A THIRSTY NATION

The Hopi have sold their coal and their water to the Peabody company for decades. The money keeps flowing, but now their springs are running dry.

BY TIM FOLGER

PHOTOGRAPHS BY ALEC SOTH

Seen from a distance, the tightly bunched adobe and sandstone homes of the Hopi pueblos look more like natural rock formations than like dwellings, barely distinguishable from the rugged ochre cliffs on which they perch. The pueblos lie on the southern edge of Black Mesa, a formation that sprawls across more than 5,000 square miles of northeastern Arizona. On relief maps, the mesa resembles a giant hand, with steep, rocky fingers stretching to the southwest. In this harsh, nearly treeless land, not a single permanent river or stream flows; no lakes reflect the oceanic desert sky.

Yet the Hopi have farmed this parched earth for centuries. One of their villages, Oraibi, is the oldest continuously inhabited site in North America, occupied since 900 A.D.

Even though the Hopi have largely adopted a modern cash economy, nearly every family still farms at least part time. At this time of year—late spring—they are planting corn, melons, beans, and squash, just as they have for more than a thousand springtimes. In a region that sees less

Hopis have grown crops on parched Black Mesa for centuries. Howard Dennis, a Hopi chief, waters corn and pepper plants in his garden.

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Like many other Hopis, 12-year-old Kerri Uqualla must fetch her water from sparse sources.
than 12 inches of rain a year, the Hopi long ago perfected a unique form of agriculture called dry farming. They seldom irrigate their crops, but sow seeds near gullies and dry washes that flood during the late-summer rainy season. They disperse their fields to take advantage of any scattered rainfall, so if one crop withers, another may survive. While the Hopi occasionally use tractors to plow, they tend and harvest their crops entirely by hand.

But even with the summer rains and the meticulous care of their fields, the Hopi’s enduring presence in this land of mesas and sere plains would have been impossible had it not been for a secret they learned long ago. Hidden deep beneath the desert’s rocky, scrubby surface are enormous reservoirs of water, much of it trapped in porous sandstone since the last ice age. These aquifers feed springs that seep from rock faces and bubble up from the desert floor. Without the springs there would be no Hopi; every village is built around one. To the tribe they are sacred, the setting for ancient rituals mostly closed to outsiders.

But now many of the springs and washes are drying up, and crops are wilting. And since one-quarter of the homes on the reservation lack running water, the failure of the springs means that many Hopi must drive their pickups to distant water stations to fill their five-gallon buckets. An outsider unfamiliar with the convoluted history here might attribute all this to the drought that has gripped the region for years. But the Hopi blame a new resident on Black Mesa, one with a seemingly unquenchable thirst for the tribe’s sole source of drinking water.

Thirty-eight years ago, the Hopi—and the neighboring Navajo tribe—struck a Faustian bargain with the world’s biggest privately owned coal mining company, Peabody Energy. In exchange for desperately needed jobs and revenue, the tribes allowed Peabody to mine Black Mesa’s rich coal deposits. The same agreement let Peabody pump from an aquifer that supplies drinking water for the approximately 10,000 Hopi and several thousand Navajo who live on Black Mesa. The aquifer’s water is so pure that it needs no treatment before drinking. With severe water shortages looming over the entire Southwest, both tribes are now demanding that Peabody stop us-

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ing the aquifer by the end of 2005. But Peabody says if the water is shut off, it may be forced to close one of its two mines on Black Mesa, a move that would eviscerate the tribes’ fragile economies. Roughly 60 percent of the Hopi tribal government’s annual budget, and 25 percent of that of the Navajos, comes from payments Peabody makes for the coal and water.

“It has been estimated that the value of the Black Mesa mines to the two tribes is in the neighborhood of $85 million a year,” says Harris Sherman, an Anglo attorney for the Hopi tribe. “That’s in the form of royalties, taxes, employment benefits, and secondary economic spin-offs. So when you’re dealing with two of the poorest groups in the country, the closure of the mine would have a devastating impact.”

Peabody runs two mines on the mesa—called the Kayenta and the Black Mesa. Combined, they are the largest strip-mining operation in the nation, and they lie entirely on Hopi and Navajo land. Earthmoving machines as big as buildings tear off football-field-size swaths of the desert’s surface at one swipe. Mine workers, most of them Navajos earning good wages, dynamite the exposed seams into chunks small enough to be transported. Peabody ships coal from the Kayenta mine to a power plant on the Navajo reservation via an old rail line that was built before Peabody came to the mesa. The coal from the Black Mesa mine—the one Peabody is threatening to close—goes to the Mohave Generating Station in Laughlin, Nevada, owned by Southern California Edison and a consortium of four other utilities. There is no railroad to that plant, and Peabody saved substantial sums by not building one. The company found a far cheaper way to move the coal.

