

High Country News

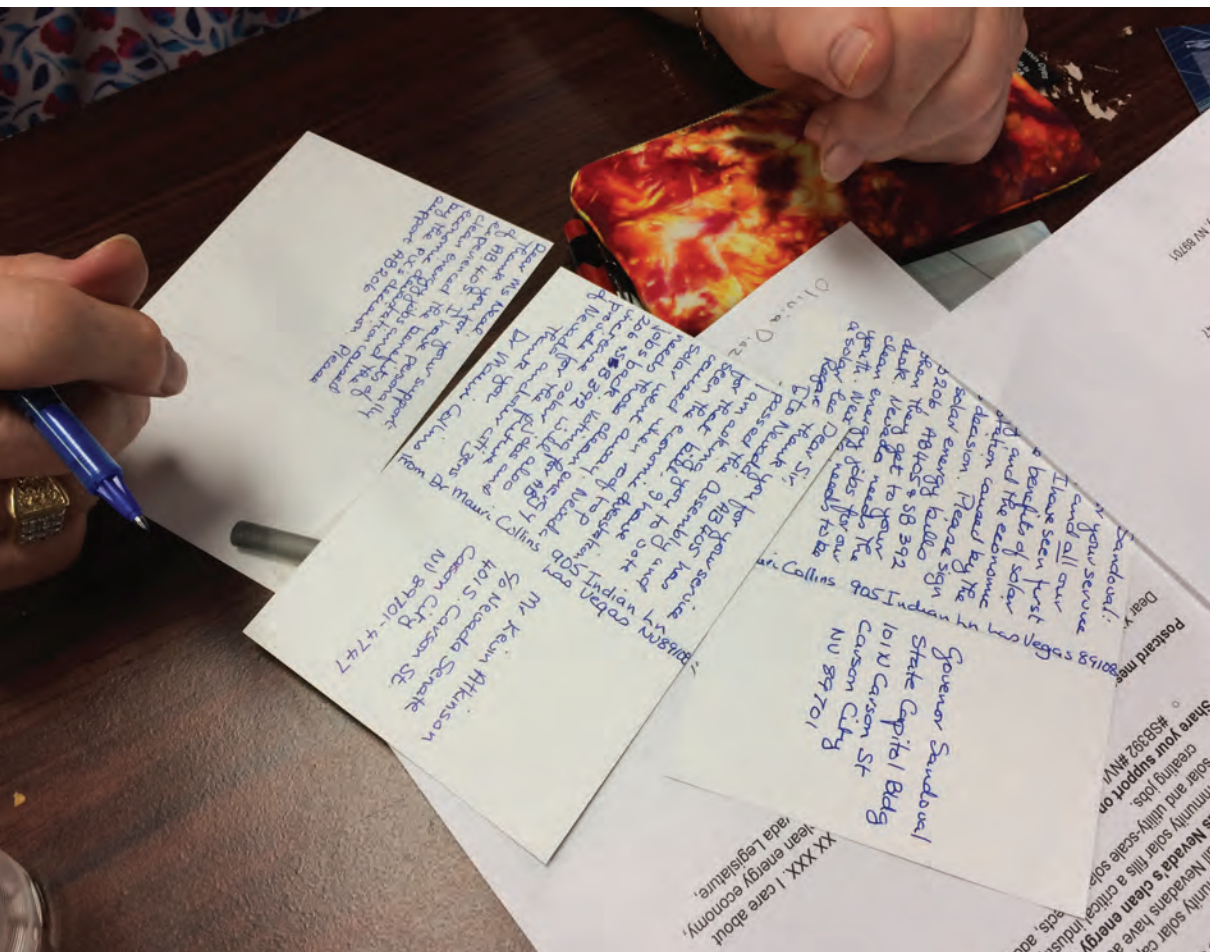
For people who care about the West

ROOFTOP REVOLUTION

Solar advocates win
a surprising victory in Nevada

By Elizabeth Shogren





At a postcard-signing party this spring in Las Vegas, solar enthusiasts write their state senators asking them to support pro-renewable energy bills. ELIZABETH SHOGREN

Editor's note

Solar eclipsing



By the time you read this, you may be on your way to some carefully chosen spot along the 70-mile-wide path of the much-hyped solar eclipse. Or perhaps you're just returning from the celestial event, elated by those two-plus minutes of eerie darkness, but exhausted from fighting traffic on some usually lonesome Idaho or Wyoming byway.

Even if you didn't experience "totality," if you were anywhere in North America, you likely witnessed a partial eclipse. And certainly you didn't miss the eclipse in cyberspace, where you could find everything from detailed scientific explanations to marketing pitches for sunglasses and astrological predictions of doom for Donald Trump's presidency.

I've been particularly intrigued by the stories of the eclipse's impact on solar power production, especially in California, which gets 5 percent of its electricity from the sun. According to the California Public Utility Commission, the moon will obscure 58 to 76 percent of the sun's rays there, resulting in a temporary loss of 4,194 megawatts, enough electricity to power several million homes. Fortunately, this will happen in the cool of the morning before peak demand, and system operators have already lined up backup power from fossil-fuel sources. No need to panic.

A decade ago, we wouldn't have given a thought to the loss of solar power. But, as Elizabeth Shogren reports in this issue, the growth in solar has been so dramatic that it is now something we fight over regularly. Total solar installations for homes and businesses in the U.S. are expected to hit 2 million next year, and in Nevada, rooftop solar grew eightfold between 2014 and 2016.

The jump in residential solar has been driven by a dramatic drop in solar panel costs and by utility companies reimbursing customers for the power they generate for the grid. Now, as Shogren reports, many utilities are losing their enthusiasm for rooftop solar as they see their profits shrink. But their efforts to kill or reduce net-metering programs have met stiff resistance from a broad spectrum of the public as well as the burgeoning solar industry. Shogren's analysis of the bipartisan fight in Nevada reveals solar power's arrival as a major economic and political player in the West. It also shows how utilities are being forced to adjust to a changing energy landscape.

It's all happening remarkably fast. Within the last year, major utilities in Nevada, Arizona and New Mexico have begun shedding coal-fired electricity in favor of natural gas and renewables, like solar and wind. And, as Jonathan Thompson reports, with a smarter, more integrated grid system on the horizon, Western utilities will have more flexibility than ever to move away from fossil fuels.

Maybe the solar eclipse is a portent not of doom, but of enlightenment: our civilization's long-overdue revolution in how it powers itself.

-Paul Larmer, executive director/publisher

On the cover
A Robco Electric employee carries a solar panel to install on a northwest Las Vegas home in 2015. Twenty-seven Robco employees were later laid off, after net-metering credits were cut.
JEFF SCHEID/
LAS VEGAS REVIEW-JOURNAL



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A greater sage grouse in Baker County, Oregon. A new report released by the Interior Department suggests scaling back protections for the imperiled bird.

NICK MYATT, OREGON DEPARTMENT OF FISH AND WILDLIFE

Sweeping changes to sage grouse plans

The Interior Department in August released its review of 98 West-wide sage grouse management plans that were finalized in 2015 after a decade of research and negotiations. Some governors and industry groups applaud the recommendations, because they give states more flexibility and could open up lands for development. Critics say the report values oil and gas over the sage grouse, and that its recommendations would undo the work of existing plans. Here are a few key takeaways:

CHANGING BOUNDARIES

The recommendations include evaluating and perhaps eliminating focal areas and priority conservation areas that limit development in the bird's most sensitive habitat.

POPULATION TARGETS

Instead of focusing on overall habitat health and resilience, the report recommends population targets as a measure of conservation success.

WHAT'S NEXT?

Lawsuits over the 2015 management plans from Idaho, Nevada and Utah will continue, while the Interior Department discusses the report with states, feds, ranchers, developers and conservationists. More recommendations will come this fall, and again in early 2018. TAY WILES MORE: hcne.ws/new-grouse-plan

Trending

God won't take care of climate change

After President Donald Trump signaled his intent to withdraw from the Paris Agreement, Michigan Republican Rep. Tim Walberg told constituents that if climate change were "real," God would "take care of" it. Not so, says Christine Colbert, an ex-Mormon, in an opinion piece. Colbert says people shouldn't use their religious beliefs as an excuse to ignore climate change. In fact, she argues that many faiths promote environmental stewardship, a fact often forgotten in anti-climate change rhetoric. Even those who don't believe the planet is warming should still advocate for measures to ensure clean air, water and wildlife populations for a healthy planet. CHRISTINE COLBERT

You say

ELLIE ROO: "God gave us the ability to think and reason. We need to stop waiting for Him to rescue us and use what He gave us!"

TERRI LEPTHIEN: "When religion is used to justify the destruction of the only place we exist, it is time to either dump or change said religion, as it has become worse than useless; it has become toxic to the existence of life on this planet."

CLINT BATTERTON: "The Bible is not a science book. As I was told in my mainstream Protestant church, we are stewards of the Earth who should leave it, intact, to the next generation."

MORE: hcne.ws/god-climate and Facebook.com/highcountrynews

920

Number of "problem" California sea lions on the Columbia River and tributaries that could be killed annually to protect salmon.

77

Percent of the region's sea lion population that would represent (based on 2006 population estimates).

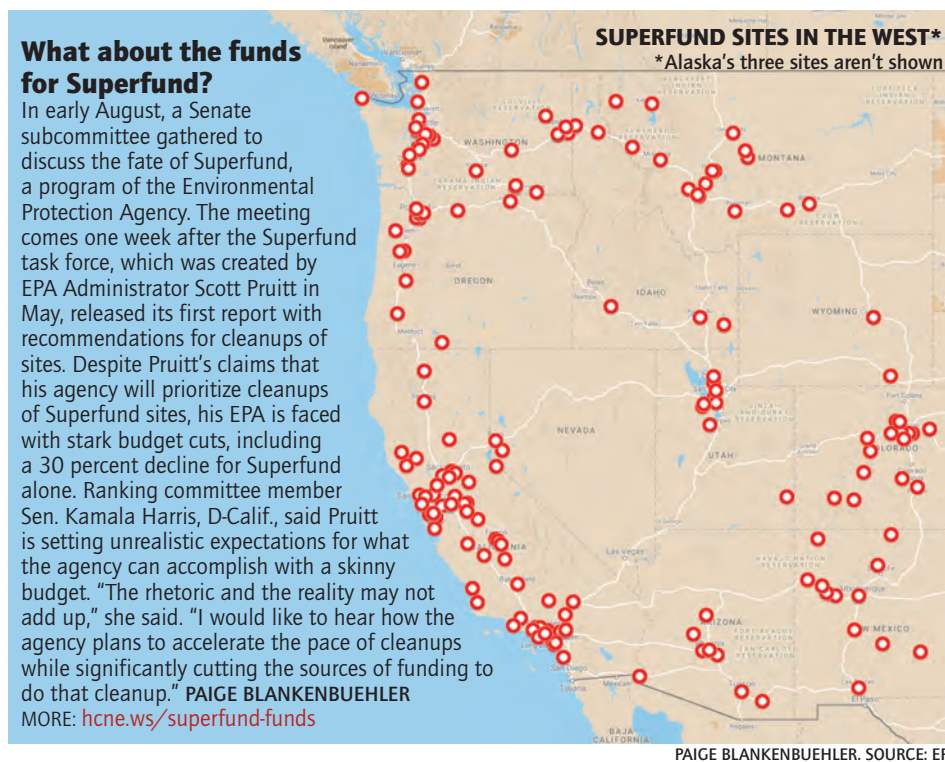
In July, the House Committee on Natural Resources passed the Endangered Salmon and Fisheries Predation Prevention Act, which allows permit holders to kill California sea lions on a 112-mile stretch of the Columbia River. Proponents, including the Columbia River Inter-Tribal Fish Commission, say the bill will help endangered salmon populations. But critics caution that the bill undermines federal protections such as the Endangered Species Act, Marine Mammal Protection Act and National Environmental Policy Act, without addressing the root causes of salmon declines, primarily habitat destruction and dams. The bill heads to a vote in the House next. MAYA L. KAPOOR

MORE: hcne.ws/killing-sealions

What about the funds for Superfund?

In early August, a Senate subcommittee gathered to discuss the fate of Superfund, a program of the Environmental Protection Agency. The meeting comes one week after the Superfund task force, which was created by EPA Administrator Scott Pruitt in May, released its first report with recommendations for cleanups of sites. Despite Pruitt's claims that his agency will prioritize cleanups of Superfund sites, his EPA is faced with stark budget cuts, including a 30 percent decline for Superfund alone. Ranking committee member Sen. Kamala Harris, D-Calif., said Pruitt is setting unrealistic expectations for what the agency can accomplish with a skinny budget. "The rhetoric and the reality may not add up," she said. "I would like to hear how the agency plans to accelerate the pace of cleanups while significantly cutting the sources of funding to do that cleanup." PAIGE BLANKENBUEHLER

MORE: hcne.ws/superfund-funds



PAIGE BLANKENBUEHLER. SOURCE: EPA

PHOTOGRAPHS

What they left behind

A water bottle and tattered clothing were among the items abandoned by migrants near the Mexico border and discovered by Tucson Samaritans. See and read about their work during "Flood the Desert" day:

hcne.ws/items-borderlands



CAITLIN O'HARA

21

Number of Interior Department political hires known to come from the resource-extraction industry.

As Interior Department Secretary Ryan Zinke continued his review of 27 national monuments through August, he tapped pro-fossil fuel industry officials to fill vacant positions at the department. Zinke's Interior Department has already shown signs of a broader push towards energy development on public lands. So far, just three hires come from a conservation, recreation, hunting or fishing background, according to Western Values Project, a progressive conservation organization. TAY WILES

MORE: hcne.ws/energy-interior

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SOLACE AND OBLIGATION

I've read Brian Calvert's essay "Down the Dark Mountain" (*HCN*, 7/24/17) twice now, and will read it again, along with some of Robinson Jeffers' poetry. I can't recall a more intriguing and exhilarating piece of environmental journalism.

Rare is the environmentalist who will acknowledge that we do not appear able to avert an ecocide, and confronting that grim truth is a necessary prelude to asking how we are to live in our time without falling into an abyss of despair.

A little humility goes a long way here. As suggested in the article, there is solace to be had in recognizing our insignificance in the cosmos: The astonishing beauty of this world was not born with us and will not die with us, and our lives can be meaningful even if we are not truly in control of our fate. Existentially speaking, I can think of worse deals. None of which is to say that we are not morally obligated to do our best to ameliorate the impending catastrophe.

