SERVING THE WEST

WESTERN AREA POWER ADMINISTRATION'S

FIRST 25 YEARS AS A POWER MARKETING AGENCY

25 years

Dedicated to
Western's "originals,"
who lit the path
for the rest of us
to follow.

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'Electricity is a Method of Transporting Power'
—Thomas Edison

INTRODUCTION

America and Power Before Western Area Power Administration

We all take electricity for granted today. Few people ever stop to think that the simple act of flipping a switch represents a century's worth of technical, economic and social consequences.

Commenting on the realities of the power business in their book, "Power Struggle: The Hundred-Year War Over Electricity," Richard Rudolph and Scott Ridley stated, "The electric power industry is the most money-intensive, pervasive and politicized business in modern America."[1] The market for electricity is larger than the telecommunications, interstate trucking or airline industries. The Congressional accounting agency—the General Accounting Office—found that residential, commercial and industrial consumers spent about $215 billion on electricity in 1997.[2] The Federal government has an important stake in that market as the nation's largest generator and supplier of energy. And, until recently, the only thing most Americans knew about the power industry was whether their electric bills were dramatically higher than the month before.

The Federal government was involved in marketing low-cost power in the Western United States for almost 75 years before Western Area Power Administration was created in 1977. Western's first administrator, Robert McPhail, wrote that Western "inherited a public trust to provide efficient, reliable and economical electrical energy."[3] However, enjoying that inheritance has often been difficult.

Western never had the opportunity of its predecessor organization, the Bureau of Reclamation, to capture the nation's attention with engineering feats on major projects like Grand Coulee or Hoover Dams. Instead, Western has dealt with the dilemmas surrounding the West's increasing demand for power, the desire to deregulate the electricity industry and various attitudes toward its role of marketing power. Western has felt the sting of attacks from environmental groups, economists who claim the Federal agency should market power at higher rates, politicians who argue that the Federal government has no place in the electricity business and customers who fight any increases in what they pay for power. Despite all this, Western has survived for 25 years as one of the few Federal agencies that provide a flow of revenue into the U.S. Treasury.

Western is one of four Federal power marketing administrations. It is the largest PMA in terms of service area and transmission line mileage, the youngest in time of existence and the most legislatively complex. The three other PMAs are Southwest Power Administration based in Tulsa, Okla.; Southeastern Power Administration located in Elberton, Ga., and Bonneville Power Administration headquartered in Portland, Ore. Although not a PMA, the Tennessee Valley Authority is a Federal corporation and the nation's largest single power producer.[4] Each of these organizations sells Federal power at cost-based rates—giving preference by law—to consumer-owned utilities that serve 60 million Americans in 34 states.[5]

Twenty-five years is a brief chapter compared to a century's volume of political and social events preceding Western's birth. This power administration's story would be incomplete without an examination of three developments that created the climate for Western's operations:

- the rapid rise of the private power industry from the 19th century until the 1930s;
- the creation of Federal legislation establishing "preference" as a policy to control the private utility dominance of the electricity industry, and
- the specific nature of power marketing in the western United States as established by Reclamation.

This history examines several aspects of Western's brief, but busy, life. The men and women of Western built on the legacy of Reclamation while making changes to assure open access to transmission and reliable power resources. During Western's first two decades external pressure threatened its survival, while the satisfaction of technological triumphs mingled with despair surrounding occasional tragedy.

Bright Lights, Big Cities

For bringing day to night in America's cities, most history books give Thomas Edison the credit. But Edison only perfected, and more importantly, better marketed a public lighting system previously established by a handful of others. The honor should belong to an all-but forgotten inventor from Cleveland, Charles Brush. In 1876, Brush developed a generator or "dynamo" to convert the mechanical energy of a rotating shaft to electric energy. Two years later, he perfected an arc lighting system for outdoor use. After approval from an intrigued Cleveland city council, Brush scheduled a demonstration of his dynamo and arc lighting equipment for April 29, 1879. That night, at 8:05 p.m., thousands witnessed for the first time an American city square illuminated with electric light. The favorable reaction encouraged Brush and other inventors and marketers to establish central power stations in Boston, New York and Philadelphia over the next three years.[6]

While Brush labored alone, a team of two dozen specialists worked with Edison in Menlo Park, N.J., developing and promoting the concept of a central power station and transmission system for New York City. Brush may have held the first successful public demonstration of electric light in America, but Edison was more adept in getting his name in the newspapers and using his access to the powerful. In 1881, after winning the backing of city government and Wall Street financiers, Edison completed his plans for a central station and transmission system in lower Manhattan. Coinciding with the first Labor Day in the nation's history, Sept. 4, 1882, six 6,500-pound dynamos provided light to 50 buildings in a square-mile area surrounding the Pearl Street generating station.[7]

Edison does deserve credit for being the first to conceive of the idea of selling electricity. Where Brush favored selling individual power systems or providing electricity at a fixed charge, Edison believed establishing an "electricity business" depended on central power stations generating and transmitting current to customers. Those customers would pay operating companies year after year for a supply of electricity. After 1882, the "Wizard of Menlo Park" established a number of lighting companies that sold light—not electricity—in several large eastern cities. However, he soon lost interest in the electricity business and sold out to General Electric Company in 1892. In 1913, looking back on the night he lit up New York City, Edison cryptically reflected that "Electricity is not power; electricity is a method of transporting power."[8]

Early transmission line construction meant grabbing a shovel and digging a hole for each pole. (Photo courtesy of the Bureau of Reclamation)

By the turn of the 20th century, the electric industry grew. Utilities built more powerplants in the nation's cities. Those in control of the burgeoning electric business stuck to a strategy that the greatest return on their investments lay in the big metropolises and not in the nation's countryside and small towns. Millions of rural Americans remained in the dark for decades to come.[9]

Interconnections between powerplants followed, and bulk power transmission networks grew across the nation during the century's first two decades. By the start of the 1920s, a select number of big power companies bought up smaller firms and created monopolies extending over many states. At the decade's close, seven utility holding companies controlled 60 percent of the power generated in the United States. The public's anger toward the utilities exploded after the Stock Market crash of 1929, as many utility holding companies collapsed and investors lost millions of dollars. By the early 1930s, the nation's mood and President Franklin D. Roosevelt's strong support for public power shook Congress out of 50 years of laissez faire inactivity to pass legislation that protected consumers.[10]

Under Roosevelt's guidance, a number of new laws answered the public's demands for relief. In addition to legislation, Roosevelt's public works programs achieved ambitious goals to develop water resources and hydroelectric power across the country. Describing the forces opposing the changes brought by public power, FDR's Secretary of the Interior Harold Ickes told a crowd in Spokane, Washington, in 1941:

> *Politicians seeking an issue, and the private utilities and their monopolistic allies, insisted that President Roosevelt was recklessly wasting the public treasure in building these great power projects. He might create hundreds of thousands of kilowatt-hours, but they would go to waste. For lack of customers for the power the projects would be a burden on the taxpayers. Lacking revenues, the debt incurred by the national treasury in the building of these projects could never be liquidated, they insisted. These things and more they continued to reiterate. And yet we cannot bring in power fast enough to supply the urgent demands for it.*[11]

Ickes could not resist taking one more swipe at the big utilities. "There would be no public power versus private power issue in this country today if the private utilities had been satisfied with a reasonable profit; if they had not engaged in corrupting our political life," he said.[12]

The Power of the Law and the Laws of Power

Exactly 100 years before Western's birth, Congress created one of the most important figures in power marketing—the preference customer. The preference customer concept sprang from the preference clause established in the Desert Land Act of March 3, 1877 (19 Stat. 377). It was the first Federal statute stipulating that surplus reclamation and other non-navigable water on public lands was for the public's use. Subsequent legislation involving the preference customer always returned to the primary tenet first established by the Desert Land Act: the resources of the United States belong to the people instead of a privileged few.[13]

Hydropower from water projects electrified rural areas across the Great Plains and mountain states.

Statutes addressing the Federal role in marketing and transmitting power grew incrementally during Reclamation's tenure from 1902 to 1977. The legislation that created the United States Reclamation Service—the Reclamation Act of June 17, 1902—makes no mention of Federal generation or transmission of power. Four years later, Congress addressed that void with the passage of the Town Sites and Power Development Act of 1906 (34 Stat. 116).

Sections of the Town Sites Act (42 USC 522) are the foundation of Western's marketing relationship with its preference power customers. In 1906, Congress recognized that power was a by-product of Federal irrigation projects. The Act authorized the Secretary of the Interior to lease power development, surplus power or power privileges for a maximum period of 10 years. The proceeds from those leases flowed to the Reclamation Fund as a credit to the cost of building both irrigation and power features on each project.[14] The Act also granted preference status to municipalities.

The immediate social impact of the Town Sites Act came to those living within transmission distance of a Federal dam. The Town Sites Act allowed consumers to organize towns and cities and establish their own municipal electric utilities without depending on a single investor-owned utility.

Subsequent legislation broadened the tenets of the Town Site Act and further defined the role of the Federal government in marketing power. Significant legislation included:

- The **Federal Power Act** (Ch. 687, 49 Stat. 803). Passed by Congress in 1920, established a preference for states and municipalities in grants of licenses to produce hydroelectric power from dams on navigable streams. In 1935, Congress amended the FPA to give the Federal Power Commission the authority to regulate wholesale sales of power and its transmission in interstate commerce by investor-owned utilities.

- The **Public Utility Holding Company Act**. Enacted in 1935, PUHCA ordered investor-owned utilities to divest themselves of holdings and prevented investment in non-utility businesses. The FPA established Federal Power Commission regulation of wholesale electricity sales and transmission in interstate commerce by investor-owned utilities.

- The **Rural Electrification Act of 1936** (Ch. 432). This act created the Rural Electrification Association and, most importantly, brought millions of Americans out of the dark. Before the REA, only 10 percent of Americans living outside of the nation's cities had access to electric power. The REA provided loans to rural co-ops that enabled farmers and other rural residents to acquire power at lower rates. The Act also required the REA to give preference in granting loans to state bodies, municipalities, public utility districts and nonprofit cooperatives.[15]

- The **Reclamation Project Act of 1939** (Ch. 418; 53 Stat. 1187). This law is the single most important piece of legislation affecting Western's power marketing activities. Section 9(c) established the maximum term of 40 years for all Reclamation (and later Western) power sales contracts. It also expanded the class of preference customers to include other state and Federal agencies, rural electric cooperatives and other non-profit organizations financed by REA loans. The legislation also outlines the costs recoverable from power rates, notably operation and maintenance costs, construction costs and interest on the investment.

- The **Flood Control Act of 1944** (Ch. 665, 58 Stat. 887). This act created the Pick-Sloan Missouri Basin Program, the ambitious dam-building program that brought Reclamation and the Corps of Engineers together to control the Missouri River. Section 5 of the Act states that power from Corps of Engineers projects would be sold and transmitted "in such manner as to encourage the most widespread use thereof at the lowest possible rates to consumers consistent with sound business principles."

As advances in technology and policy moved forward, Federal power development in the West got off to an unexpected flying start. At the start of the 20th century, providing power to the West was an intended side benefit to the Federal agency empowered to "make the desert bloom."

Water projects across the West made the desert bloom. (Photo courtesy of the Bureau of Reclamation)

The Birth of a Cash Register

The Federal government's energy generation across the West grew out of projects designed to bring water to the area's parched deserts. Reclamation originally supplied Federal power marketing and transmission service for the western United States. Hydropower was secondary to Reclamation's main assignment to build dams and irrigate the arid West. From 1902 to 1977, power from

Reclamation dams brought light and heat to customers living across the West.[16] A veteran of both Reclamation and Western, Clark Rose, said that from the agency's senior management to just-hired civil engineers, every Reclamation employee knew that power was the "cash register that paid the bills" for project construction.[17]

Two of the earliest Reclamation dam projects were the Minidoka in Idaho and the Salt River in Arizona. Through unplanned circumstances, they were also the first two projects to supply surplus power to their respective communities. Initially, Reclamation needed electricity to run sawmills, concrete plants, giant shovels and other equipment necessary to complete both projects. Within a year of both projects' powerplants going on-line in 1909, Reclamation sold excess power to local residents and industry.[18]

On the Minidoka Project, citizens of the nearby towns enjoyed the low rates from power generated in nonirrigation months. Local customers were encouraged to use electricity as a substitute for coal. A Reclamation commentator described how power changed the lives of all classes of people along the Snake River: "The consumers' installations run all the way from small one- and two-room shacks, using perhaps two or three kilowatts, to a large school building in which a central heating plant consuming some 600 kilowatts is used to heat a building of 30 rooms."[19]

Reclamation's plant at Theodore Roosevelt Dam on the Salt River Project was even more ambitious. Built on the Salt River 75 miles east of Phoenix, the 5,000-kilowatt powerplant originally featured five generators. Soon after construction, local water users pushed for expanding the project's hydroelectric capacity. They reasoned that wells powered by electricity could bring additional acreage into production as well as supplement the water flowing in the main canals.[20]

"Revenues from power must be depended upon to lessen the burden on the irrigator."