Every day, Peabody taps about three million gallons of water from the 3,000-foot-deep Navajo, or N, aquifer and mixes it with crushed coal to form a slurry. It pumps this mixture west through a 273-mile-long underground pipeline to the Mohave plant, where the coal is separated from the slurry and dried; the residual water is then channeled to the plant’s boilers. The Black Mesa slurry line is the only one in the country and one of the few in the world. The technology has been almost universally rejected as grossly inefficient.

“It’s just an epic waste of water to use 1.2 or 1.4 billion gallons of pristine drinking water annually to slurry coal in one of the most arid regions of the United States, a place that doesn’t have enough drinking water for the people who live there,” says David Beckman, a lawyer with the Natural Resources Defense Council (NRDC) who has worked closely with the Hopi for several years.

Can the Hopi and Navajo find some way to secure their water for the future without simultaneously ruining their economies? Unfortunately, they don’t have much leverage. The Black Mesa and Kayenta coal represents only about 6 percent of the total that Peabody takes from its worldwide mining operations. Still, there may yet be a solution to the impasse. At the very least, Peabody could stop pumping from the N aquifer and switch to another aquifer on Black Mesa with lower water quality. But historically, negotiations have been contentious; the tribes are wary, with bitter memories dating to their first negotiations with Peabody 38 years ago. And though the issues may be particularly stark here—the desert light casts everything in sharp relief—the same sorts of tradeoffs confront us all.

Vernon Masayesva was the chairman of the Hopi tribe from 1990 through 1994. He lives in the oldest house in the village of Kykotsmovi, a name that means earth-mound ruins, for the remains of an ancient village that once stood here. He is a trim, handsome man with thick black hair. He is wearing jeans and a T-shirt printed with a quote from Mahatma Gandhi: First they ignore you. Then they laugh at you. Then they fight you. Then you win. Sitting in his cool, quiet living room, he nods toward the exposed ponderosa pine beams that span the ceiling of the house. The beams were salvaged, he says, from a church burned by the Hopi when they rebelled against their Spanish overlords in 1680. Problems with obtrusive outsiders are nothing new for the Hopi.

Masayesva, now the leader of the Black Mesa Trust, a nonprofit group he founded in 1998 to lead the struggle against Peabody, has seen the company’s massive mines only once, from the air. But since Peabody’s arrival, there has never been a time when he—or any other Hopi—wasn’t affected by their presence. When he was a high school student in the late 1960s, he would sit in the evenings under an old cottonwood tree, listening to the elders in his village talk about coal and water, and about a man named John Sterling Boyden.
Boyden was a powerful figure in southwestern politics and society for decades. He was a bishop in the Mormon Church and a tenacious, skilled trial lawyer. He also represented the Hopi. The tribe, it seemed, couldn’t have wished for a more potent ally. For years Boyden had been trying to persuade the Hopi to open their land to mining interests. Traditionalists in the tribe rejected the idea out of hand. One of them, Thomas Banyacya, said, “You will make us a landless, homeless people. This is the only land we have.” Not to be rebuffed, Boyden helped assemble a tribal council more sympathetic to his own views. On May 16, 1966, Boyden presented it with a lease proposal he had prepared for the council members to sign. According to Charles Wilkinson, a professor of law at the University of Colorado who has studied Boyden’s career, Boyden failed to tell the council that Peabody would be operating the largest strip mines in the country on their land. Moreover, he said little or nothing about the huge quantities of water the company would need.

Boyden also neglected to tell the tribe that its coal would be fueling the development boom in the Southwest. With cities like Phoenix and Las Vegas then on the brink of explosive growth, the tribe could have exerted enormous leverage to extract the best possible price for its coal and water. Instead, Boyden’s agreement sold the tribe’s coal and water rights for absurdly low prices. At a time when the going royalty for coal mined from public land was $1.50 a ton, the Hopi and the Navajo split a royalty of 30 cents a ton. The water deal was worse—if there even was a deal. Masayesva says there is no evidence that anyone from the tribe signed a lease that gave Peabody access to the reservation’s aquifers.

“There is no record,” says Masayesva. “We hired a law firm to investigate. They couldn’t find any record where the tribe ever approved a sale of that water.”