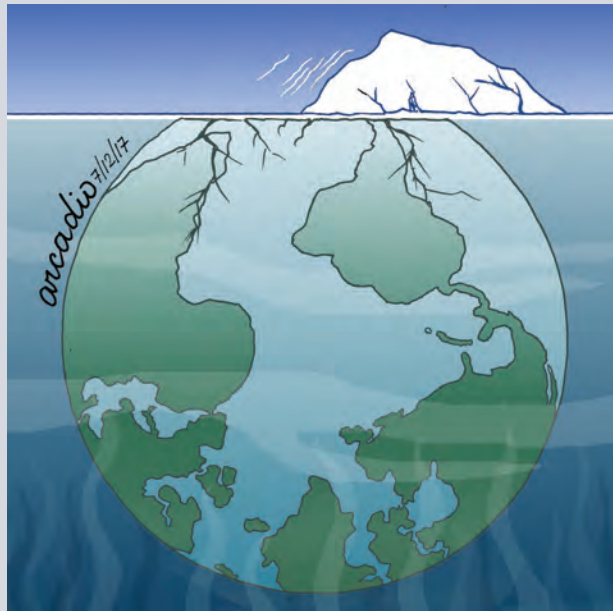
*Don Carolus
Portland, Oregon*

JEFFERS AND BROWER

Thank you, Brian Calvert, for sharing your deep dive into the spirit ("Down the Dark Mountain," *HCN*, 7/24/17) and writing personally of a journey so many of us are making. As you discovered, poet Robinson Jeffers preceded us on that journey, and his works deserve a new generation of readers. He deeply inspired "archdruid" David Brower, who edited the spectacular book *Not Man Apart: Photographs of the Big Sur Coast* (Sierra Club Books, 1965) featuring Jeffers' poems. After many years running the Sierra Club, Brower went on to found Friends of the Earth, which used the phrase "not man apart" from Jeffers' poem "The Answer" as the title of its newsletter to members.

Thank you, too, for revealing so much of yourself through this essay. *HCN* readers are fortunate indeed to be offered this kind of insight into the psychic landscape of the editor-in-chief.

*Ted Wolf
Portland, Oregon*



A TORN PLANET/PLANETA DESGARRADO, ARCADIO ESQUIVEL/CAGLECARTOONS.COM

JEFFERS FAR FROM FORGOTTEN

Brian Calvert's piece "Down the Dark Mountain" (*HCN*, 7/24/17) was good, beautifully written, but ... Robinson Jeffers a "forgotten" poet? While I'm glad Jeffers' work and life have been brought to the attention of *HCN* readers, as one of those readers myself I have to tell you I'm a little peeved. You would have a hard time convincing any self-respecting, well-read intellectual in the entire central portion of the California coast (which I believe is part of the West) that Jeffers is forgotten. Jeffers should not be, and never has been, assigned to the ash heap of literature. His work is not just revered, respected and read to this day but is still included in most college and university poetry courses. To say that "his work has lost favor with academic critics and faded from public view" is almost insulting and would be to many.

*Ron Pease
Aztec, New Mexico*

COUNTERING THE TAKERS

I was moved by Brian Calvert's eloquence, his personal soul-searching, and his finding solace and hope in the words of Robinson Jeffers. I was less impressed by his conclusions centering on beauty and justice and his referencing Douglas Tompkins' quote, "If anything can save the world, I'd put my money on beauty." It seems clear to me that appreciation of beauty has been with us for a long time and has failed to exert a corrective influence

on our "takers," as Calvert calls them, or on their conduct in the political/social/ecological arena. I had hoped as I read the article to find Calvert would offer some more grounded direction to those of us who share his malaise. If Kingsnorth's self-description as a recovering environmentalist is taken to mean an awakening consciousness that comes to grip with the idea that principles and idealism are not enough, then good for him and those who follow him. But by Calvert's report, Kingsnorth seems to offer nothing more constructive. We still need a way to be in the world, to live and to act in a manner that counteracts the destructive consequences of the takers. Retreats and quiet reflection aren't going to do it.

*Avram Chetron
Ashland, Oregon*

GLOBAL BULLYING

My heart broke when I read about Chris Apassingok, the young Yupik whale hunter from Gambell, Alaska ("Death Threats," *HCN*, 7/24/17). A couple of decades ago, I would have agreed with Paul Watson of the Sea Shepherd Society — although not as vehemently or with malice — on the principle that it's not necessary to kill whales. Today I know better, having spent time in Alaska Native villages, listening to elders and trying to understand cultures other than my own. The challenges facing the villages to maintain their homelands, cultures and their youth are difficult enough, and for this young man to experience global vitriolic bullying for providing for his family and community only exacerbates those challenges. But this story is also indicative of willful ignorance, knee-jerk reactions, and a refusal to listen to others, all enabled by the non-personal nature of the internet. And it is also indicative of how disconnected so many of us are from our food and that which nourishes us. I would argue that Indigenous people like Chris have a deeper connection and reverence for the natural world than those who buy butchered meat wrapped in cellophane on a Styrofoam tray.

*Amy Gulick
Clinton, Washington*



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The fate of national monuments

Courts likely will decide on designations threatened by Trump's review

BY ELIZABETH SHOGREN

No president has ever abolished a national monument, and it has been more than 50 years since a president shrank one. Nor has Congress revoked any significant monuments. The high regard given these special places is part of what makes President Donald Trump's order to review all large monuments designated since 1996 so extraordinary. Courts have never decided whether a president has the legal authority to change or undo a designated monument, and now this uncertainty has sparked a clash of legal titans.

A multitude of legal experts — including 121 law professors — argue that presidents lack the power to alter or revoke monuments. Meanwhile, a much smaller but no less adamant group asserts the opposite. These opponents are waging a tug of war in opinion pieces, blog posts, law journals, comment letters and at scholarly conferences. Both sides cite the 1906 Antiquities Act and decades of legal opinions and obscure congressional documents.

This arcane debate over presidential authority matters because the ultimate fate of any monuments Trump targets likely will lie with the courts. Building the legal case to abolish or reduce a monument would be a herculean task, says presidential historian Douglas Brinkley, but if a judge allows Trump to shrink even one, precedent would be set. “When you save national monuments, there’s a sanctity to it,” says Brinkley, a professor at Rice University. “If you’re allowed to start mauling and molesting the monuments, then every other national monument is in jeopardy.”

The Trump administration’s review focuses on 27 monuments, some land and others marine, designated by Barack Obama, George W. Bush and Bill Clinton. All but one of the land-based monuments are in the West and larger than 100,000 acres. By early August, Interior Secretary Ryan Zinke had ended reviews of Colorado’s Canyon of the Ancients, Idaho’s Craters of the Moon, Washington’s Hanford Reach, Arizona’s Grand Canyon-Parashant and Montana’s Upper Missouri River Breaks, recommending no changes. But Zinke has proposed significant reductions to Utah’s Bears Ears, and further

recommendations are due by Aug. 24.

One of the most significant voices arguing on behalf of Trump’s authority is John Yoo, who rose to prominence after 9/11, when, as a deputy assistant attorney general, he wrote memos used to justify the torture of suspected terrorists. Yoo, a University of California, Berkeley law professor, is a frequent TV commentator on presidential authority, and doesn’t always support Trump. On the monuments issue, he is partnering with Todd Gaziano, another former Justice Department lawyer and the executive director of the Washington, D.C., center of the Pacific Legal Foundation, which often argues for property rights and against environmental protections.

The 121 professors were organized by Justin Pidot, a professor of natural resource law at the University of Denver. As an Interior deputy solicitor under Obama, Pidot worked on the designations of several monuments, including Bears Ears, and is passionate about the topic. He posted a six-page letter on list servers and asked other law professors to sign on before he submitted it as a comment to Interior’s review. He was surprised when 120 other

professors joined. “We’re in uncharted territory here. No president has ever done anything like this before: It’s calling into question fundamental principles of public-lands law,” Pidot told *High Country News*.

Their argument: Under the Constitution, Congress has authority over public lands unless it explicitly delegates that power. The Antiquities Act gave the president authority “only to identify and reserve a monument, not to diminish or abolish one. Congress retained that power for itself,” the scholars write. They cite a 1938 opinion by Franklin Roosevelt’s attorney general, Homer Cummings, that concluded that the Antiquities Act “does not authorize (the president) to abolish (national monuments) after they have been established.”

That includes altering monuments, they argue, according to Congress in the 1976 Federal Land Policy and Management Act, which dictates that the Interior secretary may not “modify or revoke any withdrawal creating national monuments.” The professors add that the legislative history (a report from a House committee) makes it clear that Congress meant presidents, too. The bill would “specifically reserve to Congress the authority to modify and revoke withdrawals for national monuments created under the Antiquities Act,” the House committee report reads.

Four prominent environmental law professors expand upon the FLPMA argument in a May *Virginia Law Review* article. One of them, University of Colorado law professor Mark Squillace, concedes it hasn’t been tested in court, and a judge would have to accept that the committee report clarifies Congress’ intentions. “If the court is willing

U.S. Interior Secretary Ryan Zinke speaks at a news conference near Gold Butte National Monument in Bunkerville, Nevada, on July 30, during his tour of some of the national monuments under review.

STEVE MARCUS/
LAS VEGAS SUN VIA AP



Correspondent Elizabeth Shogren writes *HCN's* DC Dispatches from Washington. @ShogrenE

to accept the legislative history, then I think it's game over," Squillace says.

But their opponents, in an *LA Times* opinion piece, contend that FLPMA "is a separate statute, on a different subject, that did not alter the text or plain meaning of the Antiquities Act." If that's the best argument monument supporters have, they say, "they should lose."

Gaziano also scoffs at the scholars' reliance on an "ambiguous" report from a congressional committee. The late Supreme Court Justice Antonin Scalia "famously would never look at a committee report," Gaziano says. The reason he and Yoo are far outnumbered, he says, is that academics tend to be liberals who in this instance are swayed by politics, not law. When the Supreme Court weighs in, Gaziano says: "This isn't going to be close. It's going to be very embarrassing for them."

Gaziano and Yoo argue that the power to designate a national monument implies the power to revoke one. They cite multiple examples where presidents weren't explicitly given the power to undo something but nevertheless did so. For instance,

though presidents weren't given the right to cancel international treaties, federal courts have upheld their right to do so.

An even stronger case, they argue, can be made that presidents have the right to revoke or shrink any monument that was illegally designated, such as one that is overly large. The Antiquities Act specifies that presidents should preserve "the smallest area compatible with the proper care and management of the objects to be protected."

Such reductions are permissible, they say, because presidents have done so repeatedly in the past. In 1915, President Wilson reduced Mount Olympus National Monument (now Olympic National Park) almost by half. Franklin Roosevelt shrank the Grand Canyon Monument (now a national park). Yoo and Gaziano offer advice for Trump: "We think the courts are more likely to uphold significant reductions if the president could credibly include in his determination that the original designation was inappropriately large relative to the object to be protected or has become so with changed circumstances," they write

in a report for the conservative think tank American Enterprise Institute.

Which of these arguments, if any, will prove most persuasive to the courts is uncertain, especially given that Congress has been silent on the issue. It has twice amended the Antiquities Act — to ban presidents from designating future monuments in Wyoming or monuments larger than 5,000 acres in Alaska — without specifying whether their size could be limited elsewhere or if a president can change or revoke one. What is clear is that Trump has taken the nation into uncharted territory when it comes to the future of the vast stretches of Western lands and waters preserved by his predecessors. Jim Rasband, a law professor and vice president of Brigham Young University, concludes in a paper he delivered at a July legal conference: "A new chapter in the meaning of the (Antiquities) Act may be about to be written. Depending on how the courts choose to read congressional silence, which is always a tricky proposition, national monuments may prove to be less permanent than once envisioned." □

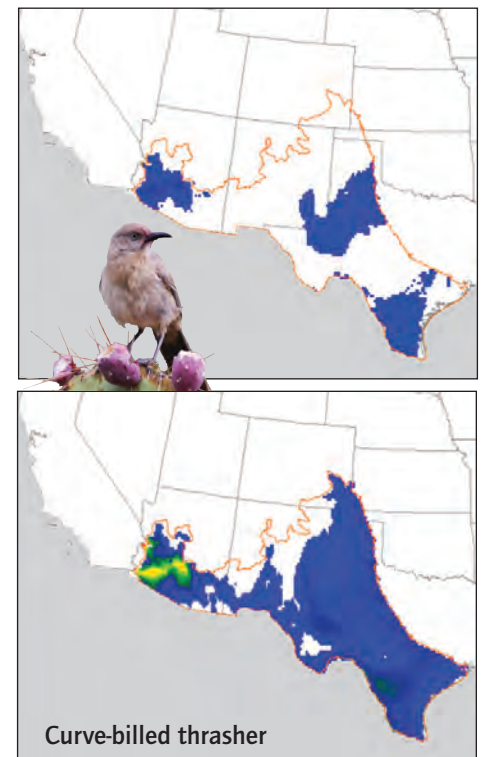
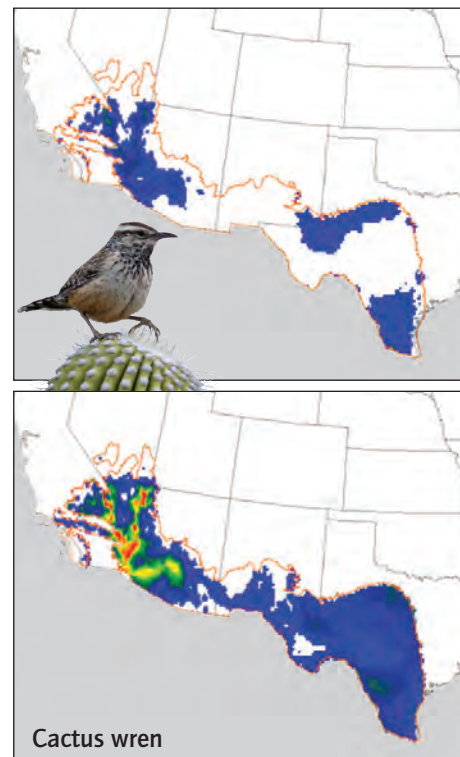
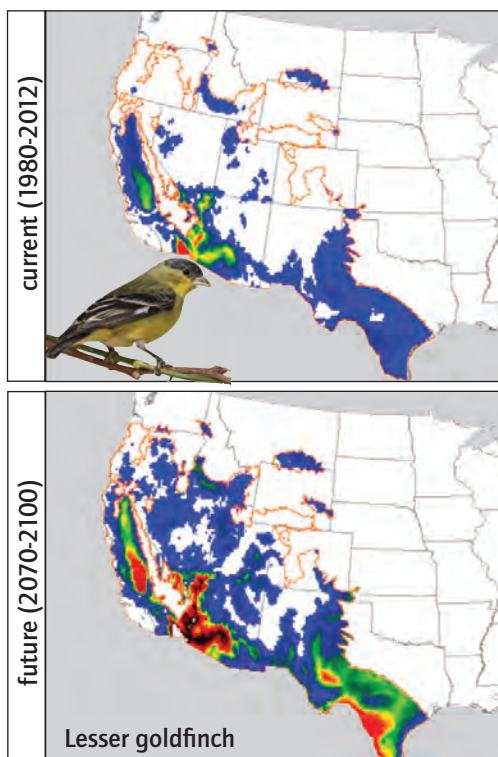
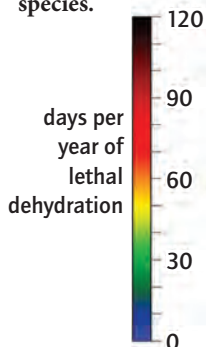
Snapshot Silent summer