By 1916, Reclamation operated nine Salt River pumping plants for a project that irrigated 10,000 acres. Local farmers agreed to repay the cost of three additional powerplants on drops in the canal system that added 8,000 kilowatts of capacity over a 208-mile network of transmission and distribution lines. To take advantage of the available power, members of the Salt River Project's Water Users Association formed cooperatives to run distribution networks to pump domestic water, light homes and power the first generation of electric farm machinery and household appliances. The model launched at Minidoka and improved upon at Salt River quickly spread to other Reclamation projects. By 1923, 18 Reclamation powerplants on 12 different irrigation projects across the West produced an aggregate installed capacity of more than 33,000 kilowatts.[21]

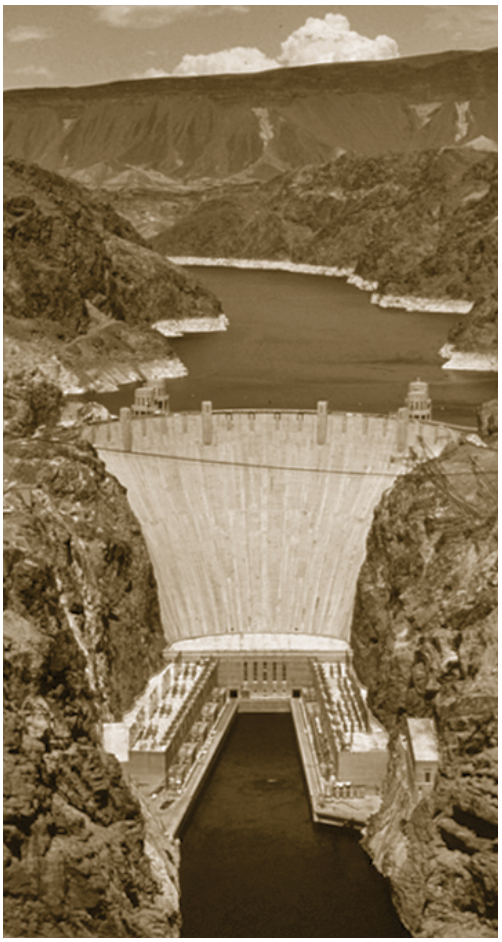
In 1926, the in-house publication *New Reclamation Era* commented that to alleviate increasing construction costs, "revenues from power must be depended upon to lessen the burden on the irrigator. It will make projects feasible that could otherwise be built only at financial loss to the Government."[22] Reclamation's leadership also agreed. Reclamation Commissioner Elwood Mead wrote in 1930 that power development as a source of income for the Federal government "promises to be an important factor in the repayment of construction costs in the future." Mead also believed power sales would continue to provide "a source of income and social betterment" for many communities after the Reclamation-built dams tamed the rivers of the West.[23]

From the start of the 20th century to the mid-1930s, Reclamation's Power Marketing Division drew up about 110 power sale contracts. The rates in each contract considered the cost of construction and operation, maintenance and depreciation of the power system, the influence of available power to local development, the rate of return on the government's investment and the availability of a market and competitive conditions. Reclamation's power activities, according to Commissioner John Page in 1936, put the agency in a "dominant position among Federal agencies in the production of power."[24]

By the mid-1930s, the Roosevelt Administration launched its ambitious construction campaign to build facilities that would produce hydropower. Massive New Deal facilities like Hoover Dam in Nevada/Arizona and Grand Coulee in Washington pumped staggering amounts of water and delivered substantial power revenues that repaid the government's investment in building and operating the powerplants.

During World War II, water and power produced by Reclamation projects were vital aspects of the war effort. The electricity produced by the Grand Coulee Dam powerplant on the Columbia River supplied emergency wartime power to "Mystery Project X" in Hanford, Wash., thus helping to usher in the nuclear age. One of the two atomic bombs that ended the war came from Hanford.[25]

In 1944, as the Allies landed on the European continent, two long-time rivals worked together to build the largest transmission system in the United States. The Pick-Sloan Program brought together the Corps of Engineers and Reclamation to dam the Upper Missouri River in the Dakotas and Montana. The Corps built the system of dams, but Reclamation controlled the hydropower system through two operations centers—one in Watertown, S.D., for Pick-Sloan's eastern side and the other in Loveland, Colo., for the western side.



Hoover Dam stands as testament to Reclamation's heyday of construction. (Photo courtesy of the Bureau of Reclamation)

The multipurpose project provided flood control, irrigation, recreation and commercial benefits to the people of the Upper Great Plains. But the benefits from power were the most dramatic. In 1944, fewer than 10 percent of North Dakota communities had electricity. After Pick-Sloan, all of North Dakota and the rest of the Missouri River Basin had power.[26]

Power took on increasing importance inside Reclamation and across the west after the Second World War. Coming back from the war, engineer Harvey Hunkins joined Reclamation because the agency was "on the cutting edge" of technological advancements regarding transmission. Hunkins found that the private sector that publicly berated government involvement in the power business often quietly sought the technical knowledge developed by Reclamation staff.[27] By the middle of the 20th century, Reclamation dams like Hoover, Shasta and Grand Coulee produced more than 27 billion kilowatt-hours a year—8 percent of the total energy supplied by the nation's electric utilities.[28]

Reclamation continued to design and build dam projects across the West into the late 1950s and 1960s. Nevertheless, by the late 1960s and early 1970s, some noticed a split inside the organization between water and power employees. Peter Ungerman, then a project man-

ager at the Parker-Davis Project, noted a philosophical partition between water and power people: "It affected everything...on who got what, your grades. It affected your pocketbook. As a power person you could only get to a certain level." Ungerman added those Reclamation employees responsible for power held out a hope that one day "the agency would market power the way Bonneville and the other PMAs did."[29]

In the mid-1970s, Lloyd Greiner worked in Reclamation's Billings Regional Office as Chief of the Power Division's Resources and Development Section. He had an indication around 1976 that the agency lost interest in executing its power functions:

> *There was a feeling in Washington that Reclamation should not spend any more money on a transmission system in the Western Division of P-SMBP. It came out with a dictate that said that there was adequate transmission wire in the air to provide for all the transmission needs; therefore, the Federal Government—the Bureau of Reclamation—wasn't going to do any more transmission construction.*[30]

By the mid-1970s, the future of Federal transmission and power marketing in the West was a minor element of a much greater debate over a national energy policy. America's increasing dependence on energy in all its forms during the 20th century—from petroleum to hydroelectric to atomic—set the stage for the eventual creation of a single Federal authority to oversee the nation's energy distribution and use. However, it was an unexpected act of denial from outside the nation's borders, not planned, careful development by the Federal government, that brought to life the Department of Energy, and, in turn, a new power marketing administration in the West. ▼

CHAPTER ONE

'The biggest jolt': Western's Beginnings, 1977-1981

Western Area Power Administration came into the world during interesting times. The mid-1970s was the first period since World War II that the Federal government encouraged Americans to conserve, cut back and cooperate for the good of the nation. Lines at gas pumps; threats from the Organization of Petroleum Exporting Countries, better known as OPEC, to cut-off the nation's petroleum supply; inflation; and a dormant economy alarmed the nation. Under a political climate already darkened by the close of the Vietnam War and the height of the Watergate scandal, the Arab oil embargo of 1973 was a dark cloud that soon shadowed the other crises of the decade.

As OPEC producers cut shipments to the United States in a dispute over American support for Israel in the 1973 Yom Kippur War, oil prices rose eightfold, and the cost of electricity increased by nearly 50 percent. OPEC's actions exposed the United States as a petro-junkie constantly dependent on another fix of foreign oil. In his autobiography, President Jimmy Carter observed that in the fall of 1973, the United States was importing almost 35 percent of its oil. By the time Carter took office four years later, imports had grown to 50 percent.[1] In this time of uncertainty regarding the national dependence on petroleum, hydropower's stature grew as a working, easily available example of nonfossil fuel generation.

The external pressures brought by the oil crisis opened rifts between oil-producing and -consuming regions inside the United States. During the fuel-starved winter of 1973-74, New Mexican Governor Jerry Apodaca vowed that coal-producing states of the Rocky Mountain region would "not become the energy colonies of the Northeast."[2] The Texas State Legislature went one better and passed a bill prohibiting interstate shipment of natural gas produced on state-owned lands.[3] Western's second administrator, William Clagett, saw that "if U.S. citizens are deprived of their mobility and because of the necessity, their lifestyle changes overnight, there could be a similar and almost violent reaction as when a population must suddenly go without food."[4]

'The Moral Equivalent of War'

Soon after Inauguration Day 1977, President Carter announced that the energy crisis was the "moral equivalent of war." The president's pronouncement quickly became a catch phrase during the early days of his administration. Many have taken credit for the call to arms, but the administration's fixation on a new energy policy pounded the declaration into a cliché as the year wore on.

On Feb. 2, 1977, clad in a cardigan sweater in front of a smoldering fire in the White House library, Carter spoke to the nation of his plan to "bring order out of chaos" regarding energy. He vowed his administration would gather the duties of 50 Federal agencies, departments and bureaus connected to overseeing the nation's oil and energy supplies under one authority—a Department of Energy.[5]

Carter presented to Congress his proposed energy reorganization legislation on March 1. The president's National Energy Plan was the No. 1 legislative agenda item during his first year in office. That spring and summer, Carter made three televised talks to the nation and a State of the Union address to a joint session of Congress. The central theme of every speech by the president was how America would regain control of its energy supply and destiny.[6]

The speed of the Carter Administration's actions caught those directly involved in power marketing in the Department of the Interior off-guard. John DiNucci was the branch chief for Power Marketing in Reclamation's Washington office when he heard a rumbling that change was on its way.

"We never thought they could separate power marketing and transmission functions from the Bureau."

"The whole thing happened so quickly," DiNucci said. "Very few of us could gather our thoughts. We never thought they could separate power marketing and transmission functions from the Bureau." DiNucci admitted that his duties had kept him distracted from the events swirling around him: "I didn't even know the thing (DOE Act) was in the mill. This was back in April of 1977. I was so damn busy trying to get all my contracts together because of lack of personnel. All of sudden, we get this thing that they are going to pass this back—and whack! Personally, I didn't think it was going to fly, because Reclamation never really did anything about it."[7]

Rumors began to fly inside Reclamation that an Energy Act would detach the power marketing function from its control. In 1977, the new Commissioner of Reclamation, R. Keith Higginson, came from Idaho to an organization under attack. Appointed as Commissioner from the Directorship of the Idaho Water Resources Department, Higginson quickly found himself in a fight with congressmen who "wanted to dismantle the Bureau" after the Teton Dam failed in June 1976. No one suspected at the time, but Reclamation's days as the West's premier dam-builder were drawing to a close, and with them its role in power marketing.[8]

Thrust into this situation was the regional manager of Reclamation's Regional Office in Billings, Mont., Robert McPhail. In May 1977, Higginson asked McPhail to chair a task force examining the possibility of transferring Reclamation's power marketing functions to a new agency. The members of the task force came from Reclamation's different regional offices. McPhail described them as "competent, long-term trusted managers who were intimately familiar with the power operations and transmission systems." This board included John DiNucci and Billy Spillers in Washington, D.C.; Ab Watts, Conrad Miller and Harvey Hunkins in Denver; Thomas Weaver and Jim Davies in Billings; Bob Olson and Peter Ungerman in Boulder City, Nev.; Gordon Estes in Sacramento; John Mueller and Al Gabiola in Salt Lake

City and Howard Jenkins in Amarillo, Texas In a few months, most of these men would be part of that new power agency.[9]

As the task force hammered abstract "what-ifs" into a set of guidelines, legislation creating the DOE passed the Senate on May 18, 1977, and the House on June 3, 1977. It brought with it the expected debate and controversy. An example of the depth of opposition to a Department of Energy came from the conservative economist Milton Friedman: "A Department of Energy has the potential of being the most powerful and the most harmful of all Federal agencies. It would control the lifeblood of our economic system. Its tentacles would reach into every factory, into every dwelling in the land."[10]

Senator Ernest Hollings (D-SC) defended the creation of a Department of Energy on the floor of the Senate. He compared the new department to a car that spent years on the drawing board and was now ready for a big launch to the public: "1977 shows that many energy engines or programs have been presented by American presidents, but President Carter's is the first with four wheels and a body. And sell or not—this is a model that America must buy or else find itself walking within 20 years."[11]

The creation of a power marketing administration for the western United States filled only a few sentences in the language of the Act. Western's birth certificate is in Section 302(a) of the Department of Energy Act, (42 U.S.C. / 7151a). Section 302 (a) transferred the power marketing functions from Reclamation and created a new power marketing administration. With the Congress focused on the bigger problems surrounding the future of the national energy supply, the legislators enacted Section 302 (a) in much the same form as first introduced. Congressional action, including approval of the House and Senate conference reports, concluded on Aug. 3. The following day, Aug. 4, 1977, President Carter signed the bill into law (Public Law 95-91).[12]