Masayesva, who has examined the 1966 lease, says that it contains a handwritten section—added without the knowledge of anyone on the tribal council—specifying how much the Hopi would receive for their water. For every acre-foot of water pumped from the aquifer (an acre-foot is the amount of water that would cover an acre to a depth of one foot), Peabody was to pay $1.67. In the arid Southwest, water from the aquifer should have commanded $30 to $50 per acre-foot.

Why did Boyden fail to protect the interests of his impoverished clients, who even today suffer an unemployment rate that hovers around 50 percent? The mystery wasn’t solved until many years after Boyden’s death in 1980. One of Wilkinson’s research assistants uncovered a startling fact while studying a collection of Boyden’s papers in 1992: Boyden secretly worked for Peabody at the same time he was representing the Hopi. Billing records and correspondence with Peabody executives show that Boyden’s association with the company lasted from 1964 through 1971. Boyden’s chief concern during those years was not the welfare of the Hopi but the development of the Southwest, which would have been impossible without access to the coal and water of two of the poorest groups in the nation.

“The Hopi could nullify the lease with Peabody tomorrow on the basis of that conflict of interest,” says Masayesva. But he says the tribe is reluctant to attack a man whom many still regard as a benefactor. “They say, ‘He was a nice guy. He was good to us. He was a decent person.’ There is no one over here saying that the son of a gun sold us down the river—let’s go after it, let’s nullify the agreement with Peabody. You don’t hear any talk like that. Maybe we’re now snapping out of it a little bit, especially those who, like myself, are not keeping quiet.”

Even before the Boyden scandal surfaced, the Hopi and Navajo began to recognize the blatant unfairness of their deal with Peabody. (To this day, the company defends its dealings with Boyden: “The notion that deceased attorney John Boyden was secretly involved in lease negotiations to benefit Peabody’s interests is untrue and a tragic attempt at defaming a dead and honorable man,” states Peabody spokesperson Beth Sutton.) In 1987 the tribes renegotiated their lease with the company and began receiving a fair royalty for their coal. The Hopi also held out for the market price for their water. Instead of $1.67 for an acre-foot, they began collecting $300 an acre-foot. The new arrangement didn’t provide any remedy for the many additional millions the tribes should have been paid for the previous 20 years, but it helped assuage some of their anger, and the money has helped pay for improved schools, health care, and other social services (though poverty is still entrenched on the reservation).

“Everything was wrong with this from the very beginning,” Masayesva
gae-covered water at the very bottom of a large circular depression ringed with rocks. Much the same thing can be seen in any of the Hopi villages or on the Navajo portion of the mesa to the north, says Masayesva. The springs are low or dry everywhere, he says. And he and many other residents on Black Mesa are convinced that Peabody’s use of the N aquifer’s water for the coal slurry is the main cause.

“I recall the land was plentiful with vegetation and there were natural springs in various areas near Peabody,” says Mary Gilmore, a Navajo woman who testified at a public hearing in 1989. “Now the land is dry. . . . Other natural springs, close to the mining area, are becoming dry and the vegetation is…being destroyed.”

Beth Sutton of Peabody says the company is trying to cooperate with the tribes. “We’re moving to look aggressively at alternatives,” she says, “but our lease agreement gives us the right to use this water. This is the most well-monitored aquifer in the country, and study after study has shown that we are not harming it.”

At least that is what some studies have shown, including those funded by Peabody. Sutton declined to respond to questions about government data that show plunging water levels in Black Mesa’s wells. The company’s standard argument seems straightforward: It is extracting only a tiny portion of the aquifer’s water. Abe Springer, a hydrogeologist at Northern Arizona University in Flagstaff, says that the company is using the wrong criterion to judge the aquifer’s health. More important than the total amount of water stored in the aquifer, says Springer, is the amount of water that flows out to the

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A pouch of cornmeal is used as a prayer offering to bless a corn field on Black Mesa.
The sacred Susungva Spring in Mishongnovi provides Hopis with water for both practical and ceremonial needs.

contributed to the aquifer’s decline, these measurements exceed the limits set by the Interior Department’s Office of Surface Mining Reclamation and Enforcement, which is responsible for overseeing tribal water and mineral resources. (The office did not respond to several requests for interviews.) David Beckman, the NRDC lawyer, says the government has failed to enforce its own regulations regarding the responsible use of the aquifer, despite substantial evidence of damage. “To me these are significant legal violations,” Beckman says, “and they continue to this day.” A coalition of groups, including NRDC and the Sierra Club, has threatened to sue the Interior Department for its failure to act.