*As heat waves increase,
desert songbirds struggle
to keep their cool*

Because of human-caused climate change, the desert Southwest's heat waves are projected to become more frequent, intense and widespread. According to recent research, this may take a deadly toll on songbirds by century's end. Songbirds don't sweat, but because they pant when they're hot, they still lose water staying cool. During heat waves, birds can lose so much water trying not to overheat that they die of dehydration. Most animals can't survive losing more than 15 percent of their body mass to dehydration. Based on climate projections for the Southwest, small birds such as the

lesser goldfinch may face lethal dehydration an average 25 days per year by the end of the century. Larger songbirds, such as curve-billed thrashers and Abert's towhees, lose water at a lower rate, so they won't be as vulnerable to dehydration until temperatures get much higher. But even bigger birds face risks: For some, small ranges restrict them to hot deserts and unpredictable water sources. Birds spend the hottest parts of the day seeking shelter in cool hideouts, making havens such as mountains, trees and shaded washes increasingly important. **MAYA L. KAPOOR**

During summer heat waves, desert songbirds already experience lethal dehydration several days per year in some places (top row). By century's end (bottom row), desert birds may experience dehydration across their ranges (orange line), averaging as much as 25 days per year for smaller species.



MAPS: THOMAS P. ALBRIGHT ET AL., MAPPING EVAPORATIVE WATER LOSS IN DESERT PASSERINES REVEALS AN EXPANDING THREAT OF LETHAL DEHYDRATION. PHOTOS: ALAN D. WILSON/WIKIMEDIA; AARON FELLMETH PHOTOGRAPHY/FLICCR; AARON MAIZLISH/FLICCR



Orchards grow along the Sacramento River. The GROW Act would override a rule that allows water managers to keep water in the river to benefit endangered fish and prioritizes sending water to farms. RANDALL BENTON/SACRAMENTO BEE/VIA GETTY IMAGES

U.S. House moves to streamline water projects

Controversial bill would weaken state control over water

BY JOSHUA ZAFFOS

This July, California Republicans cheered when the Gaining Responsibility on Water (GROW) Act passed the U.S. House. Rep. David Valadao, a Central Valley Republican and the bill's sponsor, said the legislation was necessary to "modernize" the state's water policies following prolonged drought.

Specifically, Valadao wants to boost water deliveries to valley farms — which grow most of the country's avocados, almonds and broccoli, among other crops — leaving less water in rivers to help threatened fish in the Sacramento-San Joaquin River Delta.

That trade-off has environmentalists and Democrats calling the GROW Act a water grab and an attack on state and federal environmental protections. And it could have repercussions for the entire Delta system, which provides much of the state's surface water supplies.

The bill, H.R. 23, would basically block or override several state water laws — contrary to conservatives' often-stated goal of reducing the federal government's role and giving states greater power to manage resources. "They are trying to preempt the state from managing its rivers to balance the benefits to the economy with the need to protect the environment," says Doug Obegi, attorney for the Natural Resources Defense Council.

The bill would override environmental rules set by California's laboriously negotiated San Francisco Bay Delta Accord, an agreement meant to protect water quality in the Delta while guaranteeing reliable supplies for farms and cities. Instead, managers delivering water to the Central Valley would follow a less restrictive, temporary order from 1994 and do so "without regard to the Endangered Species Act." That would prohibit the state from keeping water in the Sacramento or San Joaquin rivers solely to benefit chinook salmon, green sturgeon and delta smelt, all protected under the Endangered Species Act.

It would also repeal and replace the San Joaquin River Restoration Settlement — a state-federal partnership to recover salmon — with a new farmer-friendly arrangement that allows irrigators to dry up a 60-mile stretch of the river, harming fish habitat. Overall, such measures to pre-empt state water laws are "huge and unprecedented," says Brian Gray, an emeritus law professor now with the Public Policy Institute of California.

Outside California, the GROW Act would also fast-track permitting for new dams across the West. It would make the Bureau of Reclamation the lead agency for permitting all new water-storage projects on federal lands, and accelerate environmental review, even for complex projects with expansive effects on rivers, fish and wildlife. Environmental impact statements, which agencies complete to weigh

project costs and impacts, often take years to finish, particularly if conservation groups or local governments file appeals or lawsuits. The act would require the review process to be completed within 13 months, effectively limiting critics' ability to raise concerns.

Such expedited permitting would help water agencies like the Northern Colorado Water Conservancy District, whose plans for two large new reservoir projects have been under review since 2004. Chimney Hollow Reservoir, to be built on the eastern side of the Rockies, will store water diverted from the Colorado River to supply booming northern Colorado. It received federal approval this May — after 13 years of federal review that required numerous plan revisions to address potential environmental impacts. The district's Northern Integrated Supply Project still awaits a final decision.

Northern Water hasn't endorsed the GROW Act, but spokesman Brian Werner says that better agency coordination — between federal authorities and state fish and wildlife managers, for instance — and swifter decisions would help water suppliers address criticism in a more timely, less piecemeal way. Delays are also costly, particularly if construction costs rise, and leave water-needy towns in limbo.

In California, Central Valley water interests have proposed building a new dam on the San Joaquin and raising the height of Shasta Dam on the Sacramento River to increase water storage. Environmentalists worry that accelerated project reviews could make it difficult to identify and analyze overlooked impacts and raise public awareness, making project approvals more likely.

"Environmental reviews have become the scapegoat for the reason that we're not building new dams," Obegi says, noting that water conservation programs or efficiency upgrades can sometimes provide sufficient "new" water without altering the environment. "The reality is new dams largely don't make sense economically, let alone ecologically."

California's two Democratic senators, Dianne Feinstein and Kamala Harris, have vowed to fight the GROW Act, opposing the effort to obstruct the state's ability to manage water and the likely harm to Delta fishermen and the environment. Observers say Senate passage will be tough; similar provisions have stalled in previous years. But now, with the GOP controlling the House, Senate and the White House, congressional Republicans could turn the bill's provisions into legislative riders to must-pass appropriations bills.

"I think the Republicans feel quite emboldened, and I think there's a significant chance that (the GROW Act) could pass the Senate," says Gray. "And I'd expect President Trump would happily sign it." □



An old mining track claimed as an R.S. 2477 right of way by San Juan County.

RAY BLOXHAM/SUWA

THE LATEST

Backstory

Revised Statute 2477, passed in 1866, gave pioneers the right to build roads across public land to encourage settlement. Western counties later exploited it to claim long-abandoned routes for motorized travel, even in national parks and wilderness study areas ("The road to nowhere," *HCN*, 12/20/04). In 2011, 22 Utah counties began asserting R.S. 2477 rights to 36,000 miles of rural roads; some of those routes are no more than cow paths, environmental groups say.

Followup

The federal government had long argued that Utah's road claims were not valid because they were filed years after a state deadline for "quiet title" claims had passed. But in late July, Utah's Supreme Court called that argument "overwhelmingly absurd" and ruled that counties can continue to pursue their R.S. 2477 road claims.

To win in court, they'll have to prove that a road was continuously open to public use for 10 years prior to 1976, when the statute was repealed.

JODI PETERSON

Joshua Zaffos is an *HCN* correspondent who writes from Fort Collins, Colorado. @jzaffos



Occupiers gather around a fire at the Malheur National Wildlife Refuge. BROOKE WARREN

THE LATEST

Backstory

In January 2016, dozens of well-armed occupiers took over Oregon's Malheur National Wildlife Refuge, claiming that they did so because they believe the federal government had no right to own the land. Last fall, leaders Ammon and Ryan Bundy were acquitted on charges related to the 41-day siege. The brothers' five co-defendants were also found not guilty of charges ranging from intimidation to preventing federal employees from doing their jobs ("How Ammon Bundy got acquitted in Oregon," HCN, 11/28/16.)

Followup

On Aug. 7, Malheur occupier Travis Cox of Oregon was sentenced to two years' probation for conspiracy. Sean, Sandra and Dylan Anderson were each sentenced in recent months to a year of probation for trespassing, and Geoffrey Stanek and Eric Lee Flores were sentenced to two years' probation for conspiracy. Ten other participants — Jason Patrick, Joseph O'Shaughnessy, Jason Blomgren, Wesley Kjar, Duane Ehmer, Darryl Thorn, Jake Ryan, Ryan Payne, Jon Ritzheimer and Blaine Cooper, still await sentencing for felonies and other charges. TAY WILES

Under Trump, tribal land ownership is not a priority

Hearings and Interior statements signal a step back for tribes

BY ANNA V. SMITH

During President Barack Obama's eight-year tenure, tribal sovereignty, the power by which tribes govern themselves, was a prime concern. But under President Donald Trump, that may change. There are several indications of this shift, including proposed budget cuts to the Interior Department's Bureau of Indian Affairs and the de-prioritization of major land initiatives.

Within the first six months of the Trump administration, the Department of Interior has renewed its interest in energy development and land privatization. That differs starkly from Obama's policies, which focused on both acquiring and consolidating land for tribal nations. One of the most ambitious efforts to that end, the Land Buy-Back Program, will not continue under Trump.

The Land Buy-Back Program sought to end a process called fractionation, which continually splits land ownership among tribal descendants and makes the land more difficult to use for development or agriculture. Some 2 million acres of land were returned to tribal governments under Obama, using part of the \$1.9 billion for tribes under the so-called Cobell settlement. But with the majority of that money already spent to defray fractionation, the changes at the Interior Department will not put additional funds towards the program, according to James Cason, the associate deputy secretary for the Bureau of Indian Affairs.

Tribal leaders are also concerned about two recent hearings held by the House Committee on Natural Resources, over both the Cobell settlement and another land policy, called land-to-trust. Land-to-trust dictates the procurement of land by the Interior Department, which is then held in trust for tribes by the federal government, effectively creating a new parcel of reservation land not subject to state or local taxes or jurisdiction.

In a hearing on the Land Buy-Back Program in May, the House Subcommittee on Indian, Insular and Alaska Native Affairs questioned Cason on the program's efficacy. Cason — who worked for the BIA under George W. Bush administration, which fought hard against the Cobell settlement — is now in charge of the buy-back program. Cason told the

subcommittee the program was not reducing fractionation, and suggested that the funds be distributed to fewer tribes, especially those with cheaper land in rural areas. On July 31, the Department of Interior announced it had done just that.

While that approach might lessen the federal burden from fractionation, it won't help tribes like the Agua Caliente Band of Cahuilla Indians, whose land prices are high due to its proximity to Palm Springs, California. Instead, it will narrow its focus from the 150 tribes in the program under Obama, to just 20 tribes with large land bases in Montana, the Dakotas, and nine other states. The Trump administration says it will not continue funding the program, meaning tribal land will continue to fractionate generation by generation, making consolidation harder.

"Perhaps no administration was more aggressive than the Obama administration in acquiring land into trust," says Gabe Galanda, a Seattle-based tribal law attorney and member of the Round Valley Indian Tribes of California. "Now we're starting to see the Trump administration vigorously react to that." The administration's attitudes toward the buy-back program will be a "bellwether" on how it will also handle trust lands, Galanda says.

Another bellwether revealed itself in a July hearing addressing trust lands. In that hearing, a subcommittee for tribal

affairs examined whether the land-to-trust program was following the law. At issue is the Obama administration's approach to land-to-trust, which Republican witnesses said was causing hardship to towns near reservations. Fred Allyn III, the mayor of Ledyard, Connecticut, which encompasses the Mashantucket Pequot Reservation, called his town a "host community" that was losing tax revenue due to trust lands.

Such testimony "not only lacks facts but is also dangerous" in its representation of tribes, Kirk Francis, president of the United South and Eastern Tribes and chief of the Penobscot Indian Nation — and the only Native American witness at the hearing — told the subcommittee. "Fringe, out-of-date views have no place in a congressional hearing room," ranking Democrat Raúl M. Grijalva of Arizona said in a statement following the hearing. "We saw a jaw-dropping display of ignorance today."

Taken together, the House hearings signal a broader shift in attitude toward tribes, their land and sovereignty issues. That's already beginning to play out at the Department of the Interior, which in late July proposed criteria that will make it more difficult for land to transfer into trust. "All of these hearings in the last several months are basically a reinvigoration of what we used to call termination in the '50's and '60's," says Matthew Fletcher, director of the Indigenous Law and Policy Center at Michigan State University. That has real implications for tribes attempting to manage their affairs without the federal government. "Just as we're getting to the point where the Department of Interior and the United States is making that happen in a realistic way, you get a new administration that's talking about throwing everything out with the kitchen sink." □



Tessa Plainfeather and Emily Moccasin embrace in front of their grandmother's home on the Crow Reservation in Montana. The reservation is home to one of the 20 tribes with a lot of land that will still be included in the Land Buy-Back Program to reduce the impacts of fractionation.

TIM GOESSMAN/NATIVE NEWS/UNIVERSITY OF MONTANA

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Burrowing owl. DAVID TIPLING

THE ENIGMA OF THE OWL: AN ILLUSTRATED NATURAL HISTORY

By Mike Unwin and David Tipling

288 pages, hardcover: \$40. Yale University Press, 2017.