In three months, the task force put together a list of responsibilities, facilities and the names of 976 people eligible for transfer from Reclamation to DOE. Under the civil service guidelines established by the Office of Management and Budget, those Reclamation employees who worked 50 percent or more of their time on power marketing and transmission would make the jump to the new organization. Those working less than 50 percent of their time on power would stay with Reclamation.[13]

One glaring fact discovered by the task force was that none of Reclamation's top management or administrative support people spent 50 percent or more of their time in power marketing. This would leave a hole at the top of the new agency. Billy Spillers in Reclamation's Washington Office eventually negotiated a deal with Reclamation officials to transfer 63 vacant positions that would fill top management, legal and administrative support positions.[14]

Looking back from a distance of a decade, in 1987, Bill Clagett recalled the scramble to begin operations: "Some 900 employees from the Bureau of Reclamation received what was the biggest jolt in their careers. They were plucked from an organization with a 70-year history and placed in a new organization that didn't even have a name."[15]

For preference customers in the West, Fiscal New Years Day—Oct. 1, 1977—dawned on a new Federal agency with no name. The day brought a Final Determination Order specifying the transfer of Reclamation's power marketing responsibilities, facilities and people. Commissioner Higginson detailed the chair of the task force, McPhail, from Reclamation to DOE as the acting administrator of the new PMA.[16] McPhail inherited a new organization with 15,000 miles of high-voltage transmission lines, 256 substations, 466 contracts, $250

million in annual revenues and an annual budget of $117 million to operate and maintain that system.[17]

The transfer was a momentous occasion only on paper. The new PMA had to report to the Department of Energy and DOE's answers were often slow in coming. The DOE's first Director of Administration, William Heffelfinger, refused to approve the task force's new organizational structure and proposed office locations. Heffelfinger also refused to give the new PMA any hiring authority to put in place a management team and administrative support staff. McPhail recalled that "Heffelfinger wanted to consolidate all five of the power marketing agencies into one office based in Washington. That one agency would report back to him." Preference customer groups in the Missouri River Basin and along the Colorado River got wind of the plan and voiced their anger to their congressional representatives. Heffelfinger and the DOE quickly backed away from their proposal.[18]

"Some 900 employees from the Bureau of Reclamation received what was the biggest jolt in their careers. They were plucked from an organization with a 70-year history and placed in a new organization that didn't even have a name."

Another misperception among DOE's senior management was that a handful of people could run a new, 15-state power marketing organization. They based their belief on the 30 and 50 individuals then staffing the Southeastern and Southwestern power administrations. This problem was resolved after discussions between McPhail and DOE officials. Several of Western's senior managers later recalled that since most of DOE's management came from the Atomic Energy Commission, explaining how transmission and power generation worked was a struggle.[19]

The new organization faced several challenges, including the need for a new name and a new home. For example, Western was almost not Western. Tucked in a file in the office of Western's administrator is a flow chart of possible departments in the new agency from this period. Scribbled in the corner were a list of possible names for the "new baby." They included the inexplicable Bison Energy Administration, the geographically impossible Central Western Power Authority and the historically honorable, but confusing, Reclamation Power Authority. Other potential choices included Mid-Continent Power Administration and the Western Power Marketing Agency. The WPA (Western Power Administration) was another choice, but McPhail said the memory of Roosevelt's New Deal agency, the Works Progress Administration, might have triggered a discomforting flashback among some in Washington and out west.[20]

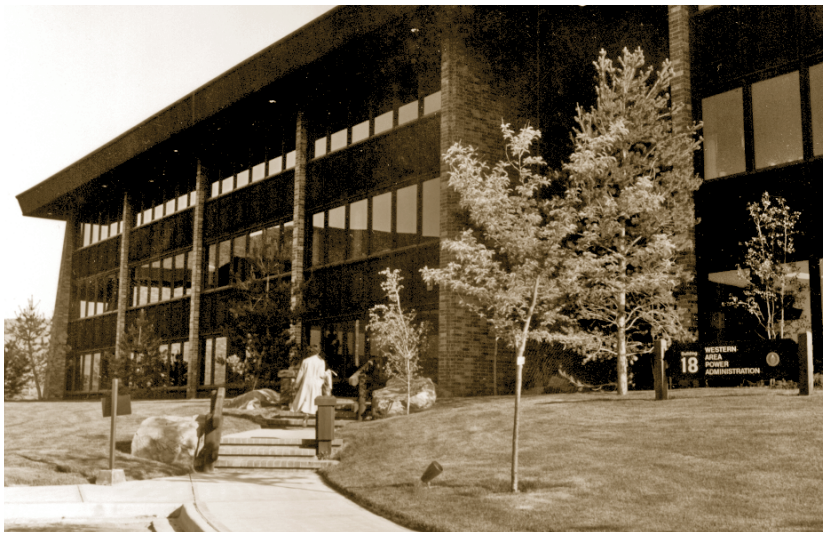
On Dec. 21, 1977, DOE accepted McPhail's recommendation for a name and announced the establishment of a new PMA—Western Area Power Administration. Over the next few months, the PMA would continue to exist "out of Bob McPhail's suitcase in Billings" as Western struggled to bring in people and find a home.[21]

Another matter of importance was a headquarters location. One of DOE's acting assistant secretaries drew up a list of six cities within the old Reclamation service area—Denver, Billings, Salt Lake City, Sacramento, Albuquerque and Phoenix—as possible sites for Western's headquarters. Some in the new PMA favored establishing the main office in Billings for rea-

sons both professional and personal. However, Denver had the inside track as the most central location in the service area and due to its proximity to Reclamation.[22]

If Denver was a foregone conclusion for headquarters, finding a place to land somewhere in the city was much more difficult. Those headaches were a direct result of Executive Order 12072. The underlying aim of the Executive Order was "the socioeconomic improvement of our cities" through the placement of Federal agencies in central business districts.[23] Denver was in a bust cycle and was eager to land a Federal facility. McPhail went "house hunting" in some of Denver's less desirable neighborhoods where the rents were cheaper, but did not find anything to his liking.[24]

The General Services Administration—the government's "landlord"—noted "with the exception of one building, which would require congressional approval because of price, there may be only three buildings in the downtown Denver area that could accommodate DOE/WAPA." GSA agreed with Western that all of the buildings available in Denver were "old, (and) have been unleaseable for a number of years." However, GSA did not waver from its edict to keep the new PMA in downtown Denver. Some in Western also worried that additional money for downtown rents would affect power rate schedules with the customers. In addition, McPhail wanted Western on the west side of Denver close to Reclamation, because staff there continued to provide direct support in data processing, training and laboratory testing.[25]



After two years in trailers, Western's Headquarters employees moved into Building 18 at the Denver West Office Park in Golden, Colo. The site would serve as Western's Headquarters until December 1999.

On June 18, 1978, DOE appointed McPhail as Western's first administrator. McPhail could claim rolling stock of two 30' x 50' trailers, a staff of 30 and one phone line at a temporary location in Golden, Colo. A decade later, he spoke of the difficulties of finding a home for the new agency:

> *It was two years and umpteen pitched bureaucratic battles later that we finally signed a lease on office space for the WAPA headquarters at the Denver West Office Park after using borrowed space in two doublewide trailers for three months. Some of my longtime Bureau friends told me that WAPA is the only agency to ever stand up and fight the GSA and then receive its choice of office space. Obtaining office space for WAPA was without a doubt my most frustrating experience during my 25 years of Federal service.*[26]

McPhail later admitted that help came during this time from an unexpected source. DOE's Administrative Director Heffelfinger loaned Western the services of Don Shinkle. In July 1978, Shinkle came from Washington to serve as Western's Assistant Administrator for Management Services. In a month's time, Shinkle arranged for Western to lease 36,489 square feet of temporary office space in the Denver West Office Park in Golden from a DOE contractor, the Solar Energy Research Institute (now the National Renewable Energy Laboratory). The arrangement got around the GSA order to locate in downtown Denver. The downtown-suburbs showdown between Western and GSA would continue for two more years until GSA admitted defeat in 1981.

In March 1978, DOE approved the organization of the Headquarters office and establishment of five area offices and subordinate district offices. The five area managers came on board during May and June of 1978. All came over from similar positions in Reclamation, and their transfer was relatively painless. They included Robert Olson in Boulder City, Nev.; Peter Ungerman in Loveland-Fort Collins, Colo.; Al Gabiola in Salt Lake City; Gordon Estes in Sacramento and Jim Davies in Billings.[27]

Western filled other top management jobs during the summer of 1978. On July 19, 1978, William "Bill" Clagett became Western's first Deputy Administrator. Western's lone senior administrator without a Reclamation background, Clagett spent the previous seven years as Assistant Administrator in Bonneville Power Administration's Washington, D.C. liaison office. Clagett's first assignment was to convince congressional budget committees to institute a revolving fund for Western similar to the method used by the Bonneville Power Administration. That same month, Western's first general counsel, Thomas Hine, came over from the Department of the Interior Solicitor's Office in Boulder City, Nev.[28]

"There were no secretaries, no administrative help, warehousing help or anything."

The new agency may have served the wide-open West, but space was a problem systemwide. In 1979, Frank Knutson, then the assistant area manager for engineering in the Loveland-Fort Collins Area Office, noticed that Reclamation kept all the facilities after Western's creation. Knutson noted, "We rented ourselves a district office in Fort Collins in the basement of the old Post Office building. We started identifying some of the problems—and we had considerable ones. Basically, for 18 months very little was accomplished under the WAPA role, mainly because of lack of key people and key positions."[29] Thaine Michie, transmission lines and substations division director in Loveland-Fort Collins, added that only "line crews and line supervisors" came over from Reclamation initially and "there were no secretaries, no administrative help, warehousing help or anything."[30] As late as March 1979, the Sacramento Area Office did not have an adequate facility and considered moving into trailers. Salt Lake City staff were in an old Federal Aeronautics Administration building under a temporary lease provided by the General Services Administration, and the Billing Area Office was still looking for a permanent home.[31]

Knutson also recalled the problems with transmission in the field. During 1977-78, he remembered "an extreme number of system breakups because of the lack of good equipment." One occurrence of note happened on July 10, 1978, when Western imported more power than the system could handle, and the Archer Substation 10 miles east of Cheyenne, Wyo., blew a fuse. The problem cascaded, leaving metropolitan Denver in the dark for two hours.[32]

For most power customers, 1977-78 was much more memorable for the weather than for Western's arrival. In November and December 1977, heavy icing conditions combined with high winds destroyed or damaged several wood-pole transmission structures between Forman, N.D., and Watertown, S.D. Western's operations and maintenance crews fought bad weather for several weeks to repair damage and return the lines to service. In March 1978, heavy rains around Phoenix caused the Salt River to flood. The floodwater caused a shift in the river channel that washed out a double-circuit 230-kilovolt tower and damaged two other structures. On July 6, 1978, tornado-force winds in South Dakota crumpled a steel transmission tower like a wire coat hanger. The damage caused an outage on the 230-kV Utica

Junction-Sioux Falls line. The city of Sioux Falls, S.D., did not go dark, but the loss of the line resulted in low voltage until crews completed repairs on July 12. Underscoring the capricious nature of the weather during those years, in 1977 drought and near-drought conditions in Northern California and Utah hampered generation, but in 1978 above average moisture brought the water supply back up to the "very good" level.[33]

The Divorce Decree: Reclamation and Western Divide

Beyond his battles with the DOE and GSA, Administrator McPhail spent his free time during 1978 and 1979 negotiating the full transfer of facilities and functions from Reclamation.

In a Feb. 3, 1978, memo to DOE Assistant Secretary for Resource Applications, George S. McIsaac, McPhail delivered a blunt message about a manpower shortage he believed was responsible for Western's inability to get started. McPhail wrote that at his four-month old agency, much of the work was at the level of "getting by" without a permanent management staff. He complained, "There are insufficient WAPA personnel to accomplish the work, and BR personnel naturally give first priority to BR work rather than WAPA work."[34]

Reclamation Commissioner R. Keith Higginson, left, and Western Administrator Bob McPhail sign Western's "divorce decree" from Reclamation on March 27, 1980.