In 2002, Peabody applied to the Department of the Interior’s Office of Surface Mining to extend its mining permit for Black Mesa indefinitely and to increase the N aquifer pumping to more than 5,000 acre-feet a year. Federal law required that all concerned parties, in this case the Hopi and Navajo tribes, be given time to comment on a new lease. Past renewals of the annual lease had been routine. But this time the Black Mesa Trust was ready—and Internet savvy. Its supporters sent the department hundreds of pages of comments and more than 6,000 e-mails. The overwhelming response pressured Joe Shirley, the president of the Navajo Nation, and Wayne Taylor, the Hopi chairman, both of whom had been reluctant to risk the tribes’ mining revenues, to join with grassroots activists in calling for an end to the pumping from N aquifer. Peabody agreed to the demands, with one caveat: The company first had to find an alternate source of water.

FOR DECADES, THE PEABODY ENERGY COMPANY has used three million gallons daily of pure spring water from the nation’s most drought-ridden region to make and pipe coal slurry several hundred miles away. Now the company is finally considering drawing the water it needs from the vast, more brackish Coconino Aquifer, which underlies the Navajo reservation and extends north into Utah and and eastward into New Mexico.
Because of Peabody’s willingness to consider a new supply of water for the slurry line, the Office of Surface Mining for now is not forcing the company to immediately end its use of the aquifer and has put the company’s renewal application on hold. Peabody can continue to use the N aquifer pending the outcome of a lawsuit against the Southern California Edison plant in Nevada. Initially, the case had no connection to Peabody and the N aquifer. The Mohave Generating Station is one of the worst polluters in the West, dumping 40,000 tons of sulfur dioxide into the atmosphere each year and fouling the air as far away as the Grand Canyon. In the late 1990s, the Sierra Club and the National Parks Association sued Southern California Edison. The federal government has ordered Edison to retrofit the plant with air pollution controls by December 31, 2005—a date that, by chance, coincides with the deadline the tribes have set for Peabody.

But before investing $1.1 billion to renovate the plant and replace the aging slurry pipeline, Edison and its partners want to make sure that Peabody will be able to continue to deliver low-cost coal. Edison in fact wants Peabody to increase its coal production, which would require a 34 percent boost in the amount of water used in the slurry, which would mean pumping more than 5,000 acre-feet per year. Unless Peabody can come up with an alternative to the N aquifer, Edison says it will be forced to shut down its plant, which would also effectively end Peabody’s pumping and mining at Black Mesa, with ruinous economic consequences for the Hopi and Navajo.

To avoid that outcome, Peabody has agreed to consider using the vast Coconino aquifer, which lies in a sandstone layer just above the N aquifer. The Coconino’s brackish water is unsuitable for drinking without treatment, and Peabody could have been using it all along. But the company was concerned that dissolved solids in the Coconino water might damage the pipeline. So Peabody cut costs and used the N aquifer water, which didn’t require any purification. The tribal governments see the Coconino aquifer as a viable solution, especially since the plan also calls for a new pipeline that would be used to bring water to Hopi and Navajo families. But it’s unlikely that the new pipeline from the Coconino aquifer will be ready before the 2005 deadline. One question now is whether the federal government, in light of the economic risks to the tribes, will give Edison more time to retrofit its plant. Hearings underway before the California Public Utilities Commission should decide the Edison case before the end of this year.

Since Edison may be forced to shut down the Mohave plant, NRDC has encouraged the tribes to explore replacing it with a sophisticated coal gasification plant, which breaks down coal into cleaner-burning carbon monoxide and hydrogen. The plant could be built on either the Hopi or Navajo reservation, with federal funds picking up as much as half the construction cost. Coal gasification plants emit about 40 percent less carbon dioxide than do conventional power plants and use 70 percent less water. Under the NRDC plan, the Hopi and Navajo could jointly own the plant, and Peabody would continue to provide the coal.

“The idea is that both tribes would have some equity interest in the plant,” says Beckman. “One of the problems for the Hopi and Navajo economies is that they have not owned the means of production. Other people are making the retail dollar off the natural resources on their land. We need a win-win situation here that is good for the environment but also addresses the fact that a significant portion of the Hopi and Navajo economies are directly related to the Mohave plant. You can’t close it and ignore the impact on the tribe.”

Howard Dennis and his family must haul water to their home in Mishongnovi Village from a source three miles away.

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