Owls have long been the subject of myth and superstition. Are these mysterious, large-eyed, nocturnal creatures fearsome? Wise? Ghostly? But despite this history of fascination, human development has now put many owl species at risk: Deforestation and agriculture fragment their habitats, and pesticides pollute their diets.

A new illustrated natural history book highlights 53 owl species from around the world, organized by bioregion. (Owls are found on every continent except Antarctica.) Entries describe each owl's appearance, habitat, mating habits, threats to its survival, and other distinguishing characteristics: Diminutive elf owls nest in woodpecker holes, for example, while the boreal owl's courtship song can be heard from up to two miles away. Together, the text and images vividly show why owls have intrigued humans throughout the ages and how vital they are to the natural world. **REBECCA WORBY**

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Eurasian pygmy owl. DAVID TIPLING

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Welcome (back) to new and returning staff

Monsoon season has rolled into western Colorado. Luckily for us, the late afternoon thunderstorms clear up as quickly as they arrive, leaving plenty of time to enjoy the August evenings, relaxing in our backyards or listening to bluegrass music in Paonia's town park.

Late July brought a steady stream of visitors. **Wesley Horner** and **Mary Hamlin** from Boulder, Colorado, were looking for fruit, so we sent them to the nearest cherry orchards. Danville, California, resident **John Gallagher** visited while in town for the Top O' the Rockies BMW motorcycle rally with his wife.

We also welcomed **Jerry** and **Melinda Van Gasse** of Phoenix, subscribers since the early 1980s. **Raleigh Burleigh**, the news director for Carbondale, Colorado's community radio station, KDNK, dropped in on his way to a film screening. **Abby Quillen** and **Aaron Thomas** from Eugene, Oregon, stopped by. Abby's father, the late **Ed Quillen**, was a legendary *HCN* contributor, and Abby last visited when she was 7. Things have changed since then, she says — we hope for the better!

Emily Matyas and **Mark Klett**, whom we profiled as an Uncommon Westerner in 2005, visited from Tempe, Arizona, after camping in Black Canyon of the Gunnison National Park. Campers **Lauren Parker** and **Kristen Trout** also came by — they said they read “bedtime stories” from a recent issue in their tent. Sounds like a great night to us!

Carl Lincoln, a subscriber for

more than 35 years, and **Jack Walker** toured the office during a pit stop on their motorcycle trip from Enterprise, Oregon, to Pikes Peak, Colorado. **Valerie Kurth** of Montana, **Joyce Kurth** of Wisconsin and **Bing Reynolds** from Boulder, Colorado, dropped by after visiting family. Bing used to sit way up on his 'dozer and read *HCN* during his breaks while working at a mine in the 1970s; he's been a subscriber (on and off) ever since.

Carmen (“Car”) Jorgensen, in town for a month-long artist residency, said hello. Subscribers **Manda** and **James Salladay** and their dog **CoCo**, of Glenwood Springs, dropped by with James' parents, **Ron** and **Annell**, from Texas, on the last day of July. Ron's father, **James H. Salladay**, was also a subscriber, so their visit represented three generations of *HCN* readers (four if you count CoCo, who probably reads us when nobody's looking). Thank you for your loyalty, Salladays!

We're thrilled to welcome **Erica Howard** as our new accountant and human resources assistant. A native of England's Isle of Wight, Erica and her husband moved to western Colorado a year and a half ago. She's excited about her new home: “It's a very beautiful place and it's a very creative community,” she says. And we managed to talk **Tammy York** into rejoining our circulation staff after a five-month break. “I'm glad to be back helping our subscribers,” she says. Not as glad as we are, Tammy!

—*Emily Benson, for the staff*



Carl Lincoln and Jack Walker came to visit while on a motorcycle journey. BROOKE WARREN

Rooftop Revo

Solar advocates win a surprising victory in Nevada

FEATURE BY
ELIZABETH
SHOGREN

Near the end of 2005, Louise Helton had one of those life-changing moments that usually only happen in Hollywood movies. Friends had invited her to join Nevada movers and shakers in an ostentatiously decorated Las Vegas casino ballroom to hear former President Bill Clinton speak. He challenged the audience to diversify the state's economy, and to do so in a very specific way. Adopting a Southern drawl, Helton recalls the words that inspired her: "And he said, 'If I were y'all, y'all would be the Saudi Arabia of solar.'"

Clinton's pitch made sense to the 51-year-old Helton. With its abundant sunshine, Nevada was well positioned to become a clean energy leader. Besides, the state lacks its own coal or natural gas reserves, so it has to import those conventional fuels, thus benefiting other states' economies instead of its own. "There is no better or cheaper resource than the sun that is shining down on the sunniest place in the West," Helton says.

Clinton's words percolated away inside Helton for a few years. Then, in 2008, she took the leap. Using savings from the two decades she spent working with at-risk kids, she opened her own company, 1 Sun Solar Electric. She kept costs down by melding it with her life partner's successful tile and stone company, and in 2009, they started attaching solar panels to roofs in Las Vegas. Her timing was unfortunate; the recession hit Las Vegas especially hard and the impacts lingered, but Helton was able to keep her small crew working and her business in the black. By the time Nevada's economy bounced back in 2014, the cost of solar panels had plummeted. Helton's company was ready to ride the wave. "We were making a very good living and supporting a crew of folks who were able to support their families," she recalls.

Her business relied on a state law

that required the monopoly electricity provider, NV Energy, to pay customers for power generated by their solar panels. For each unit of energy provided to the grid, NV Energy would give them a free unit. This one-to-one swap, called net metering, kept solar customers' bills low and reduced the time it took to recoup their upfront investments.

Big companies that lease solar panels, such as SolarCity and Sunrun, swooped into Nevada, hiring hundreds of people. In 2015, a record 24,564 people applied to be solar customers with NV Energy, according to the company. But near the end of that year, the Public Utility Commission of Nevada, the state's utility regulators, crushed the nascent solar boom by increasing fees for solar customers and slashing reimbursements for the power they feed into the grid. That fundamentally altered the economics of rooftop solar. "It was stunning," Helton recalls. "That's how we found ourselves upside-down and backwards and almost out of business."

The Nevada regulators' order was the most extreme example of a nationwide effort by corporate utilities — panicked about losing market share and profits — to roll back net-metering policies. It's backed by the deep pockets of fossil fuel industrialists like the Koch brothers, conservative lobbying groups like ALEC, the American Legislative Exchange Council, and the electricity industry's own trade group, the Edison Electric Institute. But the Nevada regulators unexpectedly sparked a fierce resistance movement, comprised not only of environmentalists and clean-energy advocates, but also libertarians, small-business owners like Helton, and ordinary citizens who have installed rooftop panels or thought about doing so. It's not just a battle between dirty and clean energy; it involves corporate profits, individual freedom and the appropriate role of government in incentiv-

izing market shifts. And if the ultimate outcome in Nevada is any indication, the utilities have a tough fight ahead of them.

NEVADA'S NET-METERING RULES were first implemented back in 1997, when rooftop solar panels were still a novelty. They required the state's investor-owned utility, NV Energy, to buy the electricity generated by customers' solar panels at the retail rate. Still, the high cost of panels combined with the low cost of electricity in Nevada made rooftop solar economically unattractive, even with net metering, rebates and other incentives. For a decade or more, few rooftops in the state sported panels.

It finally took off around 2013. Prices had fallen enough that most customers could recoup their upfront investments in 10 years or less. And companies had started offering to lease solar panels to homeowners, making solar affordable for people without the \$20,000 or so needed to buy their own panels. Like other utilities around the country, NV Energy was supportive of rooftop solar while it was rare. But as soon as its popularity rose, the utility started pushing the Legislature to dial back the incentives.

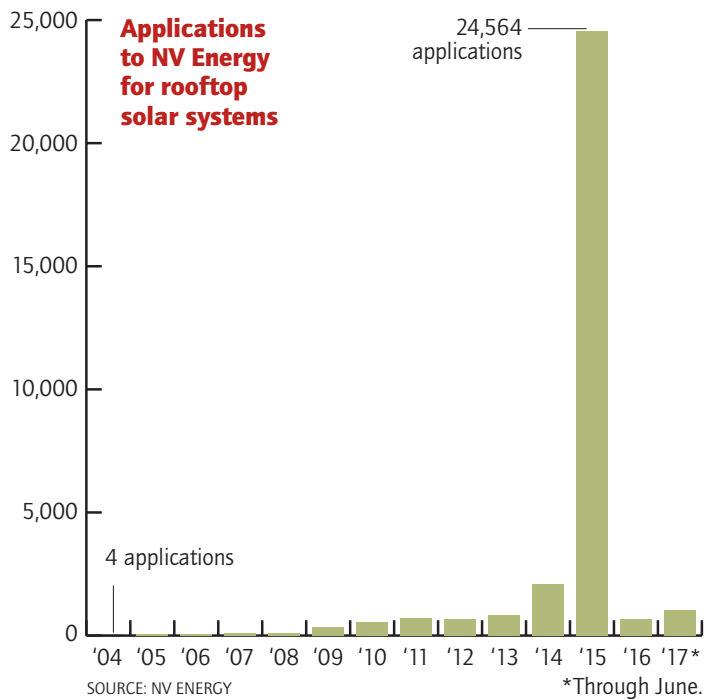
"Solar growth is happening extremely rapidly across the country, and it's probably going to speed up. That's making utilities very nervous, especially in sunny places," says Lincoln Davies, a professor at the University of Utah's Quinney College of Law. "The change in Nevada was part of a larger trend of utilities starting to push back."

The terracotta rooftops on Helton's street in southwest Las Vegas tell the story of the boom. Hers used to be the only house with solar panels, but starting a few years ago, several neighbors followed her example. Skip Spreitzer, 66, leased his solar array for 20 years through SolarCity. He wanted to do his part to protect his grandchildren's future

► Louise Helton, vice president of 1 Sun Solar Electric, stands for a portrait with rooftop solar on her company's office building in the shadow of Las Vegas' Stratosphere Tower.
RONDA CHURCHILL

Evolution





average just over \$1,000 per year. For Spreitzer, those savings were mostly offset by his monthly solar panel lease payments. But down the street, Helton's bills dropped dramatically after she installed panels in 2010. She owns her own panels, uses LED lighting and efficient appliances and heats with gas. Over the course of the year, her panels produce about the same amount of energy she consumes, so she basically just pays NV Energy service fees. Helton paid \$28,000 seven years ago for those panels, about twice today's cost.

These improving economics helped Nevada rooftop solar grow eightfold between 2014 and 2016, following a larger trend. Nationwide, electricity generation by homeowners and small businesses nearly doubled over that time, according to the federal Energy Information Administration, and total solar installations in the U.S. are expected to hit 2 million next year.

Meanwhile, public support for rooftop solar is broadening, even among people

nesses, offering huge financial incentives to lure companies — like SolarCity and Tesla (now one company) — to the state. When a new SolarCity training center opened in West Las Vegas, just a month prior to the PUC's fateful net-metering decision, Sandoval said it would make the state "the regional hub for training workers in the jobs of the 21st century. Our homegrown solar industry has already created over 6,000 good Nevada jobs, and has tremendous potential to continue driving innovation, economic diversification and opportunity in the Silver State." SolarCity expected to train 4,000 solar workers a year at the facility.

Meanwhile, utilities and fossil fuel interests like the Koch brothers were already sounding the alarm about the threat rooftop solar poses to their profits. In 2013, electric utilities' main trade group, the Edison Electric Institute, published "Disruptive Challenges." The report warns that rooftop solar, batteries and other technologies could "directly threaten the centralized utility model."

Utilities sell a product, electricity. If their customers start generating their own electricity, the utilities sell less product and make less money. To keep profit margins up, they have to increase electricity prices — inadvertently chasing even more customers to solar. That creates a feedback loop, or what Edison Electric Institute calls a "death spiral." The phrase is "hyperbolic," says Davies, but "utilities are right to worry about that. The price of solar keeps dropping. Utilities are risk-averse. When they see a risk, they get nervous."

Publicly, instead of complaining about lower profits, utilities argue that solar power shifts energy costs to the customers without solar, thereby hurting low-income people. Utilities spread the costs of maintaining the grid across their entire customer base, and with fewer people paying sizeable bills, non-solar customers end up having to pick up more than their share of the grid costs.

Many studies have tried to suss out the costs and benefits of rooftop solar and net metering. Most show that it provides a net benefit, especially if only a small portion of a utility's customers have solar. Collectively, a bunch of residential solar panels functions like a large-scale solar farm, offsetting the need for utilities to construct new power plants or install expensive pollution-control equipment on coal-fired power plants. Utilities also save money they'd otherwise pay for coal or natural gas. And, because the electricity is used by homeowners or their neighbors, rooftop solar eliminates the expensive problem of electricity being lost as it flows long distances on power lines.

Still, utilities, even the ones that support renewables, feel like they're getting a raw deal. They have to pay full retail price for solar generated on homeowners' rooftops, when they could save money for themselves and their non-solar customers by getting power from their



A handful of homes in north Las Vegas sport rooftop solar panels. Las Vegas, with 3,817 hours of sunshine a year, is one of the sunniest cities in the U.S.
RONDA CHURCHILL

by reducing the greenhouse gas emissions that come from burning coal and natural gas. And, as a retiree, he was drawn to the idea that the solar panels would be a hedge against higher utility bills in the future, should natural gas prices spike.

During the daytime, when the sun shines, the photovoltaic panels perched on Spreitzer's roof generate power for his lights and appliances. And when they generate more than he needs, the excess flows onto the grid to be used by nearby homes. Spreitzer relies on the grid at night and during the long hot days of summer, when air-conditioning sucks more juice than his panels can generate.

According to a 2014 study, an NV Energy rooftop solar customer could save on

who don't plan to use it themselves. "People like solar. It appeals to everyone from libertarians to the far left. The beauty of solar, particularly rooftop solar, is it doesn't have a single narrative that's driving it," says Shelly Welton, an assistant law professor at the University of South Carolina, who tracks renewable energy policies around the country. Some people like it because it saves money, others because it helps fight climate change. Many simply enjoy being self-sufficient.

In part because of the promise of clean energy jobs and the growing political heft of the solar industry, politicians of both parties promote renewable power. In 2013, Nevada Gov. Brian Sandoval, a Republican, courted clean energy busi-

own conventional or renewable power plants or buying it wholesale from other providers. Wholesale solar prices have dropped considerably, increasing the gap between what utilities pay for rooftop and wholesale solar. The bigger the spread, the more money they — and therefore their non-solar customers — are losing. Plus, rooftop solar doesn't help electric companies when they need it most. Solar starts to fade during the peak hours of energy demand, in the late afternoon and evening during summer, when people get home and crank up their air conditioners. Companies still have to buy expensive power to meet that demand.