Almost to the day of Western's first anniversary in December 1978, McPhail issued a review of DOE's attempts at staffing Western. He found that planning and staffing almost from the beginning had been a continual "belt tightening" exercise. Before the DOE Act, Reclamation handled power marketing and transmission as part of its integrated power generation and transmission program. Those two functions represented only 15 percent of Reclamation's overall workload. Both agencies duplicated staffing, property, budget, finance and some engineering duties. The combination of staffing requirements due to increased demands and the application of the 50-percent rule left both Reclamation and Western short of people. McPhail warned that Reclamation had allowed some staffing levels to fall below the safe "operational curve"—forcing Western's managers to fill positions vital to keeping the power system going and also cutting into their schedules for hiring support staff.[35]

The enmity between Reclamation and Western over the transfer of functions and property grew during 1979. On Feb. 18, 1979, McPhail sent a letter to Reclamation Commissioner Higginson pointing out the delays in transferring property, staffing and functions. He specifically cited "very severe shortages" of people and equipment in Sacramento and Denver. Reclamation's Upper Colorado Region Manager in Salt Lake City, N.W. "Bill" Plummer, commented to Commissioner Higginson in March 1979 that "Considerable polarization appears to be developing between WAPA and Reclamation. As a result, more effort is going to be required to negotiate a reasonable settlement." Higginson made it known that he wanted to conclude the servicing of Western as soon as possible, as getting the new PMA up and running was a low priority on Reclamation's list of work to be accomplished.[36]

Beyond terse letters, negotiations continued for almost two years. On March 27, 1980, Higginson and McPhail signed a joint agreement defining each organization's jurisdictional responsibilities. The agreement placed control of planning, design, construction and operations and maintenance of hydro and other forms of electrical power generation with Reclamation. Western would be in charge of planning, design, construction and operation and maintenance of the transmission system, marketing Federal power and setting power rates to assure repayment of all allocated investment. Western would also run and maintain the high-voltage transmission lines, substations and equipment, operate principal tie-ins and switching stations and schedule energy transactions with connecting utilities. Both organizations would operate elements of the water release system. Reclamation would control the release schedule and maintain operational control of all generator units. Western would participate in decisions with Reclamation to optimize the use of power resources. In addition, the agreement established a joint electric power resource and transmission research, development and testing program.[37]

Commissioner Higginson's memories of the split between Western and Reclamation are much more placid than his correspondence of that period illustrates. Reflecting from a distance of 20 years, he said: "There were some legitimate controversial issues over what should go and what should stay, if they should keep this particular facility or this particular function. In the end, I think everybody agreed with the decision and accepted it and said let's get on with it."[38]

Beyond the divorce settlement between Reclamation and Western, employees had to focus on two crucial areas to get Western established. The PMA had to develop the all-important rate and marketing criteria, as a number of existing contracts would soon expire; and the existing transmission system was starting to show its age, pressuring Western to build new lines and facilities.

Lloyd Greiner served in several positions during his tenure at Western. He also worked for Reclamation.

Rates and Marketing

Distractions over names, a home and functions delayed Western's rate-setting plans. In the spring of 1978, Fred Simonton, executive director of the Upper Missouri River Basin preference power consumers group, Mid-West Electric Consumers Association, told the Senate Subcommittee on Energy Production and Supply, "For six and one-half months, the Western Area Power Administration, which is a major power supplier to millions of people in 15 western states, has been completely stymied with temporary management. While Denver has been designated the headquarters of the Western Area Power Administration, there isn't a headquarters telephone number or even a desk."[39]

Reclamation did not have a public process in place for setting rates until the early 1970s. Lloyd Greiner remembered that in Reclamation's Billings Office, agency policy virtually silenced the public's voice regarding what the government charged for power: "I wasn't there in the earlier days when the power allocations were put together, but there was no public input. Basically, we announced a rate increase. There was a great deal of pressure from Mid-West (Electric Consumers Association) for Reclamation people to at least talk to the customers."[40] Greiner added that by 1972, customers expressing their concerns over rates forced Reclamation to open the public input process somewhat. It took further legal action (*Northern California*

Power Agency, et al, v. Morton, 1975) in the final days of Reclamation's involvement in setting rates before public participation broadened.[41]

Of the little more than 7 million kilowatts of power Western had under contract in 1977, contracts for 6.2 million kW would expire between 1981 and 1990. Customers' increasing load requirements, and the time needed to develop alternative energy supplies, pressured Western to provide as much advance notice as possible of any major changes in hydropower allocations.

In 1979, Western began rate actions for the Central Valley, Colorado River Storage and Parker-Davis projects. The next year, Western began rate actions for Boulder Canyon and Pick-Sloan's Eastern Division customers. Western focused much of its attention on Pick-Sloan rates because
of the large amount of power the project produced and the active customer base in the region.

In the Pick-Sloan's Eastern Division, the timetable for a new power marketing plan began in January 1979. McPhail announced that the public would have a greater role in Western's first major marketing plan. In the Eastern Division, Western marketed power from eight powerplants, operated more than 7,300 miles of transmission line and 90 substations and sold 2,000 megawatts of capacity and more than 10 billion kilowatthours of energy each year. Of the 248 contracts for the delivery and sale of firm electric power, most would expire on Dec. 31, 1985. In preparing the plan, Western officials analyzed marketable products like firm and peaking power, system reserves, regulation, transmission, new allocations and new contractual agreements. They also estimated future load and water conditions.[42]

Western held preliminary public meetings in Sioux Falls, S.D., and Billings, Mont., in March 1979. The meetings allowed customers to voice their thoughts over existing resources and future developments. Two reports and a succession of meetings with customers across the Dakotas, Minnesota, Nebraska, Iowa and Montana continued into 1980. After the public comment period closed on Sept. 12, 1980, the Billings Area Office went to work incorporating customer responses into the final marketing plan. Greater public participation worked, and the final Post-1985 Marketing Plan was published in the *Federal Register* on Oct. 30, 1980. On Nov. 3, McPhail signed a letter of commitment with the participating customers.[43]

The administrator noted at the conclusion of the signing ceremony that "there is a tendency for many who view the operations of a Federal agency to feel that decisions that affect the public are often made in a vacuum." McPhail found the first major public process for a Western marketing plan "enabled us (Western) to ensure a fair and equitable assignment of power and has provided our customers with ample time to adjust to any potential changes in their power supply programs that, in turn, affect their future generation planning."[44]

The marketing language detailed Western's management of Pick-Sloan power for the next 15 years. Among its many provisions, the formula included:

- maintaining the existing Eastern Division marketing area,
- extending previous commitments through 2000 and
- establishing service to qualified new preference customers in the Billings marketing area from resource pools totaling 35 megawatts in the summer and 40 MW in the winter.

In a departure from previous Reclamation marketing plans, and to address the energy crisis, customers had to establish an energy conservation program by July 1982.[45]

At the same time as the public review of the Eastern Division's marketing plan, Western's Boulder City Area Office began a public process to adjust the rates for power on the Parker-Davis Project. Under a DOE delegation order, DOE approved Western's rate adjustments on an interim basis, subject to final confirmation by the Federal Energy Regulatory Commission. On April 13, 1979, Western began work on a proposed rate adjustment for the Colorado River Storage Project. The rate adjustment resulted from a Fiscal Year 1977 power repayment study. The study found the existing power rate did not repay construction nor provide adequate revenue to pay CRSP operating expenses, including the costs of purchasing power to supplement the project's hydro generation. Western's proposed rate raised the monthly capacity charge from $1.34 to $1.93 per kilowatthour—an increase of 38 percent—and led to the first challenge of a Western rate before FERC. New agreements continued into 1981, as Western finalized the marketing plan for the Fryingpan-Arkansas Project in central Colorado and achieved a major milestone with approval from FERC for a new rate for the Parker-Davis Project.[46]

Settlement in Santa Clara

Two Reclamation legacies reached resolution in 1980. Western settled the contentious *City of Santa Clara v. Duncan* case and one of the West's mightiest manmade lakes filled for the first time.

The legal wrangling involving *City of Santa Clara v. Duncan* began in 1964. The city of Santa Clara, Calif., claimed it failed to receive a firm allocation of power from Reclamation's Central Valley Project when power from the Trinity River Division became available and was allocated.[47]

By 1975, the city of Santa Clara filed suit in California District Court challenging the reduction of its withdrawable allocation of Central Valley Project power. The city of Santa Clara also asserted that the CVP power banked with Pacific Gas and Electric Company was a sale in violation of the preference clause. Besides Reclamation, Western and Santa Clara, parties involved in the case included the Departments of Energy, Interior and Justice; PG&E; the intervenor California cities of Palo Alto, Roseville, Redding, Biggs and Gridley; and the Plumas Sierra Rural Electric Cooperative.[48]

Many years of legal wrangling preceded Western's involvement in *Santa Clara,* so it was with much relief that Santa Clara and the smaller cities approached Western to discuss a settlement in 1979. Western contacted PG&E, and all parties agreed to a preliminary settlement in December 1979. The final Memorandum of Understanding dated June 12, 1980, featured the following points of agreement:

1. Make available a firm allocation of Central Valley Project power to the city of Santa Clara, plus an additional allocation of withdrawable power;
2. Both the city of Santa Clara and PG&E would dismiss their suits;
3. Increase the level of CVP load that PG&E would support and establish a specific amount of CVP power that each intervenor city and rural electric cooperative could count on to meet future load growth, and
4. Raise Western's load level to 1,152 megawatts, giving Western the ability to allocate 102 megawatts more power than the existing allocation.[49]

The settlement also resolved two related cases, *Pacific Gas and Electric Company v. the United States* and the *City of Santa Clara v. United States.* After signing the settlement, McPhail said: "This is a landmark occasion as far as the CVP is concerned, because it affects all aspects of how Western allocates and markets CVP power. Western's internal publication, *Closed Circuit,* noted, "The case (Santa Clara) has been our most complex legal issue to date."[50]

Lake Powell Fills

A month after the Santa Clara settlement another event served as a reminder of the remaining ties between Reclamation and Western. On July 11, 1980, the city of Page, Ariz., held a ceremony to celebrate the filling of Lake Powell behind Glen Canyon Dam. After Reclamation completed construction in March 1963, it took 17 years for the lake to reach a full surface elevation of 3,700 feet. Glen Canyon is the largest powerhouse of the Colorado River Storage Project, and Western sells electricity from its powerplant to customers in Utah, Colorado, Wyoming, New Mexico, Nevada and Arizona.

A full lake allowed Western to deliver 100-percent of its power commitments to its customers during June and July 1980. These deliveries, in turn, reduced gas and oil consumption. Speaking at the ceremony in Page, Reclamation Commissioner Higginson noted that since its days on the drawing board, Glen Canyon had been a source of controversy. He made a request of those favoring removal of the dam: "Those who would oppose all water resource development for whatever their motive, I would invite them to come to Page and Glen Canyon and see what has been accomplished."[51]

Massive Lake Powell filled for the first time in 1980, after Western had taken over power sales from the Glen Canyon Powerplant. The Glen Canyon Dam created Lake Powell, which has become a popular tourist destination.

Building A Name: New Construction under Western

The quickest way to create an image of Western as an agency on the move was to build offices and transmission facilities across the West. Despite a relatively small first-year construction budget of $10 million, 1978 was a big year for transmission construction. Western energized 407 circuit miles of new transmission lines and crews completed the 177-mile Watertown-Sioux City 345-kV line in South Dakota and Iowa and the 186-mile Hayden-Ault 345-kV transmission line in eastern Colorado.[52]

Western Administrator Bob McPhail, second from left, and other officials got a look at the new Watertown Operations Office during the facility's dedication on June 24, 1978. Also pictured are, standing from left to right, Jerome Juba, Watertown Operations officer; George McIsaac, Reclamation's assistant secretary for Resource Applications; Dan Ogden, director of the Office of Power Administration Coordination; and Administrator James Hammett, Southwest Power Administration. Seated is Bob Duncan, senior dispatcher at Watertown.

Back on the ground, Western set about building facilities for its employees in the different service areas. The first structure of note was the Power Service Operations building in Watertown, S.D., completed in November 1977. The building is the nerve center for power system operations in the Pick-Sloan's Eastern Division. Western's first Public Information Officer, Robert Zeeck, remembered the dedication of the Watertown facility on June 24, 1978. This was the first time top brass from DOE in Washington and Congressional leadership, in the form of South Dakota Senator George McGovern, participated in the opening of a Western construction project.[53]

Another important first step took place at Western's construction office in Huron, S.D. A planeload of Western's management made the trip from Denver to Huron on May 28, 1980. Their task was to witness the opening of bids to build a 227-mile portion of a 230-kV transmission line between Miles City, Montana, and New Underwood, S.D. The line would be Western's first large-scale transmission construction project.

