels her into the small living room next to the duct where the hot air streams out at 95 degrees Fahrenheit (it's about 50 degrees outside). Shirley reaches down and puts her hand in front of the duct. "Lila waste"—"very good"—she says in Lakota. Then she looks up at us, smiles broadly,

and says, "*Pilamaya ye*," which roughly translates as "Thank you," or literally, "Feel good-me-you-made."

Later in the day, at Cleo's, a similar scene plays out. The Youth Build students have driven over, and again, the work goes quickly. Cleo is the most exuberant and appreciative of all the residents who have gotten the systems so far. After the installation is complete, she invites us for dinner, and together we share Indian fry bread, beef stew, and *wojape*, a Lakota peach pudding. Children play, dogs bark, and the conversation buzzes through her daughter's trailer and beyond.

Before we leave for the night, Cleo returns to her own newly heated trailer while we stay at her daughter's. On our way out, we stop in to see her busily rearranging the trailer's living room—her work room. She has organized her sewing table, and a large, partially finished star quilt is laid out on one corner. Cleo buzzes with energy, her smile wide and eyes bright. We say our goodbyes, and she again thanks us. Though she doesn't speak it, her expression says more: *Hihani ki anpetu tokeca*, which roughly translates as, "Tomorrow is a new day."

Gary Wockner, Ph.D., is an environmental writer and research ecologist at Colorado State University in Fort Collins. He is editor of the recent book *Comeback Wolves: Western Writers Welcome the Wolf Home*.

Falling Water,

Seeking answers to problems of drought and economic stagnation, Indian tribes in the American West are listening to the wind.

by Bob Gough

Water has always been the lifeblood of the arid American West, and electricity—the primary byproduct of U.S. federal government water management in the area—is the current that powers urban and rural life after a century of settlement. But the West is now suffering its sixth year of drought, the longest and harshest in recorded history. Electricity trickles from the six big hydropower dams on the Missouri River at a rate less than two-thirds of the 10 billion kilowatt-hours produced in a “normal” year. The Western Area Power Administration (WAPA) supplements its hydro shortfalls with coal-fired power using lignite, which is not only the dirtiest form of coal but has increased fivefold in cost since the drought began.

There is, however, a domestically secure, carbon-free resource that will conserve water, enhance regional air quality, and broaden reservation economies beyond the opportunities offered by casinos and smokeshops.

For the past decade, several Missouri-basin tribes—the Lakota, Nakota, and Dakota, the Mandan, Hidatsa, and Arikara, and the Omaha—have gathered as the Intertribal Council On Utility Policy (Intertribal COUP) to formulate energy and utility policy recommendations, beginning with how best to utilize the hard-won 20-year contract for a WAPA allocation of about 4 percent (65 megawatts) of the river’s hydropower capacity. (WAPA manages over 17,000 miles of the high-voltage transmission system stretched across 15 western states. If you live on an Indian reservation, you are 10 times less likely to have electricity than anywhere else in the country, but are far more likely to have a federal transmission line towering overhead.) Federal power began flowing directly to reservation customers in 2001, after 15 years of unprecedented tribal cooperation to secure this modest benefit from the dams that flooded



Bob Gough

This 750kW wind turbine on the Rosebud Sioux Reservation, completed in April 2003, is the first phase of a planned 10MW wind farm.

Rising Wind

tribal lands 50 years ago.

One condition of the allocation, however, was for tribes to develop integrated resource plans for reservation energy resources. The resulting assessments showed that, along with remarkable solar, geo-thermal, and biomass resources, the COUP tribes have thousands of megawatts of power potential in the wind that blows across their reservations every day—one of the richest wind regimes in the world. Moreover, the transmission grid, designed to distribute hydropower from the dams, can just as easily collect and transmit native wind power beyond the region. The Intertribal COUP tribes are collaborating in a plan providing for tribal control and owner-

ship of reservation NativeWind™ projects that could install up to 3,000 megawatts of capacity on two dozen reservations within a decade, to meet tribal needs and produce power for sale into the regional grid. That grid once carried 100-percent renewable hydropower, but as demand growth has outpaced hydroelectric capacity and drought has reduced water levels, hydropower is now less than 20 percent of the mix. The balance comes from coal-fired plants, but the COUP plan could recharge the system with clean, renewable, and water-saving power.

The current drought may be a result of climate change, or part of a natural transition from the historical long-term wet cycle to a dry phase. In either case, the West’s electrical system relies heavily on water that is in short supply and may remain so. Wind needs no water to generate electricity, and unlike coal produces no CO₂ emissions. Rural tribal economies building upon our domestic wind resources offer both Indian Country and our nation a no-regrets option for energy security and a step toward national energy independence.

Bob Gough is Secretary of the Intertribal Council On Utility Policy. For more information on the work of Intertribal COUP and its partner organizations, go to www.energyindependenceday.org.