And so, many utilities have gone on the offensive, trying to shrink or kill net-metering policies. In California and Colorado, regulators balked and largely protected solar customers from higher rates. Arizona Public Service, the state's largest utility, spent heavily in the 2014 elections to oust solar-friendly members of the Arizona Corporation Commission, which regulates utilities. The Salt River Project — which as a quasi-municipality is not under the jurisdiction of the Arizona Corporation Commission — adopted higher rates for its new solar customers. In Utah, Rocky Mountain Power, which like NV Energy is owned by Berkshire Hathaway, is now trying to boost electricity bills for solar customers.

Since the public backlash was unleashed in Nevada, NV Energy has tried to stay above the fray, at least publicly — the company refused repeated requests for interviews for this story. But one of the strongest voices in opposition to pro-solar net-metering policies is longtime labor boss Danny Thompson, who recently retired from the Nevada AFL-CIO and now works as an independent lobbyist for the International Brotherhood of Electrical Workers, which represents hundreds of NV Energy employees. A former state legislator, Thompson says he used to be a big supporter of solar. But he objects to the business model of companies like SolarCity and Sunrun, which lease their panels to customers and finance the installations in part by selling federal tax credits to banks or other investors. It's a good deal for the investors and the middle-class folks who lease the panels. But most low-income Nevadans can't afford to buy or lease solar panels. "What I didn't like was companies coming in and selling long-term leases so people don't own their solar panels," Thompson says. "The companies were taking the leases and monetizing them on Wall Street as investments. The net effect is you have poor people subsidizing everyone else."

The union also objected to the fact that solar companies pay less than union wages, and their crews often have only one licensed electrician.

This was the kind of complaint about net metering Nevada lawmakers heard when the Legislature met for its 2015 session. Under Nevada law, the net-metering incentive would tap out once 3 percent of a

utility's electricity was produced by rooftop solar. Some solar companies were lobbying hard to increase that cap. NV Energy argued that with solar panel prices plummeting, the industry no longer needed net metering as an incentive.

So in June 2015, Nevada lawmakers ordered the Public Utility Commission to set new rates that would minimize cost-shifting to non-solar customers.

That summer and fall, the Public Utility Commission held a series of heated hearings in Carson City. Helton attended every session via video link from a commission building in Las Vegas. Pro-solar protesters, including Skip Spreitzer and, at times, hundreds of solar workers, demonstrated outside. It was all for naught. "We took in boxloads of postcards, and it didn't seem to faze them at all," Spreitzer says. "Those people sitting on the board just weren't going to hear anything we had to say."

The commission considered the additional costs of serving solar customers but not the benefits — job creation, popularity, reduced greenhouse gas emissions and a cleaner environment. It calculated that on average, the savings realized by each solar customer in southern Nevada would push NV Energy annually to shift \$623 to all of the other customers. That increases each non-solar customer's monthly bill by about \$2.50, which the commission considered "unreasonable."

That the commission then penalized new solar customers was no surprise, but the extent to which net-metering credits were cut, and the fact that they would also apply to existing solar customers, was shocking. "I was aghast. I thought, there's no way they could do that," Helton says.

Even Gov. Sandoval — along with other lawmakers who had directed the regulators to take up the issue — seemed unprepared for the utility commission's order. Sandoval expressed concern about solar workers losing their jobs. But he also told a local television reporter from KTNV that he wasn't picking sides and believed that the Public Utility Commission was "uniquely qualified" to make the call.

The consequences were swift and substantial. In 2016, NV Energy received only 287 applications for solar hook-ups, about 1 percent the number of the previous year. The big leasing companies pulled out of the state entirely. SolarCity's training center shut down, companies closed warehouses and announced layoffs. An estimated 2,600 solar workers eventually lost jobs. Helton herself had to lay off two people, half of her crew. Her neighbor, Spreitzer, watched his electric bills shoot up and knew they would continue to do so. "I was real worried; I spent a lot of time down there at the Public Utility Commission office where we were having our protests," Spreitzer says.

HELTON WAS DETERMINED to ride out what she calls the "solar coaster," and soon became a leader of the movement, in part because she's articulate, outgoing

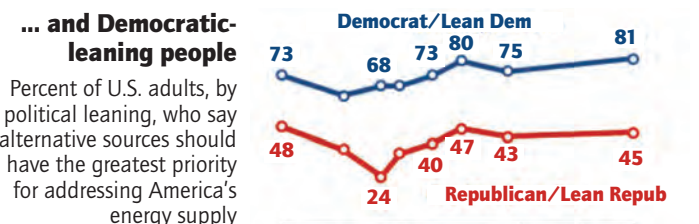
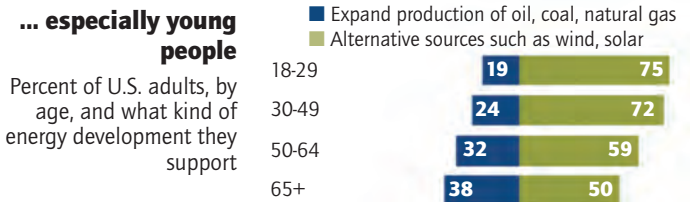
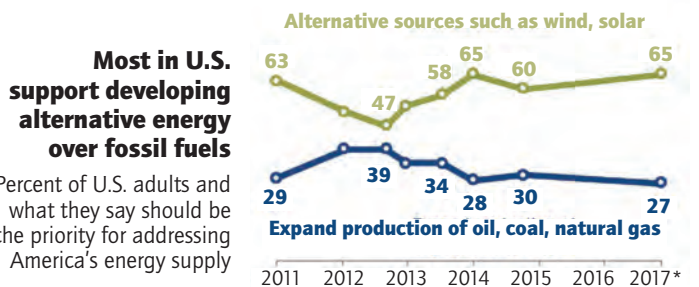
and familiar with the workings of the state Legislature and governor's office after years of lobbying for better laws for at-risk kids. Of the intense political wrangling, she says playfully: "President Clinton never mentioned that part."

Thousands of others joined her in protest, prompted by more than just the loss of good jobs. Many people saw the order as infringing on their freedom to choose to produce their own electricity. Activists collected more than 115,000 signatures from voters — twice what they needed — to put a net-metering referendum on the ballot in November. (After a group backed by NV Energy challenged the referendum in court, the Nevada Supreme Court struck it down.)

The intense backlash forced Sandoval off the fence. In the first months of 2016, he made several moves that slowly reversed the commission's order. He named a New Energy Industry Task Force, which included representatives from solar companies and environmental groups as well as NV Energy and Thompson, who represented the employees' union. In May 2016, the group urged the Legislature to restore the original one-to-one reimbursement rates for existing customers. Four months later, it suggested temporarily restoring one-to-one rates for new solar customers, too, while also charging them at least \$25 per month to ensure that they pay their share of grid costs. That same month, a Nevada judge ruled that the commission's decision to revoke one-to-one net metering for customers who already had solar was a "denial of fairness and due process."

Soon afterwards, the utility commis-

Renewable energy's biggest fans



SOURCE: PEW RESEARCH CENTER

* 2017 FIGURES ARE AS OF JANUARY 4-9, WHEN THE SURVEYS WERE CONDUCTED.

In Nevada, the public's insistence on solar is ultimately what pushed politicians to bring back net metering.

sion backtracked, approving an agreement between NV Energy and solar companies to restore net metering to existing solar customers like Helton and Spreitzer. Just days later, Sandoval replaced two members of the Public Utility Commission. In December, the commission temporarily restored net metering for new customers, but only for a limited number in northern Nevada. The commission's new chairman, Joe Reynolds, explained the reversal by quoting Abraham Lincoln: "Bad promises are better broken than kept."

Although net metering wasn't on the November ballot, per se, it was prominent in voters' and politicians' minds in the months before the election. Even presidential candidates Bernie Sanders and Hillary Clinton weighed in. As Justin Watkins went door-to-door in his campaign to represent a middle- and upper-middle-class Las Vegas district in the state Assembly, he saw how potent the issue was. "We knocked on 30,000 doors. It was the number-two issue at the door, behind education," Watkins recalls. A Democrat, Watkins says restoring rooftop solar is important to both Republicans and Democrats in his district. That may be why he won election in November. As one of his first major actions in office, Watkins sponsored a bill restoring favorable rates for solar customers.

Watkins partnered with Chris Brooks, another freshman assemblyman, who ran for office in part to restore rooftop solar. Brooks has owned and been an executive for companies that installed residential and large-scale solar projects. On the walls of his small office in the Legislature building hang photos of President Barack Obama visiting a couple of Brooks' projects in the Nevada desert.

Soon after taking office, Brooks became a critical player in energy policy, chairing a key subcommittee that drafted much of the energy legislation. He also sponsored a bill requiring NV Energy to get a larger share of its power from renewable sources. He credits the public backlash to the PUC order with motivating legislators to take renewable energy seriously in the 2017 session — the first time lawmakers convened since the 2015 order. "I think they were mad that government, in their eyes, screwed this up for them and they wanted to fix it. I think it played a tremendous role in empowering us with the knowledge that our constituents really want this and need it," Brooks says.

NEVADA'S LEGISLATURE only meets every other year for four months. That meant that the 2017 session was its last chance to pass the rooftop solar bill reversing the PUC's decision, along with a slew of other pro-renewable bills, before 2019. Early on, Helton was delighted to see solar getting so much attention from Watkins, Brooks and others: "I'm very hopeful that the future is going to bode well for sunshine in Nevada," Helton said at the time. But as the weeks ticked down toward the end of the session and the rooftop solar

bill hadn't passed yet, the solar advocates got increasingly anxious. "It has been a constant source of stress and effort. We've lost so much sleep over it," Helton says. With only two weeks to go, Vote Solar, an advocacy group, decided it was time to pull out all the stops and gather a group of Nevada solar business representatives to confront the lawmakers face-to-face.

In late May, Helton and her colleagues took a 6 a.m. flight to Reno and piled into cars headed for Carson City. Their mood was upbeat because the day before, the Assembly had passed the rooftop bill, 38 to 2. It was a huge victory, but the ultimate outcome was far from certain. The Senate was still a wild card.

Standing outside the legislative building in the morning sunshine, Helton was the only woman in the group of nine. Wearing a vibrant yellow cardigan over a black polo shirt with her company's logo, she stood out among the sport coats and golf shirts. Jessica Scott from Vote Solar gave the group a pep talk: "We have overwhelming public support. Nevadans really want to see solar. They were devastated by the 2015 Public Utility Commission decision, and they have in every way possible communicated that they want Nevada to be a clean-energy leader. It's just exciting because it's people power, it really is."

Fired up, the crew embarked on a journey around the Capitol grounds.

This trip was a matter of survival for the businesses they represented. "What you see before you are just the remnants that are left of our industry," Helton told a state senator during their first meeting that day. "We've already been struggling for two years to ... keep our companies

together, just so we could live to fight another day. Two more years; we just won't make it."

The big event of the day was the Senate Energy Committee's hearing on the rooftop solar bill. When the group of solar businesspeople filed in, Brooks, the freshman assemblyman, was on the hot seat. Brooks' task was to convince the senators to move quickly to approve the rooftop solar bill. Later in the hearing, the businesspeople each had three minutes to summarize their companies' precarious positions and beg the senators to pass the bill.

Rob Kowalczyk, of Robco Electric, had to lay off 27 people after the commission's 2015 decision. "We lost a million dollars in sales a month. It hurt," Kowalczyk told me earlier that day. "I'd really like to bring back my employees."

Kowalczyk was lobbying for the first time in his life. Helton, on the other hand, is an old hand at schmoozing with politicians, and it showed. Throughout the day, she bumped into acquaintances — lobbyists, staffers and legislators — passing out hugs and overflowing with compliments. But the lawmakers were less generous about offering guarantees that the vote would go their way.

When the group encountered Republican Sen. Joe Hardy in the hallway outside his office, he listed the many things he likes about rooftop solar, but warned he couldn't vote in favor of the bill until he had data showing that non-solar customers were not subsidizing solar ones. Sen. Pat Spearman, a retired U.S. Army officer who became an ardent supporter of renewable energy because she believes that too many soldiers have died for oil, predicted



Correspondent Elizabeth Shogren writes HCN's DC Dispatches from Washington. @ShogrenE

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	ARIZONA	CALIFORNIA	COLORADO
Mandatory net metering?	No. Arizona Corporation Commission ended net metering in 2016.	Yes.	Yes.
Net generation from residential solar 2014	536 gigawatt-hours	2,494 gigawatt-hours	177 gigawatt-hours
2016	963 gigawatt-hours	5,147 gigawatt-hours	265 gigawatt-hours
Challenges*	Arizona Public Service reached an agreement in March with solar companies to dramatically scale back its effort to reduce reimbursements and increase fees for solar customers. The settlement, which still needs regulators' approval, would slowly cut compensation for new solar customers. In 2015, the Salt River Project, which provides power to much of the Phoenix metro area, increased costs for new net-metering customers. The new fees include a demand charge, a fixed charge for using the grid and an energy charge.	Residential solar more than doubled from 2014 to 2016. Regulators did not allow utilities to dramatically change incentives, but did permit modest increases in charges for new customers.	Regulators in 2016 rebuffed an effort by Xcel to increase costs for solar customers. The state retained its one-to-one net-metering reimbursement rate.
<p>Net metering, state-by-state*</p> <p>Nevada generated 32 gigawatt-hours in 2014; 253 gigawatt-hours in 2016. For details, see story.</p>			

that senators voting against the bill would pay for it during the next election cycle. “It may be difficult,” she added honestly. “I will do whatever I can to try to get the bills out that we can if possible. If not this time, certainly next time.”

That was not what Helton wanted to hear at the end of a hard day of lobbying.

Helton felt anxious as they headed back to Las Vegas. Had their message gotten through to enough senators? Would the bill pass? Or would NV Energy find a way to quietly derail it?

ALTHOUGH NV ENERGY’S public position on the bill was neutral, behind the scenes company officials were in frequent contact with Brooks, pushing to reduce the amount that solar customers would be compensated for the power they fed to the grid. “The bottom line is they just do not support customer generation,” Brooks said later. But they don’t want to broadcast that because “it’s a horribly unpopular position to take, to try to oppose customers having the choice to make their own renewable energy.”