The project aimed to improve the reliability of the Federal transmission system in eastern Montana and the western Dakotas. To reduce construction costs and meet the many needs of Western and its customers, Western and the area utilities jointly funded construction. Customers needed the line to enhance reliability to existing loads and provide increased capacity to meet projected growth. Western divided the construction work between both states. Howard P. Foley Company of Salt Lake City presented a low bid of $7.7 million for the

Montana portion. Brink Construction Company of Rapid City won the right to build the South Dakota line with a low bid of $9.6 million. The most visible aspect of project construction was 4,000 wood poles standing 65 to 100 feet above the ground and weighing about 15,000 pounds each. The poles were designed to withstand the forces of decay, insects, high winds, ice loading, lightning bolts and tornadoes. The transmission lines were in place in late 1981, and Western completed the entire project by July 1982.[54]

Western broke ground in 1980 on a new home for the Loveland-Fort Collins Area Office. One hundred people working in the Fort Collins Office moved down Interstate 25 to the new Power Management and Operation Complex near the Loveland-Fort Collins Airport in the summer of 1982.[55]

The early 1980s saw the introduction of the computer into every aspect of the private sector and the Federal government. Western moved into this uncharted realm with the use of a Supervisory Control and Data Acquisition system. The network of computers, terminals and remote units provided power system operators with rapid information on power lines and substations. SCADA first came on line in Western's Phoenix District Office in the summer of 1980. At a cost of $3.5 million, the automated system allowed dispatchers in Phoenix to perform operations at the Parker and Davis powerplants. Western converted its entire dispatch system to SCADA by 1981.[56]

The Sun and the Wind: Western and Alternative Energy Sources

The 1970s saw an increased national awareness of environmental issues. These concerns placed new demands on power suppliers to develop and deliver alternative, environmentally friendly energy. In 1979, Western took a first step toward developing wind power with the purchase of two small generators (10 and 40 kilowatts) to power two substations in Wyoming. Western worked jointly with Reclamation to install a prototype wind turbine generator near Medicine Bow, Wy. Western integrated the generator's output to the high-voltage transmission system and integrated it with various hydroelectric resources. The project was designed to demonstrate the technology, not to make a dent in energy imports. The two wind generators would save about 240 barrels of oil annually.[57]

The agency also became involved in the Federal Photovolatic Utilization Program to use the rays of the sun to produce power at Cunningham Mountain, Ariz. The system produced 20 amperes for charging batteries at a radio repeater site. During this period, McPhail informed customer groups leery of alternative energy sources that Western's "strong support" for the development of solar energy offered "flexibility" to the hydroelectric-based system.[58]

The Department of Energy Act emphasized conservation and renewable energy development. In 1980, Western started its own Conservation and Renewable Energy Program. In charge of this program was Joe Hall, who later became Western's assistant administrator for power management and operations and maintenance. Hall wanted customers to think of Western as "providing energy services—not just selling electricity." The C&RE program's goal was to meet at least 20 percent of the country's energy needs with solar and renewable resources by the year 2000. In the oil-starved days of the 1970s, one of Western's objectives was to save several million barrels of oil annually through a fuel replacement program that displaced oil-fired generation using hydropower available through large reservoirs. In 1980 alone, Western saved 4 million barrels of oil valued at $17 million.[59]

The End of the Beginning

The foundation work began to take hold in 1981. Completion of Western's first major transmission line from Miles City to New Underwood and the satisfactory conclusion of the first big marketing plan for Pick-Sloan's Eastern Division pointed to a promising future.

Looking back on a fast-paced four years, McPhail explained in Western's 1981 *Annual Report* that the agency spent its early years "maximizing its resources by working with the different utilities through the joint planning and construction of new transmission lines, improving system reliability and exchanging power to optimize operating efficiency."[60]

Western's Engineering Development Division Director, Clark Rose, said things started to settle at headquarters around Christmas 1981. The trailers were long gone, and structure began to take hold: "We moved into Building 18 (at Denver West Office Complex in Golden, Colo.). It was the first time we consolidated engineering, procurement and construction into the same location. It was an improvement, because you didn't have to walk a mile, or visit on the phone, or get in the car and drive."[61]

However, that sense of stability did not last. Earlier in 1981, a new philosophy toward Federal management of public resources came to the nation's capitol. Western became one of its targets. ▼

CHAPTER TWO

Threads in the distance: Power, Transmission and Demand

During the mid-20th century, America again went west—but with a new purpose. Striking gold or eking out a living on a 160-acre homestead never occurred to this generation of trailblazers in search of new jobs, room in the suburbs and the promise of room to grow. According to the 1950 census, 48.1 million people lived west of the Mississippi River.[1] As that number grew with each passing census, both natural and man-made resources—notably water and power—bore the weight of increasing demand. Clusters of consumptive sprawl, first born in Southern California, drove this craving for electricity. Population quickly boomed in places as diverse as Sioux Falls, S.D., and Phoenix, Ariz., intensifying the region's hunger for power. By the century's close, 63.1 million people called the West home.[2]

As the West's population grew, the energy needs of metropolitan areas like Las Vegas, Nev., shown in 1965, also grew. (Photo by the Bureau of Reclamation)

From 1978 to the present, Western Area Power Administration supplied more customers with power, despite no significant increases in available Federal resources. In Western's first full year of operation, it served 457 customers. A quarter-century later, that number jumped to 688—a 37-percent increase. In the 20th century's final quarter, Western contributed to the construction and maintenance of the existing transmission system in many ways, including realizing the long-held engineering dream to "tie" the nation's power grids together. These interconnections enabled the safe transfer of power between the east and west. On the Pacific coast, the agency was also instrumental in bringing the hydropower resources of the Pacific Northwest to millions in California through the California-Oregon Transmission Project. In the Missouri, Colorado, Sacramento and San Joaquin river basins, Western built numerous transmission lines and substations to ensure reliable power delivery throughout the West.[3]

Despite Western's contributions to bolster the regional transmission system, in winter 2001, the nation watched the specter of rolling blackouts unfold in California. The battle to deliver affordable power reawakened the public's interest in the electricity industry, but the basic elements of the subject of electricity remain a mystery to the masses.

The Mystery of Electricity

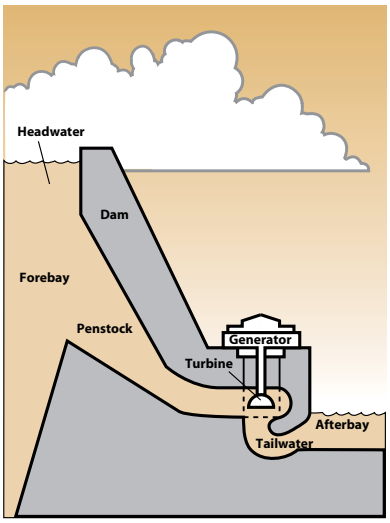
To understand the immensity of Western's transmission operations, it is necessary to go into the smallest detail. Western markets and delivers cost-based hydroelectric power and related services. Agencies such as the Bureau of Reclamation and the U.S. Army Corps of Engineers generate the power and preference customers distribute it to end-use customers. Western's primary responsibility is to market power, operate the power system reliably and competently transmit that electrical energy.[4]

Water is the source of nearly 11 percent of the nation's energy resources. (Photo by the Bureau of Reclamation)

The production, movement and delivery of kilowatthours to customers requires a large investment in facilities and equipment. During the 20th century, the Federal government, rural electric cooperatives, public power utilities and private companies built integrated substations, powerplants and dispatch centers as the components of regional power supply systems. Since crews strung the first line, the nation's transmission system has been in a never-ending race to keep up with customer demand and withstand the ever-changing moods of nature. Melting snow and falling water serve as the starting point for hydropower generation in the West. Western inherited from Reclamation a primarily hydropower generation system and since the agency's beginnings, Western's fortunes rise or fall on a surplus or shortfall of moisture.

Hydropower: It's the Water and a Lot More

The West's most precious resource—water—is the precarious foundation supporting the lives and livelihoods of its inhabitants. In 2000, more than 2,300 hydroelectric dams across the United States provided nearly 11 percent of the country's total energy supply. Hydropower comes in third among sources of electric energy production, behind fossil fuel with 73 percent of the market and nuclear at 14 percent. Energy drawn from the sun, wind and biomass (agricultural or municipal waste materials) accounts for less than 1 percent. Hydropower's future growth is limited due to few opportunities for upgrades and environmental concerns. In addition, the most cost-effective hydropower sites are already developed. However, those plants in service are the most efficient now in use. Ninety percent of the "fuel" flowing into a hydroelectric generating plant converts into electricity compared to only 35 percent at coal- or gas-burning plants.[5]



Hydropower is generated from water behind the dam, which flows through a pipe called a penstock and then turns a turbine that drives a generator.

As far back as 2,000 years ago, the Romans knew the power of flowing water to drive machinery, but the first steps toward the modern hydropower plant took the better part of those two millennia. In 1831, inventor Michael Faraday discovered the principles of electromagnetic induction after he passed a wire coil through a magnetic field, creating an electrical current.

Faraday's discovery led to the invention of the electric generator and transformer. Exactly a half-century later, in 1881, a plant in Goldaming, England, produced the first hydroelectric power. The technology traveled quickly, and the first hydroplant in the United States began operating in Appleton, Wis., in 1882.[6]

In the West, most hydro facilities that generate power are storage plants. At a storage plant, a dammed river creates a reservoir to hold the power of the water in reserve. The dam creates a "head" (the height from the powerplant turbine to the water surface behind the dam). The amount of head, coupled with the volume of water flowing through the turbines, determines how much power a hydropower plant produces.[7]

Nature can only tell half the story of electricity. Technology picks up the narrative at the dam's turbines.

Water into Energy

At the close of the 19th century, the public followed the wonders created by scientists and inventors with the same interest reserved for today's football players and film stars. Physically sensitive to light and sound, but emotionally drawn to bright lights and notoriety, Nikolai Tesla successfully developed and promoted an alternating current transmission system while working for the Westinghouse Company. Today's power grids use alternating current. AC is rapid movement of current in a system like the flow of a river going downstream, then upstream and back downstream at many times per second. Tesla's development and marketing of AC faced strong opposition from America's dean of inventors, Thomas Edison. Edison was the chief proponent of a system where current flowed from a battery in only one direction, a method known as direct current. DC may have come before AC in general use, but DC never became the standard because its current could only travel short distances before the power would drop off markedly.[8]

Prophetically, Tesla built the first practical AC transmission system in the United States in southwestern Colorado—now part of Western's service area. Tesla's system transmitted power nearly 20 miles from a small hydroplant to a mine. His experiments proved the superiority of AC, the method used by most electric utility systems in the United States. AC offers simpler design, and, with the aid of transformers, it is more economical to increase and decrease voltage at various points in the system. The act of increasing or decreasing voltage at a generating plant is known as "stepping up" or "stepping down" voltage.[9]

Switchyards connect the transmission grid with generating plants. (Photo by the Bureau of Reclamation)

A network of transmission lines, switchyards, substations and distribution lines comprise the nation's electrical grid. Western's transmission system includes 260 substations and more than 16,000 miles of high-voltage transmission lines, making it the third largest transmission-line owner in the United States. Western transmits 10,500 megawatts of generation from 56 powerplants.[10] To reach its customers, Western also buys or assists its customers in buying transmission service for Federally generated power from neigh-

boring utilities. To avoid overloading high-voltage power lines, Western's power system operators monitor load and match generation in four separate control areas. Western's power marketers not only buy and sell energy; they also acquire capacity on transmission lines that have room to carry more electricity.

During Western's first quarter century, video monitors (above) have replaced schematic drawings (below), giving dispatchers a better visual representation of the transmission system. (Bottom photo courtesy of Thomas Weaver)

Switchyards are junction points where transmission lines connect with each other and with generating plants. Contained in a fenced area, a switchyard houses large circuit breakers and switches that open and close various transmission circuits. Breakers and switches route the flow of electricity from generating plants to delivery points throughout the transmission network. A switchyard at a generating plant usually includes one or more large step-up transformers that increase generator voltage to a higher level on the transmission system. The line carries the current to geographically dispersed delivery points called substations. Step-down transformers in substations reduce the voltage from the high levels needed for economical long distance transmission to lower levels appropriate for delivery to customer loads.[11]

On the transmission system, relays, circuit breakers and other equipment act as control devices. Relays react quickly to problems on transmission lines and work with circuit breaker relays to protect the power grid from faults—sudden increases or decreases in voltage are caused by manmade or natural events, such as lightning strikes and downed lines. Those fluctuations can damage other parts of the system if they are not isolated. System operators in the dispatch center must find alternate routes away from the faults to keep delivering power.

Power system dispatchers play the key role of keeping the transmission system in balance. Frank Carpenter, an operations specialist for Western's Headquarters Division of Operations and Maintenance in the early 1980s, described dispatching as a mental balancing act: "Dispatchers are special kinds of people. They have to maintain a good logical thought process under a vast number of emergency situations. Their decisions affect the lives and functions of everyone in the United States. "Dispatchers also have to adapt to nature's moods and balance that against man's need for electricity. "No two emergency situations are exactly the same," Carpenter said. "A variety of factors affect crisis situations, such as geography, weather conditions, number of customers, the demand for power and the river's flow."[12]

The skills of those directly involved with maintaining the power system in the field—the dispatcher and the lineman—evolved from years of experimentation and innovation. The period that saw the greatest modifications to the West's transmission system grew out of the social and political stresses brought by the Great Depression and the Second World War.

Transmission Before Western

Transmission lines are the electron highways that carry electricity from the generating facility to the utility.

Electricity has always meant promise. President Franklin D. Roosevelt's New-Deal hydropower triumphs in the Tennessee River Valley and Pacific Northwest brought the conveniences of the 20th century to millions of Americans for the first time. Giving people a taste of that promise led to an appetite for hope. A 1934 article in the Washington Star newspaper looked to the American skyline 30 years in the future. It predicted one day electricity would belong to every citizen: "Gigantic spider webs of trestles towering starkly in the rose-tints of a dying sun, proudly bearing their burden; long lines of bronze dwindling to tiny threads in the distance, climbing mountain, sliding into valley and traversing prairie, desert land."[13]

Many of those visions became a reality in the West due to a Federal agency primarily responsible for irrigation. From the late 1940s to the mid-1970s, Reclamation established the modern Federal power presence in the West. Reclamation staffers designed and built lines and facilities, conducted studies to improve the transmission network and adopted technologies that upgraded transmission capabilities. Located in Denver, Reclamation's Power Systems Technical Section developed the first fringe control concepts and equipment for speed governors and solid-state power swing relays used by utilities allied with the Western Systems Coordinating Council for automatic system separation. They also conducted early studies of DC transmission circuit breakers. While few outside the engineering community could appreciate these advancements, the contributions made by electrical engineers working for Reclamation propelled the entire world of power transmission.[14]

Western's first Loveland Area Office Manager, Peter Ungerman, cited Ferb Schleif as one of Reclamation's unsung engineers whose work improved the industry's overall reliability:

> *The Bureau's claim to fame as far as individuals go was a guy by the name of Ferb Schleif. Ferb Schleif should be on page one of the history of the power business in the West. For example, at Grand Coulee (Dam in Washington State), they were having trouble getting a pump on because they were getting too much power—boom, it was there, and boom, the pump couldn't handle it. So Ferb Schleif built a 25-cycle operation that would bring the pumps on to half-speed and then slowly bring them on to full speed. Well, that was translated into PSS stuff—power system stabilizers. Now there's a PSS on every governor and generator in the United States. And that was all Ferb Schleif's invention, working for the Bureau of Reclamation. The Bureau of Reclamation made more big significant contributions to electrical engineering as a profession than probably anybody. People don't understand—they don't give the Bureau credit.*[15]

Clark Rose, a 40-year Federal veteran and Western's initial engineering development and coordination division director, began his career as an electrical engineer with Reclamation. He marked the changes in his career by Reclamation's use of new technologies: "In the late 1940s, it sometimes took two or three engineers two or three weeks with a slide rule and desk calculator to analyze transmission problems in a particular geographic area," Rose said. By the late 1950s, an analog computer could "analyze the same problems in two to three days." Digital

computers were the next step. "They allowed us to solve problems in a two- or three-state area in a few hours," he explained. By the close of Rose's career with Western, engineers could determine and calculate solutions to transmission problems anywhere in 15 states in a matter of minutes.[16]

Farmers in the early years of rural electrification use a road map to plan power line routes.

In the days before increased Federal regulations and greater environmental awareness, Reclamation held free rein in placing and building transmission lines. Reclamation and Western veteran Lloyd Greiner remembered: "In those days the Bureau of Reclamation simply said point to point, they drew a line and that's where they built a line. That was their survey and that was their planning. They went across Indian reservations. There was no input from environmentalists and no EIS (the Federally mandated environmental impact statement.)"[17]

Construction of major irrigation projects inspired Reclamation's power division to develop—and redevelop—plans to build high- and extra high-voltage lines across the West. In the early 1950s and late 1960s, power division management and staff proposed two different schemes to build a major transmission system between Minneapolis and the West Coast. These proposals would have developed 50,000 MW of generation and required at least 15,765-kV transmission lines. According to Reclamation and Western veterans Harvey Hunkins and Tom Weaver, the scale of such a program would have equaled a half-dozen Grand Coulee Dam projects.[18]

By the early 1970s, Federal funding toward transmission and power decreased, and those ambitions never got off the drafting table. According to Al Peschong, Western's construction and inspection division director from 1978 to 1994, the cupboard was bare for new transmission projects during Western's first full year of operations in 1978: "There were programs we had inherited from Reclamation. A very small power program. As I recall that first year, it was about $12 million worth for construction."[19]

Besides living off Reclamation's power budget for the first year, Clark Rose recalled the territorial confusion over the transfer of the transmission system from Reclamation to Western:

> *Reclamation wanted to keep in some areas, and did keep, the powerplant and the switchyard and the interconnection. So, WAPA's dispatch had to work with Reclamation's powerplant operators to control the system facility at Yellowtail and at plants in California. Other lines of demarcation were at the generator terminal, so the step-up transformer switchyards were all WAPA's. In other places, it was the high-voltage terminal and transformer. Trying to write a Memorandum of Understanding between WAPA and Reclamation defining these points of demarcation was difficult. There were a lot of heated discussions between WAPA and Reclamation regional people.*[20]

Western Begins Building

Money soon changed everything, as Western's Administrator Bob McPhail returned each year from appropriations hearings in Washington with more funding for construction. Rose remembered how larger budgets equaled more ambitious projects:

The first year we were in business as Western, we inherited a budget of roughly $10 to 11 million, I recall. The second year of operation we had a construction budget of $25 to $30 million. The third year we went to $47 million. The fourth year we got up to somewhere between $80 and $100 million. After we got close to the $100 million level, we got down to building the COTP (California-Oregon Transmission Project).[21]

Reclamation retained ownership of the Yellowtail powerplant and switchyard after Western's formation. (Photo courtesy of Harvey Hunkins)

The bulk of the budget for Fiscal Year 1978 went toward completing projects first designed by Reclamation. Two notable efforts were completing the 177-mile Watertown, S.D., to Sioux City, Iowa, 345-kV line and the 186-mile Hayden-Ault 345-kV line in eastern Colorado.

After the split of the two agencies in 1977, Reclamation left Western a transmission foundation in need of repair. For the newly formed Division of Construction and Inspection, rehabilitating the existing system was a priority. Maintaining substations and replacing relays and circuit breakers originally built and installed by Reclamation in the early 1950s required money comparable to that needed for new construction. One of the first studies conducted by the head of that division, Al Peschong, revealed the amount of money needed to replace old transmission lines and wood poles across the system: "Just to replace 300 miles of line each year cost $40 million to $50 million a year. Imagine 13,000 to 15,000 miles of line, and you're redoing 300 miles a year. The magnitude of the whole thing surprised a lot of people."[22]

Of Western's nearly 17,000 miles of circuit lines, almost half—8,200 miles—is on wood poles. The agency keeps maintenance records on more than 120,000 individual wood poles.[23] Peschong explained the magnitude of those costs forced Western to pick its spots when performing maintenance: "The lifetime of a wood pole is 40 to 45 years. In substations, transformer and breaker life spans depend on how well they are taken care of and how heavily they're used; but what's normally accepted (for those pieces of equipment) is anywhere from 20 to 45 years. By fall 2000, some of that equipment has been out there for 50 to 60 years."[24]

A 1990 study found that Western's system needed replacements at a rate of 300-plus miles a year. Try as they could, Western's line crews could only modernize or replace 120-plus miles a year. By Fiscal Year 1999, Western budgeted $2 million for various wood pole testing, treating and replacement activities in both divisions of Pick-Sloan and the Colorado River Storage Project. Because it cost less to restore than replace, Western anticipated "continuing these annual programs indefinitely."[25]

Western did not venture far from corporate headquarters for its first wood-pole replacement project. The Sterling-Holyoke 115-kV transmission line in northeastern Colorado was the first construction project totally designed, planned and built under Western's wood-pole replacement program. Originally completed in 1948 by Reclamation, the line experienced excessive transmission losses and voltage drops with peak loads even under normal conditions. Studies conducted by Western in the late 1970s found that high loads on the 69-kV line led to the transmission problems. During August 1979 alone, lightning strikes caused 47 interruptions in service.

It was not the load, but the significance that made Sterling-Holyoke important. In 1982, soon after completion, McPhail reflected that Western was thinking big, but had to start small to get established: "We had plans in the mill now for very large construction programs. But for a start, back in 1978, the 60-mile section of line from Sterling to Holyoke was a very ambitious project for a very new staff and a newly formed agency."[26]

Ungerman concurred to a point: "It was a penny-ante line. However, McPhail was very sensitive to that. He took a personal interest, not because we needed it from an engineering prospective, but from a political prospective."[27]

Sterling-Holyoke was the first of several projects during the 1980s. Other early projects included a transmission line from Casper to Thermopolis, built with the assistance of Tri-State Generation and Transmission Association of Westminster, Colo. Before the line was built, that stretch of south-central Wyoming was the black hole of blackouts. "There used to be two to three blackouts a year in this area when WAPA was first formed," Ungerman explained. "This area was identified by the North American Electric Reliability Council as the one major region in the United States that was unable to meet accepted reliability criteria. Any little thing that would happen would upset the apple cart. The system was so overloaded, there was no margin for abnormality."[28] Western worked jointly with Tri-State to replace portions of existing 69-kV lines and add a 115-kV bay and a second 230/115-kV transformer. The construction package included completing a new maintenance facility for the line crew at the Thermopolis Substation.[29]

In 1993, three years after the Bears Ears-Bonanza line was completed, line crews from across Western worked together to replace insulators along the 101-mile line. Linemen like Sam Naill and Scott Westover worked from 6 a.m. until early evening six days a week to complete the massive job. (Photo by Dennis Schurman)

During the 1980s, when many projects ran concurrently across the West and Western established partnerships with its customers through construction activities. One example of several organizations coming together for the common good occurred in a transmission trouble spot between western Colorado and eastern Utah.

Bears Ears-Bonanza

In July 1985, work began on the 102-mile, 345-kV transmission line from the substation outside of Craig, Colo., to the Bonanza Generating Station near Vernal, Utah. Working with a handful of other organizations, Western built the Bears Ears-Bonanza project to improve service to customers in western Colorado and eastern Utah.

Previously, the region faced the uncertainty of cascading outages when other major transmission lines in Colorado and Wyoming went out of service. In addition, customer demands often exceeded the power generated by the existing Bonanza station. Before the upgrade, Western's only remedy was to authorize localized operating restrictions.

Upgrades included installing new 138-kV transmission lines and building 96 miles of 345-kV, single-circuit, lattice-steel line and six miles of 345-kV and 138-kV double-circuit lattice-steel line. These additions doubled the system's capability to transmit power.[30]

The project faced a gauntlet of construction, engineering, land and environmental concerns on the road to completion. The lines

crossed a paleontological site, two coal leases and land held by the state of Colorado. Western served as project manager for construction of the line and Bears Ears Substation. A host of participating utilities joined Western to complete Bears Ears-Bonanza, including the Utah Associated Municipal Power Systems, Deseret Generation and Transmission Association, Platte River Power Authority and Tri-State G&T. Western financed $25.6 million of the $38 million total project cost. Bears Ears-Bonanza was energized in February 1990—an estimated $1 million under the original budget and two months ahead of schedule.[31]

During the 1980s, as work on Bears Ears-Bonanza and other Western projects began, developed and concluded, Western's engineers directed their attention toward solving a problem that stumped a generation of engineers—how to bring the nation's power grids together.

Tying Two Elephants Together

A trick of geography left Reclamation, then Western, operating on both sides of an electrical separation between the nation's two main power grids. The unregulated evolution of the national power grids brought on this dilemma, as the eastern and western power systems developed separately over the years. In the 1950s, initial attempts by the Federal government and private utilities to "tie" the systems together failed due to disturbances in one power grid affecting operations in the other. Three decades later, it fell to Western to lead the Federal charge to find the ties, construct the interconnections and unite the grids.[32]

The June 1985 edition of *Closed Circuit* described the frustration of a disharmonious transmission nation this way:

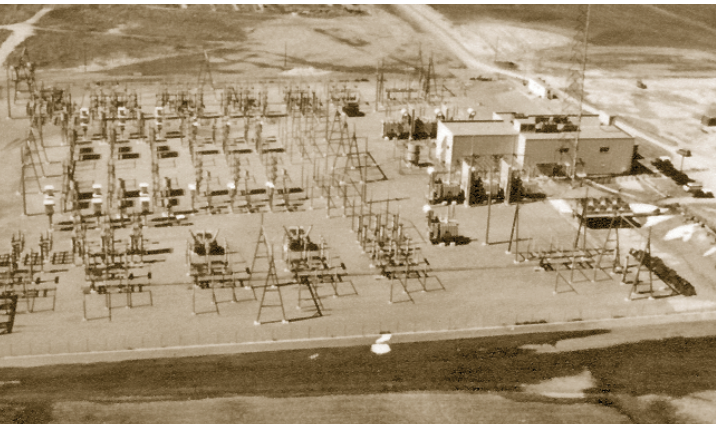
> *Imagine languishing through a brownout on a hot and humid June day in eastern Nebraska because there's not enough electricity to meet demand. It would be even more uncomfortable if you knew that, over in Colorado, there was a surplus of hydroelectric power because of an abundance of melting snow high in the Rockies.*
>
> *Put yourself in the shoes of the general manager of a West Coast utility. His company is supplying expensive electricity generated by oil-fired plants, when coal-fired generating plants have the ability to produce more power than they can sell.*[33]

There was another reason for bridging the separation. With a tie, energy produced by the Colorado River Storage Project could serve customers in the Missouri River Basin. Tom Weaver served both Reclamation and Western in a number of executive positions during his Federal career. Weaver explained that bringing the nation's power supply together reminded him of an analogy: "Somebody told the story it was kind of like tying two elephants together with rubber bands. They can only go so far in opposite directions before the rubber bands snap."