As the Senate crafted its version of the bill, NV Energy proposed cutting the compensation outlined in the Assembly bill. And less than two weeks later, that proposal was included in the bill the Senate unanimously passed. It sets up a sliding scale for reimbursing solar customers. Those who sign up for net metering now get compensated at 95 percent of the retail rate. But if they wait a few years to get in on net metering, they may be compensated at 75 percent of the retail rate.

Even so, the bill, which the governor signed, was a huge victory for solar

advocates. It establishes that Nevadans have the right to put solar panels on their roofs, connect to the grid, store power in batteries and not get charged extra fees. “It’s a landmark moment that they included something like that. It recognizes the right to participate in the energy democracy in this way,” says Davies. “The Nevada Legislature did exactly what politically responsive bodies are supposed to do; they listened to their electorate.”

Tesla and Sunrun announced they would reopen their businesses. Already Helton is fielding several calls a day from potential new customers. “Now we hope to have the opportunity to build this industry into the powerhouse it should be for our state,” she says.

Nevada’s solar saga has sent a strong message to utilities in other Western states: Even in the era of Trump, they must accommodate a growing residential solar industry or face the public’s ire. Fearing a repeat of Nevada’s experience, Arizona’s largest utility, APS, reached a settlement with solar companies in March. The rooftop solar companies say it will allow them to avoid what happened in Nevada and keep working in the state. Greg Bernosky, director of state regulation at APS, told *High Country News* that the utility had been paying very close attention to Nevada: “We understand solar is a wildly popular resource.”

In Nevada, the public’s insistence on solar is ultimately what pushed politicians to bring back net metering, despite the resistance of powerful interest groups. Assemblyman Brooks hopes the public’s enthusiasm for rooftop solar will spread to other policies and help accel-



ate the shift to clean energy in Nevada and potentially across the West. “As a fourth-generation Nevada native, I see how transformative good energy policy could be in the state,” he says. “We can create jobs, clean energy jobs, without polluting the planet and do it with Nevada workers and American ingenuity and American products. That’s a win for me at every level.” □

Louise Helton, Vote Solar’s Jessica Scott and Casey Coffman of Sunworks in Reno talk with state Sen. Mo Denis (D-Las Vegas) (bow tie) during their visit to Carson City.

ELIZABETH SHOGREN

IDAHO	MONTANA	NEW MEXICO	OREGON	UTAH	WASHINGTON	WYOMING
No. (But utilities have voluntarily instituted programs, as approved by state regulators.)	Yes.	Yes.	Yes.	Yes.	Yes.	Yes.
2 gigawatt-hours	9 gigawatt-hours	52 gigawatt-hours	36 gigawatt-hours	16 gigawatt-hours	28 gigawatt-hours	1 gigawatt-hours
7 gigawatt-hours	7 gigawatt-hours	92 gigawatt-hours	59 gigawatt-hours	101 gigawatt-hours	75 gigawatt-hours	2 gigawatt-hours
In 2013, Idaho Power tried to modify its net-metering program, but the PUC shot down the proposal and upped incentives for rooftop solar. Now Idaho Power is looking to put solar customers in their own rate class and later increase their costs.	This spring, Montana legislators approved a bill to study the costs and benefits of net metering by April 2018. Gov. Steve Bullock vetoed bills that would have removed tax incentives for solar customers and made it illegal for non-net-metering customers to subsidize net-metering customers.	Residential solar grew 80 percent from 2014 to 2016. Regulators have blocked efforts by PNM and Xcel Energy in recent years to increase charges for solar customers.	No current threats.	After residential solar grew sixfold from 2014 to 2016, Utah’s main utility, Rocky Mountain Power, started pressuring regulators to reduce incentives and increase costs for solar customers. Rocky Mountain Power, like NV Energy, is owned by Berkshire Hathaway.	No current threats.	No current threats.
SOURCES: U.S. ENERGY INFORMATION ADMINISTRATION AND INDIVIDUAL UTILITY WEBSITES						

The control room of California ISO, where modern-day “pinheads” keep tabs on the state’s high-voltage transmission grid. ROLF SCHULTEN/GETTY IMAGES



The Bid for a Big Grid

A regional electricity market would boost renewables, blast coal, supporters say

**FEATURE BY
JONATHAN
THOMPSON**

On a few sunny days this spring, California’s solar and wind power plants generated so much juice that grid operators had to throw it away, or curtail generation. The sun was shining, the wind was blowing, but the generators were shut down. The state lost enough electricity from January through June to power 50,000 homes for six months.

The flood of clean power displaced natural gas generation on the California grid. But even as all that extra power was tossed away, utilities in neighboring states burned coal for their air conditioners and televisions. It’s as if California avocado growers with a bumper crop had to watch their fruit rot on the trees, while folks in Colorado suffered a guacamole shortage.

The problem is not that there’s too much renewable power; the problem is that the electrical grid is divided up in a way that makes it hard for different utilities to share power. Now, a growing cadre of renewable energy advocates, engineers and utility officials are working to fix that.

We often describe the Western electrical grid as if it’s a single, unified, vast machine comprising 1,000 power plants and high-voltage wires that reach

across nearly 2 million square miles. We imagine electrons from wind plants in Wyoming zipping at the speed of light to laptops in California. Not quite.

The grid is physically interconnected but operationally balkanized, broken up into 38 distinct islands, or balancing authorities. Critics compare it to a train with a separate driver for each car, or a creature whose every organ is controlled by a separate nervous system. It’s clunky and slow, suited to outdated power sources and antiquated modes of power consumption.

“The current system is too balkanized in its operations, too costly to consumers and too inefficient in its use of power and transmission infrastructure to be successful,” says Carl Zichella of the Natural Resources Defense Council. The only way to take advantage of the increasing amount of renewable energy sources, and to abandon fossil fuels, he says, is for all the separate balancing authorities to come together as one.

ONE OF THE INITIAL SEEDS of the Western electrical grid was planted near the boisterous mining town of Telluride, Colorado, in 1891, when an alternating current was sent from a water-powered

generator across three miles of copper wire to a motor in a high mountain mine. The planter of that seed was neither engineer nor inventor. He was Lucien L. Nunn, a twice-failed restaurateur who once studied law — a small man with a stork-like visage who idolized Napoleon.

The Ohio-born Nunn headed West in 1880, first landing in Leadville, Colorado, then in Durango. When his restaurant flopped, Nunn and his companion and business partner, Malachi Kinney, headed to Telluride. They couldn’t afford a horse and had to make the 70-mile journey on foot. Yet what Nunn lacked in cash he made up for in ambition and nearly boundless energy. Plus, he had studied law in his youth, and legal services were in high demand in mining country. Before long, he had his own practice.

In 1889, one of his clients, the St. Louis-based owner of the Gold King Mine (not to be confused with the Gold King Mine near Silverton, which famously blew out in 2015), asked Nunn to whip the venture into shape. The mine had tapped some rich veins, but the cost of hauling coal up to its lofty perch to power the mill’s steam engines ate up the profits.

The logical solution was to use hydropower to power the mill’s crushers,

stampers and sorters. But the mill sat at 12,000 feet above sea level, 2,000 feet above the nearest viable stream. Nunn couldn't move the water to the mill. Maybe, however, he could find a way to move the water-generated power. So he brought in his younger brother, Paul, an engineer, to help.

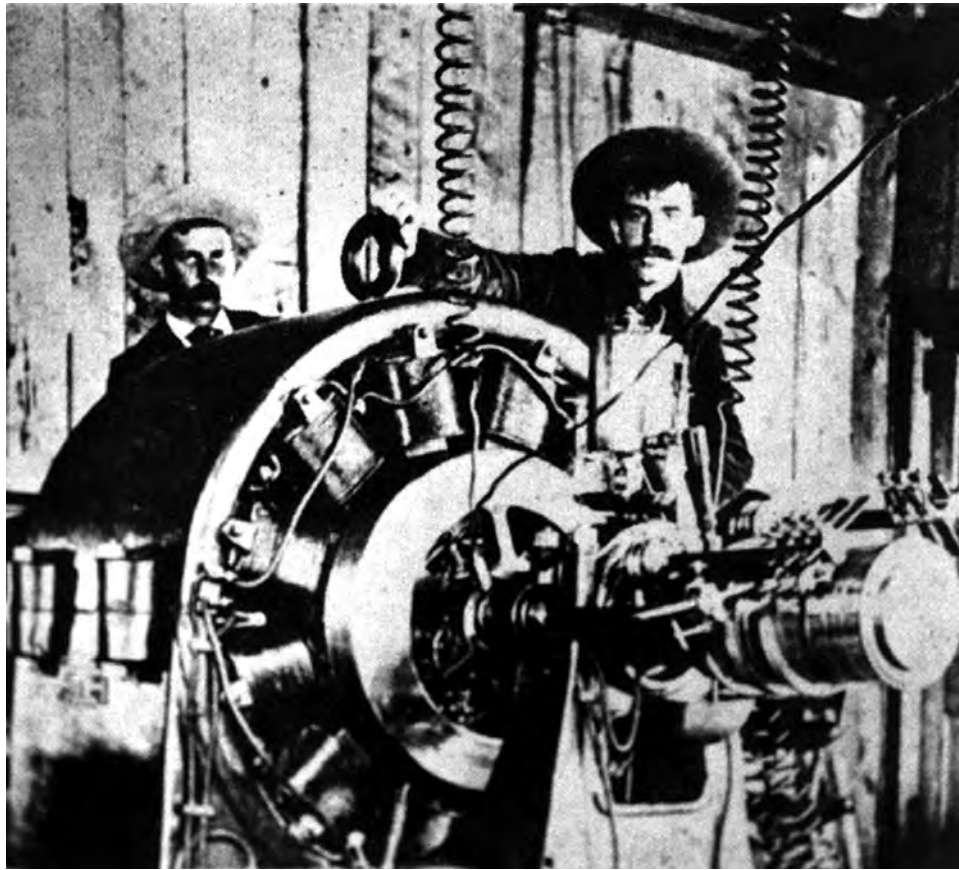
At the time, the burgeoning field of electricity was a yeasty free-for-all, with European and American inventors racing to develop and improve the technology, and a battle raging between Thomas Edison's direct current and the alternating current backed by George Westinghouse and Nikola Tesla. Despite Edison's grisly marketing tactics, which involved publicly electrocuting animals with alternating current to show how dangerous it was, the Nunn brothers opted for it anyway.

For \$50,000 in gold, they hired Westinghouse and company to build a 3,000-volt alternating current generator powered by water piped from a fork of the San Miguel River, connected by three miles of copper wire to an identical motor in the mill. "Everything was extremely simple from water wheels to motors," Paul Nunn wrote in an article years later, "and except for lightning, the plant ran smoothly and steadily thirty days and more without a stop."

To keep the operation going, Lucien Nunn hired young men, opening the Telluride Institute to train them. Each student put a pin on a map, indicating where he hailed from and thereby earning himself the moniker "pinhead." One of the pinheads' challenges was to match electrical supply with demand, otherwise known as "following the load." If the mill operator wanted to crank up his machinery, for example, the pinheads would up the output from the generator, probably by cranking open valves to increase water pressure. Today, following the load remains a grid operator's major responsibility.

Other mine managers in the area liked what they saw, and the Nunns installed more generators to send the power of the area's cascading streams to the mines, and then linked the generators to each other to provide redundancy and to make it easier to follow the load. This made it one of the nation's first electrical grids, and it had a transformative effect. In 1901, the U.S. Treasury Department credited the Nunns' Telluride Power Company with making San Miguel County a mining powerhouse.

Telluride Power's grids grew to include six big hydropower stations in Colorado, Utah and Montana, and close to 1,000 miles of transmission lines. They weren't alone. Rival utilities put up their own grids, their wires sometimes literally crossing over Telluride Power's in a tangled jumble in a largely unregulated field. But in the ensuing decades, corporate behemoths swallowed up the Telluride Power Company and other local independent utilities, combining them to



Workers pose in 1891, left, with the new 100-hp Westinghouse synchronous alternator at the Ames power plant, near Ophir, Colorado. The plant was the first commercial system to produce and transmit alternating current (AC) electricity for industrial use. Below, Lucien Nunn, who founded the Telluride Power Company in 1891. CC VIA WIKIPEDIA, LEFT; COURTESY DEEP SPRINGS COLLEGE, BELOW



create "super power systems" that served tens of thousands of customers each. The vertically integrated utilities were now monopolies — a model that persists today.

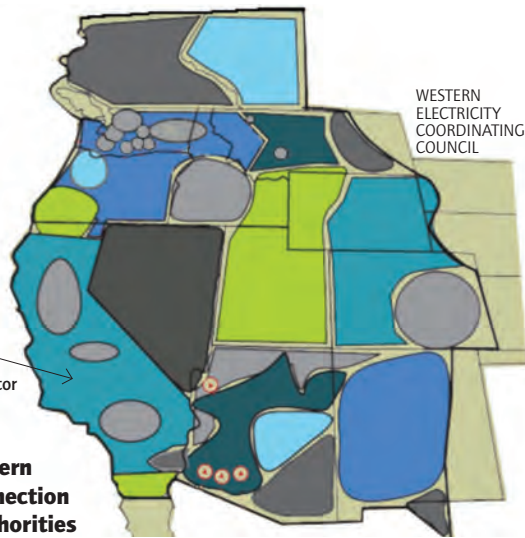
By the early 1950s, most of the West was electrified, and the monopoly utilities had become corporate and political powerhouses, their advertising mascots — Miss Electra and Reddy Kilowatt — hell-bent on getting people to devour more electricity with bigger televisions, more powerful air-conditioners and brand-new devices like electric can openers. The West's population boom made it easy for the monopolies to rake in more customers and cash, so the utilities launched marketing campaigns to lure even more people to the region. But the growth also threatened to overwhelm their respective grids, which remained isolated from one another.

In 1952, the U.S. Bureau of Reclamation proposed a new path forward with its "Study of Future Power Transmission in the West," a blueprint for an overhaul and enlargement of the Western electrical grid. The Bureau envisioned a fleet of gargantuan coal-fired power plants constructed near the Interior West's coal deposits. These centralized plants would then send juice hundreds of miles over high-voltage transmission lines to the "electrified homes" of Phoenix, Los Angeles and Las Vegas.