Weaver recalled earlier attempts by Reclamation to unify the power system. Unfortunately, none of those solutions were permanent: "We had done something back in the early '50s where we had tied Yellowtail (Powerplant) and had some fancy, brilliant schemes to close the East-West ties. But, there were problems with them. If something would happen on one side or the other, you wound up tripping the ties," he lamented. "The people who lived right along the ties were not happy campers, because their voltages were going up and down."[34]

After spending years as an employee of two Federal agencies looking for a solution, Peter Ungerman delivered the final understatement on the situation in 1984, "Electrically—these two systems ain't talkin' to each other now."[35]

Western's engineers decided that the answer was not in extended extra voltage lines, but converting AC power to DC, then back to AC. A converter station would house an AC-DC-AC tie that would convert alternating current from one system to direct current and back to alternating current before it entered the second system. The converter would allow the transfer of energy across the existing east-west electrical separation and provide mutual assistance during emergencies. Proponents believed it would balance power resources with demand, enhance economic energy exchanges and reduce environmental impacts. The technology had already proven itself after Basin Electric Power Cooperative of Bismarck, N.D., built the first sustaining AC-DC-AC tie at Stegall, Neb., in 1977. However, Basin designed the tie to meet its own firm power requirements in balancing loads and resources. Western looked to the bottom line to see if it would duplicate Basin's achievement at Stegall. The agency's analysis concluded that a series of converter stations along the east-west separation would cost $430 million—a bargain compared to a $1.5 billion extra-high voltage AC system.[36]



The Miles City Converter Station is used to transfer power between the eastern and western grids.

Spurred on by a 1980 NERC report projecting the nation's future loads and available resources, in 1981 Western studied potential sites and sizes for additional back-to-back ties. The report examined eight locations along the east-west separation from Fort Peck, Mont., to Lamar, Colo. Western's engineers found that the most promising location for a tie was Miles City, Mont. Western had three 230-kV lines and a 230/115-kV transformer at the recently completed Miles City Substation. A converter station at Miles City would also enhance transmission capability and offer a direct path for surplus energy from coal-fired generators in the Upper Midwest to loads on the West Coast.[37]

In 1982, General Electric began construction under contract to Western and Basin Electric Power Cooperative. Western financed a 60-percent share and Basin paid the remaining 40 percent of the $30 million price tag. The station's initial transfer capacity was 200 MW from east to west and 150 MW from west to east. Western operates and maintains the converter station, which was completed in 1985.[38]

The Miles City Converter Station was an immediate success, and Western sought a repeat performance somewhere else along the separation. A study by the Mid-Continent Area Power Pool's Reliability Council found that additional ties would transmit excess generation to the northwestern and southwestern United States. Western sought to place another converter station to benefit utilities in Wyoming, Nebraska and Colorado. Before the converter station, displacement arrangements among area utilities offered the only assurance of serving all the loads.

In early 1985, Western selected Siemens Automation and Energy of Erlangen, Germany, as primary construction contractor for the new station at Sidney, Neb. Construction proceeded smoothly, as 17 different utilities in the eastern and western grids participated in planning the station, nine different Nebraska contractors provided services and 13 other organizations,

including state and local government groups, helped build the station. Coming in significantly under budget in March 1988, the Sidney station went on line at 100 MW.

In 1990, a ceremony honored Congresswoman Virginia Smith for her efforts in getting funding for the converter station. The Republican congresswoman represented Nebraska's Third District from 1974 to 1986 and always stood as a defender of agriculture and rural electrification. At the dedication of the Virginia Smith Converter Station, the congresswoman said the facility was just as important to "linking together this vast nation" as the railroads meeting at Promontory Point, Utah, in 1869, or the interstate highway system a century later.[39]

Linking the nation's grid also won Western's engineers kudos among their peers. The design of both facilities served as the subject of papers presented before the Institute of Electric and Electronic Engineers and CIGRE (International Conference on Large High-Voltage Electric Systems), based in France. In 2000, the Washington D.C.-based National Academy of Engineering listed electrifying North America as the No. 1 "Greatest Engineering Achievement of the 20th Century." The Academy specifically cited Western's role in linking the two grids as a harbinger of "further advantages in economy and reliability" as demand increases in the 21st century.[40]

Congresswoman Virginia Smith helps Western's Bill Clagett break ground for the converter station that will eventually bear her name.

Will it Go Round in Circles? The Dilemma of Loopflow

Loopflow is a whimsical term for a serious power headache. Power physically follows the path of least resistance. Problems occur because this may or may not be the same as the contract path. Loopflow stems from the difference between scheduled power (the amount intended to flow) and the actual power (the amount actually flowing) on a transmission line or system.

Loopflow as a phenomenon is not unique to the western United States, but the Western Systems Coordinating Council (renamed Western Electricity Coordinating Council in 2002) was the first organization to tackle the problem. Over the years, geographic features and population distribution formed the power transmission system in the West into the shape of a doughnut, or a multi-state loop. Loopflow can cause additional power loss and affect a generator's capability to transfer power due to system stability limits.[41]

Western reduced the problem of loopflow by installing phase-shifting transformers. A PST can raise or lower the apparent impedance (a measure of the total opposition to the current flow in an AC circuit) on a transmission line and, under certain conditions, reverse the flow of power. Electrical engineers first used PST technology on low-voltage distribution systems in the 1930s. However, there were only 10 in operation in the WSCC system as recently as the mid-1980s. Western's use of PSTs on high-voltage lines was unprecedented. Western built its first PST at Glen Canyon Powerplant in Arizona in 1978 as part of an operating agreement between Western and Arizona Public Service Company to alleviate loopflow problems in the Four Corners area. The PST at Glen Canyon weighs 624.7 tons, is 46 feet long, 40 feet wide and 24 feet tall. Western operates phase-shifting transformers at Shiprock and Waterflow, N.M.; Hardin, Mont.; Glen Canyon, Ariz., and the Liberty Substation near Phoenix.[42]

In late 1986, Western awarded Westinghouse a $13.4 million contract to install PSTs on two transmission lines beginning in southwest Colorado and ending in northwest New Mexico. The PST stood as tall as a two-story house and required a specially built 126-wheel truck to move it over terrain where no railroad existed. The project relieved loopflow on the interconnected transmission systems operated by other WSCC members. Western's System Engineering Division Director, Steve Fausett, said the WSCC favored installing PSTs on those two lines because they linked Western's facilities in the Billings, Loveland and Salt Lake City area to Boulder City.[43]

In 1991, a joint project between the Electric Power Research Institute and Western examined retrofitting phase-shifting transformers with thyristor controls, which allow system operators to adjust the line to meet changing conditions by varying impedance. This eliminated the potential of cascading outages caused when one line trips and the remaining lines overload.[44]

Dave Balkenbush of Western's Montrose District Office explains the advanced series capacitor at Kayenta, Ariz., during the Kayenta dedication ceremony on Sept. 30, 1992.

This technology was tested when Western dedicated the Kayenta Advanced Series Compensation station in northern Arizona on Sept. 30, 1992. A joint development of Western and Siemens, the ASC cost $12 million. It allowed Western's power system dispatchers to closely control power flow and voltages on the transmission system, improve system stability and increase the power-carrying capacity of the existing Shiprock-Glen Canyon 230-kV line from 300 megawatts to 400 megawatts.[45]

Kayenta's ASC project allowed power to flow through the transmission lines quickly, continuously and directly. Tony Montoya, then an engineer at Western's Headquarters in Golden, Colo., explained the ASC technology in terms the average homeowner could understand: "Advanced series compensation is like the difference between having a light switch on or off, compared to a dimmer switch that you can continuously control whenever you want. It has the added advantage that you can automatically control the level of power flow on the line so that the dispatchers don't have to constantly adjust the power flow."[46]

By the early 1990s, Western had completed two-thirds of a transmission hat trick by tying the nation's transmission grids together and taming loopflow. The remaining hurdle was a complicated job that many Western employees remember as their toughest assignment.

The Pacific Northwest-Pacific Southwest Intertie

Some commentators refer to the lights along the Los Angeles skyline after dark as a "string of diamonds." Aesthetics aside, the cost of maintaining this nightly light show has often threatened to put a chokehold on the state's power supply and prosperity. Western found a role in this long-running drama as a protagonist that kept one of the world's largest economies going.

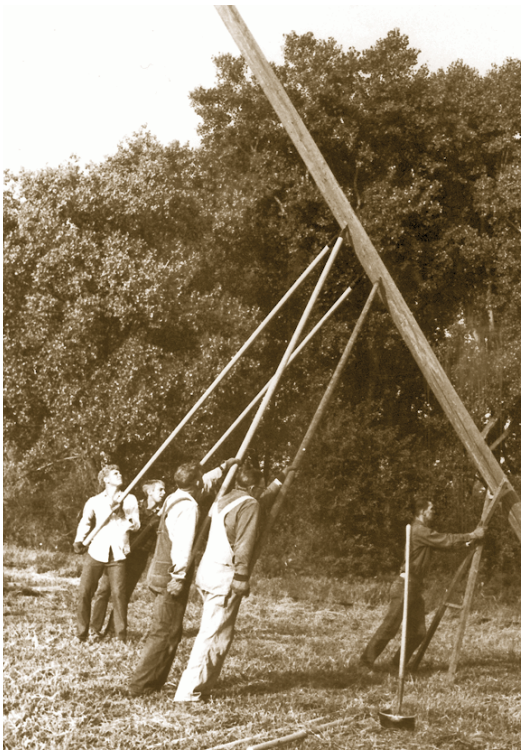
Western's most complex transmission achievement, the California-Oregon Transmission Project, was rooted in a time when orange groves outnumbered people in Southern California, and the Pacific Northwest had yet to develop its hydropower potential.

The COTP began as a matter of haves and have-nots—Canada and the American Pacific Northwest held the natural resources and power generation, and California wanted more

power to meet an ever-increasing demand. In 1919, Professor Carl Edward Magnusson of the University of Washington proposed building a 230-kV line from the Canadian border to Los Angeles, interconnecting the systems of Washington, Oregon and California along the way. In 1935 and 1938, the Pacific Northwest Regional Planning Commission and Bonneville Power Administration proposed building a high-voltage transmission line, known as the Pacific Northwest-Pacific Southwest Intertie, as part of an overall regional interconnection system.

A handful of preliminary studies by Federal and state governments followed during the late 1940s and the early 1950s, but it took a commercial giant to make things happen. In 1958, the nation's largest privately owned utility, Pacific Gas and Electric Company, underwent a conversion in philosophy through economics. Surplus hydropower drawn from dams in Oregon and Washington was cheaper than oil-fired generation, so as the 1960s dawned, occasional rivals PG&E, Bonneville and Reclamation voiced their support for the Intertie.[47]

On Aug. 31, 1964, Congress authorized the project under section 8 of the Pacific Northwest Power Marketing Act. Originally, engineers designed the Intertie as a combined AC and DC system connecting the Pacific Northwest with the Desert Southwest. As authorized, the overall project was a cooperative construction effort between Federal and non-Federal groups. Bonneville handled construction within its service area, while the local utilities built the lines and facilities in their respective territories.



By the time of the California-Oregon Transmission Project, construction techniques had advanced from hand-powered pole raising (above) to helicopter-aided construction techniques (below).

Principal owners and users of the Intertie were a boarding house of strange bedfellows. They included Reclamation (later Western), Bonneville, California Department of Water Resources, Los Angeles Department of Water and Power, Pacific Power and Light Company, Portland General Electric Company, PG&E, Sacramento Municipal Utility District, Southern California Edison and San Diego Gas and Electric Company.[48]

The Intertie was to consist of four high-voltage transmission lines: two 500-kV lines, one 345-kV AC line and an 800-kV DC line. The 500-kV AC lines would provide a transmission path from John Day Dam in Oregon through northern California to Los Angeles. The 345-kV AC line would connect Hoover Dam with Phoenix. The 800-kV DC line was designed to run directly from Celilo Dam near The Dalles in northern Oregon through Nevada to Los Angeles. The three Intertie lines connecting the northwest to California were all in service within six years after authorization.[49]

There was no time for all involved to rest on their laurels. Demand for electricity in California

grew during the 1970s, and this hunger quickly overwhelmed capacity. The situation forced California's public power suppliers to study potential upgrades to the Intertie and the possible addition of new facilities. It was at this point that Western entered the scene.[50]

California-Oregon Transmission Project

If Reclamation boasts about Hoover Dam and the Corps of Engineers points to the Pick-Sloan program, then Western's technical point of pride during its first 25 years is the California-Oregon Transmission Project.

Crews begin work on the Maxwell Series Compensation Station as part of COTP.