At the time, hydropower supplied more than half of the West's electricity, while coal provided just 10 percent. Under the Bureau's plan, coal-fired generation would increase by 3,000 percent and dominate the region's

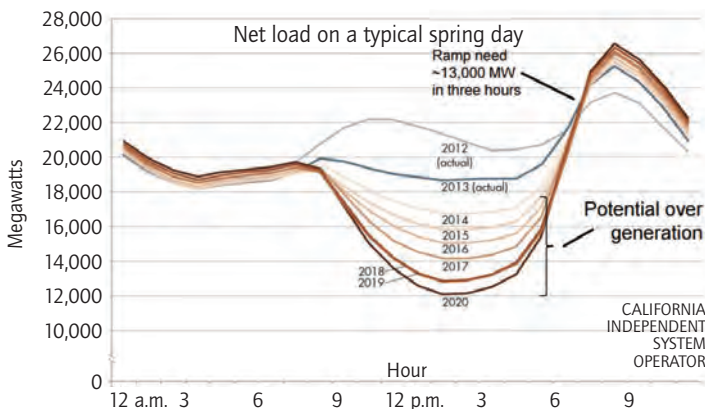
In the 1960s, utilities — with the help of mascots like Miss Electra, left, and Reddy Kilowatt — ran marketing campaigns to get customers to use more electricity for air conditioning, electric can openers and "fully electrified homes." STEAMBOAT PILOT NEWSPAPER, 1968

energy mix. The plan's authors also urged the utilities to tie their dozens of isolated networks into a single integrated Western grid. That way, when a drought diminished the hydropower from, say, Hoover Dam, the Columbia River system's dams could send electrons southward. It would, the authors wrote, "render all the interconnected systems more reliable and flexible."

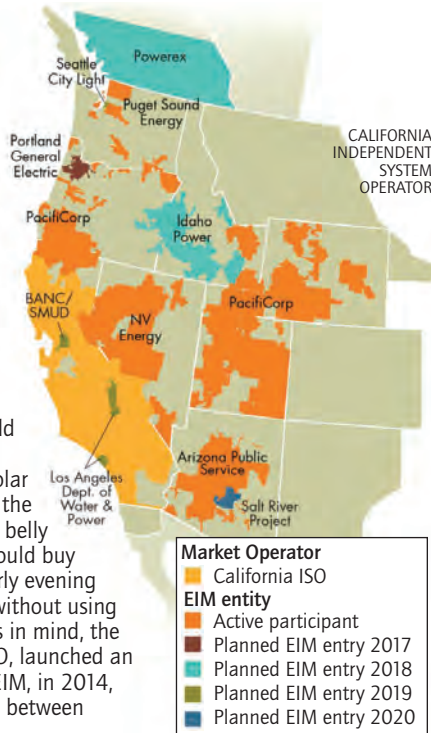


1 The Western Interconnection Balancing Authorities

While the Western Grid is physically interconnected, operationally it is balkanized, broken up into 38 different “balancing areas.” Operators in each area are generally responsible for “following the load,” or supplying power to meet their customers’ collective demand at any given moment. The balkanization hinders easy sharing of generation between balancing areas.



2 The California duck curve, as it’s called, is the result of large amounts of solar power entering the grid in the middle of the day. Because intermittent renewables are deducted from the net demand curve (rather than added to the supply side), the belly of the duck gets deeper and deeper as more solar comes online, and the neck gets steeper and longer. This is problematic because it forces utilities to burn expensive, dirty fossil fuels in order to meet the demand peak in the late afternoon.



3 The Western Energy Imbalance Market

If utilities were more easily able to share resources across balancing area lines, they could ease the problems of the duck curve. California could send solar eastward, for example, during the middle of the day, to keep the belly from dipping so deeply, and could buy wind from Wyoming in the early evening to meet the peak in demand without using so much natural gas. With this in mind, the California grid operator, CAISO, launched an energy imbalance market, or EIM, in 2014, that allows for limited sharing between member balancing areas.

Over the next three decades, coal plants sprouted in Utah, Arizona and New Mexico, allowing urbanites to live an electrified life without having to breathe the pesky pollutants that came with it; those inconvenient side effects were reserved for the rural folks near the facilities. The plants were tied into a huge web of long-distance, high-voltage transmission lines, skeletal switchyards, substations and energy hubs.

The Bureau study’s vision of a coal-dominated grid had been realized. But the big, unified, networked grid? Not so much. Physically, the grid was integrated, but the unity didn’t extend into the operational realm. Instead, 38 separate entities, each with its own team of pinheads, operate their own portions of the grid.

BACK IN NUNN’S DAY, and even in the 1950s, the pinheads had to supply a reasonably steady demand. Factories and mines were the big power gulpers, and they operated on regular schedules. Residential customers also followed routines and consumed power in a predictable fashion. That meant that pinheads could schedule steady output fossil fuel generation to cover the base needs, and have the big hydroelectric generators on hand to cover any fluctuations.

But today, the old factories and mines and the 9-to-5 workdays are falling by the wayside. Patterns of electricity consumption are becoming more erratic as a result, wrinkling that once-smooth demand curve. Increasing amounts of solar and wind power have complicated pinheads’ calculations, as well. Because grid operators can’t control these variable power sources, they count them as negative demand rather than supply, further complicating the demand curve. Strong and steady coal won’t cut it anymore. Today’s pinheads need more flexibility and nimbleness from their power sources.

For most utilities, particularly in the desert Southwest, the line delineating net demand is shaped kind of like a duck, with its belly sagging around midday, when demand is low and solar generation high, and a long, steep neck stretching back up in the late afternoon as folks kick on their air conditioners and solar drops off. In fact, this model is known as the “California duck curve” because it’s most pronounced in that state, with its high penetration of solar power.

Pinheads don’t like ducks. If the belly dips too low, there’s a risk of over-generation, so the pinheads have to force power providers to shut down their plants, as happened in California this spring. But they still have to keep a whole fleet of backup generators — most often natural gas-fired — on hand and “spinning” to follow the demand curve back up that steep neck. That process creates a lot of emissions, and, as the neck gets longer, it becomes less and less sustainable.

It’s one of the ugly realities of the pinhead’s job: She must always have enough generating capacity around to meet the peak of the demand curve, even if that peak only lasts an hour per day.

An integrated grid, as its proponents envision it, would allow multiple utilities to share that generating capacity. It would tear down the borders between balancing areas, bridge the rifts between the now-distinct grids with new infrastructure if necessary, create a centralized power market and put a single team of pinheads — also called an independent system operator — in charge of following the load of the entire West, with a huge fleet of generators at their disposal. Operators could then send excess California-generated solar power to New Mexico to meet that state’s demand peak, and pump Wyoming wind power California’s way to keep up with the late-afternoon air-conditioner rush.

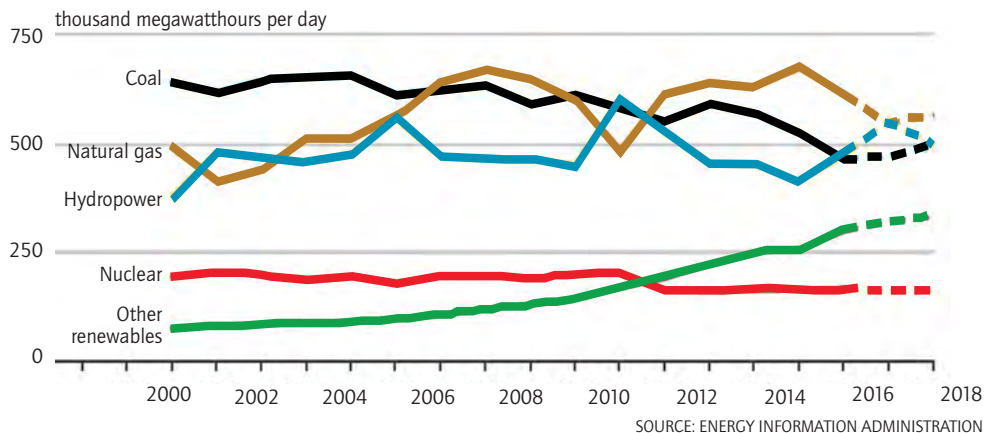
A sort of integrated Western grid “lite” is already in operation, giving a sense of how the big grid would work. In 2014, the California Independent System Operator, or CAISO, which runs most of the state’s grid, joined up with utility giant PacifiCorp to form a centralized market where they could buy or sell power in real time to make up for unforeseen supply-and-demand imbalances.

Several other utilities have joined, including Arizona Public Service and the Los Angeles Department of Water and Power. Salt River Project, the Arizona operator of the coal-fired Navajo Generating Station, signaled its intent to join the market shortly after the plant shuts down in 2019. Public Service Company of New Mexico, which is looking to ditch coal altogether by 2035, is also interested in participating, and NV Energy, which shut down Reid Gardner coal plant this spring, has long been a member.

When California has extra solar, the market allows other participants to buy it far more cheaply than coal or natural gas, allowing neighboring utilities to displace some fossil fuel generation. The Energy Imbalance Market, as it’s called, or EIM, has so far saved participants \$173 million, according to CAISO, and helped California avoid major solar curtailments.

Yet the real-time EIM is a mere shadow of a truly integrated grid, because it applies only to imbalances, which make up just about 5 percent of the wholesale electricity market. The bulk of the market is made up of day-ahead trades, where pinheads use sophisticated models to forecast the following day’s net power demand on an hour-by-hour basis, then commit generators to ramp up accordingly. An integrated grid would take the EIM model and apply it to all power purchases. It would radically transform the way the Western grid works, and CAISO estimates that it would save participants more than \$1 billion per year. “It’s cleaner, cheaper and more reliable,” says Zichella.

Electric power generation in the West, by source



FOR THE MOST PART, the current Western grid is technically ready for integration. Western politics, however, have thus far hindered the move to de-balkanize.

Conservative Western politicians worry about giving up control: Put them on the same grid with California and they might be nudged into complying with the Golden State's green agenda and high renewable-energy requirements. Coal-fetishizing lawmakers also are concerned that it would deal the death blow to their favorite fossil fuel. Their concerns are well founded, as the centralized market would put cheaper solar, wind and natural gas power in direct competition with the dirty old coal plants.

California Sierra Club chapters,

meanwhile, worry that the state's green goals could be diluted by sharing energy with coal-heavy regions, since that would also open up new markets for coal-power sales. And it's also possible that an Arizona utility might purchase cheap solar from California, but use it to displace its own solar generation and keep its coal plants running, thus resulting in no net reduction in emissions.

But integrated grid proponents, and a number of independent studies, point out that coal-generated power is currently more expensive than other forms of power, thanks to cheap natural gas and a greater abundance of renewables. In the East, where regional grids and markets are the norm, coal is steadily losing

ground. Even without an integrated grid, nearly every major Western coal plant has seen its generation decrease in recent years as utilities choose to draw from cheaper, more flexible generating sources.

The integration effort is moving ahead, albeit slowly. Most of the utilities that are involved in the EIM are eager to take the next step toward full integration. California lawmakers are hoping to ease neighboring states' concerns about loss of control by restructuring CAISO's board to include members from other states.

"The trend away from high carbon fuels is clear, and we believe irreversible," Zichella says. "Regional integration accelerates this trend. ... In a climate in which new national policy initiatives for climate mitigation are highly unlikely, regional integration provides an elegant and non-coercive mechanism for the clean energy transition across the West."

The authors of the 1952 Bureau of Reclamation study pushed coal because they felt that federal policies would conspire to cause natural gas shortages, and that wind, solar, tide and nuclear energy weren't yet technologically up to the job. Now that the technology is ready, these energy sources just need the room — a big Western grid — in which to shine. The bold vision and courage to create an integrated grid, the 1952 study noted, "are needed to provide more power for the West, to conserve our natural resources, and to keep America great." □



Jonathan Thompson is a contributing editor at *High Country News*. He is currently writing a book about the Gold King Mine spill. Follow @jonnypeace

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Volunteers for the Mancos Fire Department responded to the Western Excelsior fire in May and called in about 10 other departments to contain the blaze that engulfed the manufacturing plant.

JERRY MCBRIDE/
DURANGO HERALD

Volunteer firefighters are the guardians of the rural West



OPINION BY
MADDY BUTCHER

If the universe wanted to challenge volunteer firefighters, it would arrange for a fire emergency right smack in the middle of a small town's annual festival, when fire crews are busy helping run the parade and other events.

In this case, lightning started a fire sometime between Saturday night and Sunday morning during Mancos Days, a July celebration in this town of 1,400 in southwestern Colorado. Five members of the 15-member Mancos Fire and Rescue crawled out of their beds and responded when the wildfire was reported at about 5:30 a.m. on Sunday, July 30.

As if to test their mettle, smoke was coming from a hard-to-reach cranny of a canyon, with steep terrain full of scrub oak, cedars and pine at an elevation of 7,800 feet. The blaze was also close to homes and less than a mile from the harsh remnants of the devastating Weber Fire, which burned 10,000 acres and caused dozens of evacuations five years ago.

Massive fires tend to dominate the headlines. But people often forget that even the biggest conflagration starts out as a flicker, and that the first sighting is often responded to, not by helicopters and Hotshots, but by local volunteers with day jobs. Before sunup in Mancos that Sunday, the crew headed east up Highway 160 in three Type 6 brush trucks, specially outfitted pickup trucks loaded with 200 gallons of water and many yards of hose. They continued as far as they could on private gravel roads, and got closer in an all-terrain vehicle driven by a local resident. Then they bushwhacked for 30 minutes to get to the fire, according to Mancos Assistant Fire Chief Ray Aspromonte, who was

on the crew. Aspromonte, who works in town as a diesel mechanic, was joined by Gene Smith, a machinist in a local lumber mill; Tavis Anderson, a welder for a local construction company; David Franks, a park ranger at Mesa Verde National Park; and Drew Simmons, a planner for neighboring La Plata County.

Of the approximately 30,000 fire departments nationwide, nearly two-thirds are run solely by volunteers, according to a 2017 study by the National Fire Protection Association, a Massachusetts nonprofit established in 1896. In communities with populations under 2,500, more than 90 percent of the fire departments are all-volunteer.

By about 8 a.m., at the site of the fire, the crew had felled a burning tree and dug a perimeter around it. The plan was to monitor the blaze. Lacking much water, they hoped that the tiny but volatile fire would sputter out from lack of fuel and lack of wind.

They'd carried in 15 gallons of water weighing 125 pounds, along with fire shelters, tools, first aid kits, and the chainsaw. They rested briefly before picking up hoes and Pulaskis to resume their work.

Most members of this crew are married, with children, and have been responding to calls for years. They are a busy bunch, attending training sessions every Monday and handling calls almost every day. Last year, they handled 340 calls within a district that spans about 200 square miles.

They were the first responders to the Weber Fire five years ago, and they stayed on it for 10 days. They responded to a nine-alarm fire at the Western

Excelsior mill this spring and to a recent double-fatality caused by a motor vehicle accident. After a man and his son died on Highway 160, firefighter David Franks realized that the pair, along with the rest of their family, had been part of a tour he'd led earlier of the Cliff Palace at Mesa Verde.

As the sun climbed, the crew began dissecting the dead tree to locate its hottest segments. They split the wood and doused the embers with water. They extinguished any persistent flames and relayed information on their radios. Sometime after noon, they gathered their equipment and headed back to the trucks.

Meanwhile, at the Mancos Days festival, the Water Fights, an annual contest between local fire departments, were underway. Firefighting teams from the towns of Mancos, Dolores, Lewis-Arriola and Rico competed, and the Mancos women's team triumphed. Though there's only one woman in the fire department, other firefighters' wives joined her to complete the team. The men's team fell to Lewis-Arriola in the finals.

It's unlikely that many spectators knew about the volunteers who'd been up before dawn to fight a nearby fire. "I'm sure there are some who don't care," said Aspromonte, but "most people seem to think we do good."

Maddy Butcher writes from Mancos, Colorado.

Writers on the Range is a syndicated service of High Country News, providing three opinion columns each week to more than 200 media outlets around the West. For more information, contact Betsy Marston, betsym@hcn.org, 970-527-4898.

WEB EXTRA

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A doctor for the vulnerable



Attending Others: A Doctor's Education in Bodies and Words
by Brian Volck
222 pages,
softcover: \$25
Cascade Books, 2016.

In this remarkable memoir, Brian Volck reflects on his career as a pediatrician, including stints at inner-city hospitals in the Midwest, several volunteer missions to Honduras and years on the Navajo Reservation. Through his practice, Volck has gained considerable wisdom, though he's too humble to call it that.

Attending Others is less a compendium of lessons learned than a gorgeous meditation on the things that cannot be fully understood, such as the mysteries of the human condition. Volck focuses on how vulnerable we become through our bodies and our bonds with those we love, especially in the ties between parents and their children. His experiences with his own and other people's children serve to perpetually reinforce what he calls "the first lesson of parenthood": "You're not in control."

The memoir's structure is indicative of its overall humility. After an opening scene at a Navajo wedding, Volck goes into the stories of two young patients who died while under his care: Brian in Cleveland, and Alice in Tuba City, Arizona. As he mulls over what he and the other medical professionals did when these children were brought into the emergency room, he shows us how a cure can elude

even the most highly trained and conscientious healers.

"I don't think about Brian as much as I once did," Volck writes. "There are months now when I think I've forgotten him, but he's never really gone. I carry his death like a pocket charm, laying it on the dresser at night with my wallet and keys. And if I ever do forget Brian, I remember Alice." Alice is a 2-year-old whose father brings her to the E.R. during the Navajo Nation Western Agency Fair. Alice's father wants to drive her to a hospital in New Mexico, six hours away, thinking the care there will be better. But Volck dissuades the family from moving her, noting that he was "careful to avoid warnings about 'what could happen if you don't do as I say,' which to traditional Navajo can sound as though the doctor wishes them harm."

Alice's pneumonia symptoms intensify, and eventually she dies. Volck will never know if she would have made it safely to the other hospital, and if the doctors there would have detected something he didn't. But despite his setbacks, Volck's hard-won knowledge of Navajo culture eventually helps him become a better doctor to their community.

Volck writes, "Like many Anglo medi-

cal professionals, I learned from Navajo or Hopi babysitters the prime directive of Native hospitality: always bring something." Volck learns to be patient with Navajo social customs when he introduces a translator, instead of rushing the conversation toward the questions he wants answered. No matter how much he discovers about Navajo culture, though, Volck respects that he can never fully understand it or consider himself a part of it. "When I lived on the Navajo reservation, I knew no matter how long I stayed, I would always be a visitor from somewhere else. I also saw up close how sad and parasitic wannabes are, how protestations of oceanic tolerance never change who you are and where you come from. When I'm asked what I learned from my years on the reservation, I usually say, 'That I'm not Indian; not even in a past life.'"

When Volck and his family decide to leave Arizona, people at the hospital ask why. "When I answered, 'Because our kids need to see their grandparents more than once or twice a year,' our Navajo and Hopi friends would almost invariably lean closer, touch my shoulder with feathery lightness, and grin, sometimes adding, 'Looks like we actually taught you something.'"

Volck returns periodically for stints with the Indian Health Service whenever they need a doctor to fill in. Over the years, he notices changes — fewer young people learn to speak Navajo, for example, and "facilities had improved, staff expanded, and serious acute illnesses gave way to chronic conditions like childhood obesity and Type II diabetes."

Volck illustrates the endless problems facing children in poverty — from malnutrition to accidents — yet he never loses sight of the grace that each encounter offers him. As he writes about one young patient: "Pay attention; here is a most special person."

Volck's writing is luminous, vigorous and sensory, inviting the reader into the scene. The love he has for his patients is clear, as is his irritation with bureaucracy and the more tedious aspects of his job. *Attending Others* is about the practice of medicine, but in a larger sense it's about being a human being, trying to navigate relationships and a career despite one's particular flaws, and occasionally finding moments of connection and beauty that make all the frustrations worthwhile.



Dr. Dena Wilson assesses a patient at Indian Health Services in Phoenix, Arizona. There are only about 100 Native American physicians in Arizona. As a white physician, the author of *Attending Others* had to learn about Navajo culture to be an effective doctor in the community.

MEGAN BRIDGEMAN/CRONKITE NEWS

BY JENNY SHANK



FREEWAY FIGS

BY AMANDA CRAVENS

Figs dangle from the branches of a mossy tree.

DINAJOSE7/FLICKR

Amy led me off the interstate, down the frontage road, behind the strip mall, and told me to park in front of the tree, sprawling between an apartment complex and the back of a restaurant. The July air was still warm, and heat radiated off the pavement. My friend was excited, nearly giddy. I was almost frightened, worried that we were breaking the rules.

We harvested the sticky purple fruit into plastic grocery bags, ignoring the tingling in our hands from the sap. We picked the tree almost clean, harvesting some seven pounds of glistening, perfectly ripe figs. In our friends' country kitchen, the four of us sat up late, talking and gorging ourselves.

Amy learned about this tree when she was still in college from a friend who first visited it with his older brother. That means it has been bearing figs for at least 15 years, though I have been unable to trace this strand of traditional ecological knowledge any further.

"Whose tree is it?" I asked. "No one's," Amy replied. As we picked, faint light from streetlamps glinted off my red Subaru, but no one appeared to notice us. The area under the tree was littered with rotting fig carcasses. If anyone had been harvesting regularly, the tree would not have been dropping fruit. Which does not, of course, mean that no one owns it. But surely the doctrine of abandonment applies to figs?

And whatever the law might say, I believe that anyone who neglects to harvest such a prolific example of *Ficus carica* has — at least morally — lost their right to the fruit. Don't we have a responsibility to enjoy what nature gives us? If a ripe fig is about to fall on a parking lot and nobody cares, isn't it my responsibility to poach it in white wine and appreciate my good fortune?

I wonder who else knows about this interstate-side fig tree, who times their late-summer trips through the Central Valley around it. I wonder who planted it, if anyone tends it, who else gathers its fruit. We are bonded, United Feral Fig Harvesters of the Sierra, whoever and wherever we might be. I hope my brethren find the tree as magical as I do, this bounty flourishing in its strange suburban setting just off the freeway.

Since that introduction, whenever I drive to and from the mountains in late summer, I gather figs, three or five or even (once) nine pounds at a time. I share them with everyone I

know. Roast a greedy amount in a salad. Make tarts bursting with them to show off at dinner parties. Bring a large Tupperware container to a Slovenian friend to remind her of the orchards back home. Leave them in the break room at the office.

At the farmers market in Palo Alto or Menlo Park or even at the stand down the road from the rogue tree, a pint basket of fresh figs costs around \$5.99. Approximately eight figs, or about 87 cents per fig, but a bargain compared to Whole Foods (\$7.99 a pint on one recent visit). Such prices mean fig lovers tend to treat fresh figs like truffles or saffron or semi-precious stones.

Top salads with chopped morsels, a gem-like gilding for goat cheese and greens. Wrap figs with imported prosciutto and savor as appetizers. Serve a few with honey for dessert. But making tarts or jam or drying by the pound? Anything requiring large quantities is out of the question on the grounds of blowing the week's — or month's — grocery budget.

The scarcity adds to the lure of the freeway tree. Giving away figs makes you feel like Santa Claus. When you harvest a tree's worth, you get to give away many pint-sized gifts. And explaining that they came from a tree growing behind a restaurant on a frontage road makes the giving even sweeter. People seem to prefer their figs feral, with a side of story.

Each autumn comes the afternoon when I realize the harvest is over for the season. I know it's coming, but the moment inevitably bursts with disappointment. Then I think about next summer.

Someday, though, the tree itself might not be there when I arrive. I worry about how the tale ends. Will the tree's legal owners cart me off to jail with my sack of stolen fruit? Will the tree fall, unmourned, to some future development? Will I myself depart for a life unimagined, to a place where figs do not grow? Or will the tree imperceptibly, inevitably age and diminish?

I dread that looming loss, when there is no longer a feral fig tree along a Central Valley freeway. When I will struggle to nourish those I love with tiny morsels of overpriced market figs, served without the spicy sauce of story. □

When she is not seeking figs, Amanda Cravens is a social science researcher who studies environmental decision-making in the American West.



HEARD AROUND THE WEST | BY BETSY MARSTON

WASHINGTON

Sajeon Geer had just one goal in mind for her 71st birthday this July: She wanted to scatter the ashes of her late husband, Jack, in Washington's Olympic National Park. He'd recently died of a heart attack after 34 years of marriage, and Obstruction Point in the park was one of his favorite places in the world. Walking and sometimes running along the trail, she found herself consumed with emotion, she told *Seattle Times* reporter Evan Bush. It was only after spreading her husband's ashes that she realized she'd become hopelessly lost. But Geer possessed enough knowledge to behave intelligently during the six long nights she and her only companion, Yoda, a tiny Chihuahua mix, lived in an improvised shelter of logs and branches. She recalled books she'd devoured years ago that featured accounts of foraging and improvising a campsite. So while Geer knew her predicament was dire — not a soul knew where she'd gone — she recalled the basics of survival: Find water and shelter, avoid injury, and stay visible in case rescuers appear. A positive attitude was also key, she said. "You have to have something in your head to keep you motivated and alive." She thought about her family, who brought her to this country from China when she was a child, and she thought about her friends. When hunger pangs racked her on the fourth day, Geer ate currants, young pine needles and even ants, while Yoda, sitting on her lap, "would gulp flies right out of the air." Luckily, Geer's brother, Jack Eng, who lives in Seattle, launched a search, and her car was found on a dirt road in the park. Geer was rescued in remarkably fine shape, though somewhat "chewed up" by mosquitoes and dehydrated. Explaining how she'd come through her ordeal without panicking, Geer said her tough childhood, growing up in a hut in the back of her father's laundry, helped. At school she suffered racial slurs and attacks, but they only helped her become a "feisty tomboy." That self-reliant attitude served her well throughout the days she spent lost in the park. And during that lonely time, she "felt grateful for everything in my life" and also accepted that the time had come for her "to be on my own and move on in life."



COLORADO Double-decker bike commuting.
MATT BRUCE

CALIFORNIA

Lost hikers sometimes get lucky. On July 1, in Yosemite National Park just before sunset, a wilderness law enforcement ranger on a routine backcountry patrol in the Tuolumne Meadows came upon three separate groups — seven hikers altogether — and all confessed they were lost. It was just by chance that the ill-prepared hikers were found, said the park's Search and Rescue Office, and it's a good thing they were. The ranger said it took some serious route-finding through snow-covered terrain at night to bring everyone safely out of the park by 11 p.m. By then, one hiker was suffering from altitude sickness and another was asthmatic. Park officials urged all hikers equip themselves with topographical maps, a compass and perhaps a GPS — not to mention some "mastery of these items" — plus headlamps and extra batteries. Hikers should also be warned that cairns — stacked stone markers — are sometimes randomly placed and send people in the wrong direction.

IDAHO

We'll never know how Mo, a mostly deaf 12-year-old Chesapeake Bay retriever, survived a hard winter in the wild between Horseshoe Bend and Placerville, some 30 miles from Boise. But survive she did, though when she was found nine months after disappearing, she'd lost about 50 percent of her body weight, and "it was clear that she spent the entire time on her own," reports the *Idaho Statesman*. Hundreds of people searched for Mo, who went missing when her owners, Cindy and Darwin Cameron, were on a hunting trip last September. It was Cheri Glankler, who takes in rescue dogs, who told the Camerons that she might have found Mo. At first, the couple could not be sure the scrawny dog they met was Mo, for, as Glankler explained, a dog on its own for that long experiences considerable trauma — it might even have to dodge wolf packs — and so it goes into "survival mode." But once the dog was home, the couple saw its familiar characteristics return. Glankler now has a nickname for Mo after what the old dog experienced: "The Legend." Mo stole her heart, she said, "with her tenacity and bravery."

COLORADO

A 19-year-old camp counselor in Colorado who'd chosen to sleep on the ground outside his tent woke up in the night to hear a strange "crunching sound," reports *The Week* magazine. Then he realized what it was: A black bear had his head in its mouth. "The crunching noise, I guess, was the teeth scraping against (my) skull." Thinking fast, the counselor, whose injuries were minor, punched the bear, which backed off and fled.

WEB EXTRA For more from Heard around the West, see hcn.org.

Tips and photos of Western oddities are appreciated and often shared in this column. Write betsym@hcn.org or tag photos #heardaroundthewest on Instagram.



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“ We don't have to be in a rush to be the first to be wrong, certainly not with so vital and integral an ecological driver as the grizzly.”

Rick Bass, in his essay, "Why Montana shouldn't hurry to hunt its recovering grizzlies," from *Writers on the Range*, hcn.org/wotr