The southern third of the third AC line—COTP—is a high-capacity transmission line energized at 500 kilovolts and stretching 346 miles from Captain Jack Substation near Malin, Ore., through Northern California to PG&E's Tesla Substation, east of San Francisco. The line can carry power in either direction, depending on electric costs, need and supplies of the two areas at any given time. The 1,600 megawatts of electricity COTP transmits meets the needs of a million people, or a city the size of Sacramento. The Transmission Agency of Northern California—a group of 15 public power utilities and water districts—oversaw the construction of this line as project manager.[51]

Western's primary construction role in COTP required upgrading an existing 170-mile-long, 230-kV Central Valley Project line to 500-kV from Redding south to the Sacramento River. In exchange for upgrading the line, Western retained 100 MW of capacity to serve Department of Energy's national laboratories near San Francisco. Led by Project Manager James Feider, Western also installed transformers, line reactors, power circuit breakers, series capacitors, shunt capacitors and 500-kV relays; built Olinda Substation and the Maxwell Series Compensation Station and expanded its existing substation at Tracy, Calif.[52]

Western's involvement with COTP did not begin in Northern California, but almost 3,000 miles to the east. Ron Greenhalgh, Western's liaison officer at DOE Headquarters in the Forrestal Building in Washington, D.C., remembers passage of the COTP project legislation as something of a "fluke." Working with Congressman Vic Fazio of California, Greenhalgh was able to insert into an appropriations bill language authorizing the Secretary of Energy to "construct or participate in the construction of such additional facilities as he deemed necessary to allow mutually beneficial power sales between the Pacific Northwest and California."

Senator Mark Hatfield (R-OR) also lent his considerable authority to advance the project. Hatfield was one of many champions for Bonneville in Congress. According to Greenhalgh, "He (Hatfield) liked the idea of somebody besides the privates owning the Intertie." On July 16, 1984, President Ronald Reagan signed Public Law 98-360, giving the go-ahead for construction.[53]

Studies of potential engineering, economic and environmental impacts followed. The project passed a major hurdle in 1988 after a combined Federal Environmental Impact Statement/State Environmental Impact Study was completed. Next were additional design and technical studies. Then Western began the important work of acquiring rights-of-way from public and private landholders.

Western's Lands Division Director, Bobby Bond, recalled COTP as "the most stressful, difficult project" he faced during his 14 years at Western. In explaining the delicate negotiations required in crafting a deal to build transmission lines on private and public lands, he reflected that a Lands man must be careful in his use of the "velvet hammer" of Federal condemnation to expedite the project. Before the project started, Western identified three potential areas of concern over rights-of-way:

- the Sacramento River Delta, where siting the line over a new home development had incoming residents concerned about the health effects of electric fields;
- where the line crossed private timber property; and
- near Willows, Calif., where a landowner filed an environmental suit over the location of the Olinda Substation.

Bond believed that the best thing to do for all parties was to "cultivate relationships." Bond said this attitude is reflected in the limited number of condemnations in Contra Costa County, Calif., where Western faced a great deal of initial opposition to building the line.[54]

Crews prepare the Olinda Substation (later renamed for Congressman Vic Fazio) for the arrival of the first transformer.

Dave Coleman, Sacramento Area manager from 1980 to 1993, was one of Western's point men in completing COTP. Coleman said the COTP made Western "a high-profile operation in California and leveled the playing field with PG&E and Southern California Edison." Coleman saw COTP as Western's opportunity to earn some respect from its private competitors and win "a place at the table."[55]

The year 1990 was a high water mark for project construction for Western. That year, the agency's engineers finished designing and building 56 projects, including 535 miles of upgraded transmission lines and 30 substations. However, it was the first shovels of dirt in a California field that most who worked for Western will remember.[56]

On Oct. 15, 1990, in a field outside Redding, Calif., 150 people witnessed a groundbreaking ceremony marking the start of COTP construction. Over the next two-and-a-half years, 500 construction workers excavated land, poured concrete for hundreds of tower footings, erected 10-story-high steel structures and strung tens of millions of pounds of conductor line along the 340-mile route. Transporting and setting the transformers and other heavy equipment into place was a major undertaking. Measuring 25x12x15 feet and weighing 325,000 pounds each, the transformers were some of the largest ever built by heavy electrical manufacturer ASEA Brown Boveri. Six of the transformers—three at the 60-acre Olinda Substation and three at Tracy, California—are used to step down the voltage from 500-kV to 230-kV.[57]

Accidents plagued construction despite Western's excellent safety record that consistently ranks above the industry standard. The first mishap occurred on June 19, 1991, when a falling transmission tower injured three contract construction workers. On March 20, 1992,

the project's first fatality occurred near Rio Vista, Calif. A contract employee and three other crewmembers were performing operations on a tower structure when a sling supporting the power conductors broke, delivering a fatal blow to one worker's head. Another accident occurred on Aug. 12, 1992, when a helicopter crashed while pulling in an overhead ground wire on the Olinda-Maxwell section of the COTP, killing the pilot.[58]

Almost four years of rapid construction ended on March 17, 1993, when the COTP delivered power between Bonneville's Captain Jack Substation in Oregon and Western's Tracy Substation in central California. Nearly two months later on May 10, Administrator Clagett officially changed the name of the Olinda facility to the Vic Fazio Substation in honor of the congressman who supported the crucial appropriation through Congress eight years earlier.

Tracy Substation was expanded to accommodate COTP transmission requirements.

Al Peschong, Western's construction division director, spoke for many in Western who remembered COTP as their most challenging assignment: "(It was) a huge volume of work involving hundreds and hundreds of construction people. It was very complicated, and lots of things had to come together right. I had worked around quite a few projects where we had commissioned major 345-kV facilities—Fort Thompson, Grand Island, Watertown, Sioux City—and there were always glitches that you had to work out. I forecast that when we did the 500 out there, it would take a month to six weeks to get everything worked out. So when it first fired up in less than a week to full capacity, it blew my mind that it was that well put together."[59]

The Mead Lines

Not all the action during the early 1990s was in central California. Western was also involved in building two new lines through the heart of the Arizona desert. Western's Desert Southwest Office in Phoenix oversees the marketing, repayment and operation and maintenance of the southern portion of the Pacific Northwest-Southwest Intertie. This southern portion consists of a 345-kV line stretching for 238 miles from Mead Substation in Nevada to Liberty Substation in Arizona, and a 19-mile, 230-kV line from Westwing to Pinnacle Peak Substation.[60]

An additional 260-mile, 500-kV AC Mead-Phoenix line and the 202-mile 500-kV AC Mead-Adelanto line developed from a long-range plan by Western, Salt River Project, Los Angeles Department of Water and Power and several other municipal utilities. The Mead-Phoenix 500-kV AC transmission line runs between Marketplace Substation and Adelanto Switching Station in southern California. First conceived as DC projects, Western redefined the lines to AC to provide needed transmission access and eliminate a surplus energy bottleneck. Since 1996, these projects link the Phoenix area with Southern California to create regional marketing opportunities for electricity and better use of Western's power resources through interregional power transfers and seasonal exchanges.[61]

By 1993, Western began a shift away from new construction toward replacing aging equipment and facilities and maintaining the existing transmission system. In the FY 1993 budget, Western had about $100 million for construction. By the end of the decade, that number had dropped to a little more than $20 million.[62]

Western line crews work through snow, heat and rain to ensure the reliability of Western's transmission system.

The theme of these major projects during Western's first 25 years was interconnection. With them came industry interconnections that enhance Western's reputation in the power industry, improve reliability, develop new technologies and promote training and safety.

Born in a Blackout

In 1980, Mike Groves, then Western's Operations and Maintenance division director, emphasized the importance of interconnections: "Interconnections provide for the exchange of power between the various utilities. If one utility has extra generation, then it can supply the extra demand of another utility or vice versa. Sharing resources to maintain operational continuity is the basis for power pooling. Pooling optimizes system use and helps hold down costs."[63]

It is worth noting that interconnections go beyond lines and power pools. Western's transmission system operates as an integral part of an overall interconnected power grid. The agency is a member of several industry groups that strive to maintain a reliable bulk power system across the North American continent. The most influential of these groups resulted from the most infamous moment in North American power history.

North American Electric Reliability Council

Nine months after the infamous November 1965 Northeast blackout, hospitals from Quebec to New York City reported a spate of new births. However, one other offspring arrived three years later. In 1968, a new organization came into the world pledging to prevent a repeat of that outage—the North American Electric Reliability Council. NERC works to assure reliability of bulk electric systems through the voluntary participation of all aspects of the electricity industry. This covered organizations on both sides of the public-private divide—from investor-owned utilities to the power marketing administrations. More than three

decades later, 10 regional councils that make up NERC still work to prevent power outages and improve reliability for both consumers and businesses across the continent.

Maintaining the interconnected power grid required close compliance with NERC operating criteria. Day-to-day system reliability is monitored through NERC's regional reliability councils. Western's service area falls within two of these geographic territories: the Mid-Continent Area Power Pool and the Western Electricity Coordinating Council. The largest in size of the 10 regional reliability councils, WECC's members provide electrical power to 65 million people in 14 Western states, two Canadian provinces and part of one Mexican state. Most of Western's geography is within WECC's area. The Upper Great Plains Region also has facilities within MAPP's territory. Western staff serve on a number of technical and oversight committees for WECC, MAPP and NERC itself.

"The technical expertise shared by the many utility members of EPRI and the EPRI staff helps our engineers do their jobs at Western."

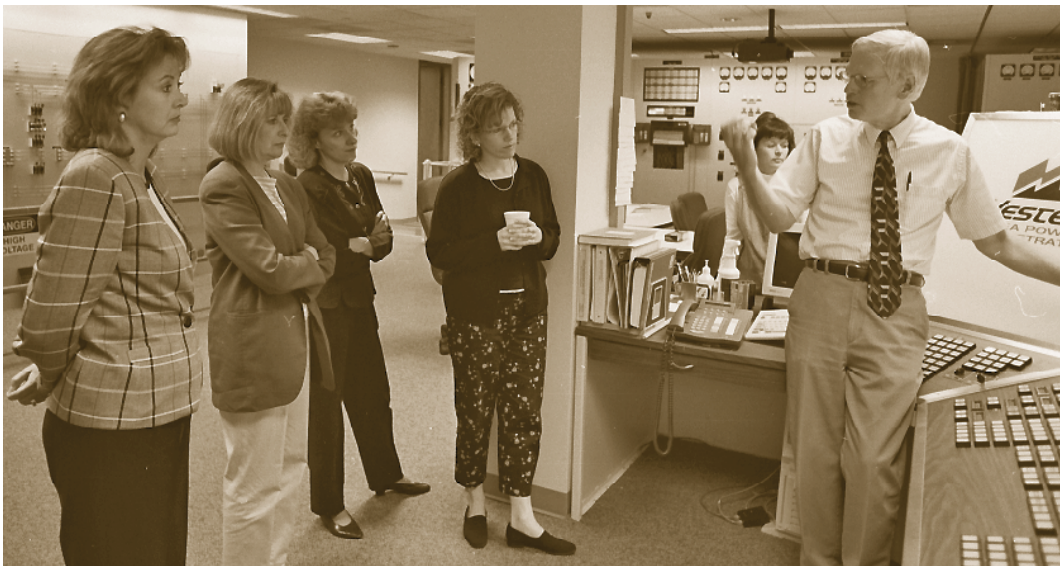
EPRI

Western is also a member of the industry-funded research and development organization. EPRI, formerly the Electric Power Research Institute, was formed in 1972. Western joined EPRI in March 1986 as a way to leverage customer funding for applied research. Since then, through EPRI, Western has joined other utilities in many practical research and development projects. Together, EPRI and its utility partners work toward designing high-capacity transmission equipment, improving energy conservation efforts and making the best use of renewable resources. Western's former Engineering Development and Coordination Division Director Larry Bressler said in 1991, "EPRI is the major electric utility research body. Western is proud to be a member. The technical expertise shared by the many utility members of EPRI and the EPRI staff helps our engineers do their jobs at Western."[64]

Transmission College: Western's Electric Power Training Center

Although it happened half a continent away and 12 years before its birth, in many ways Western owes its existence to the great blackout of 1965. The actions of a single, nameless operator turned a minor disturbance into a multi-state blackout. Vowing never to let that happen in the West, Reclamation developed plans for a transmission training center for dispatchers and other power operations people. After four years of planning and construction by Reclamation, the $400,000 training facility went on-line in April 1971. Western inherited the EPTC in 1977. From 1971 to 1986, Reclamation housed the Electric Power Training Center on the grounds of the Denver Federal Center in Lakewood, Colo. Since 1986, after a monumental move of 54,000 pounds of equipment, 3,000 components and 300 cables, the EPTC has been located in Building 19 of the Denver West Office Complex, in Golden, Colo.[65] EPTC students try out actual situations faced by dispatchers. They get hands-on experience using a simulator that includes a miniature system replicating a two-unit, 200-MW hydroelectric powerplant and associated switchyard, substations and transmission lines. The mini power system also features full-size relays to provide a realistic operating situation.

Beginning in 1999, Western's EPTC staff began the work of transforming the school into a self-supporting organization. EPTC Manager Dennis Schurman explained that Western seeks to make the EPTC a public operation that will pay for itself. Schurman's goal is to main-



The Electric Power Training Center provides world-class training for utilities and agencies across the country.

tain the EPTC as a world-class training facility. Students from investor-owned utilities, other Federal and state agencies as well as public power utilities come to the EPTC to learn about the delicate and demanding art of being a dispatcher, along with other crafts within the energy industry.[66]

The EPTC continues its role as a vital training facility. During a July 16, 2002, visit to Western's CSO, Undersecretary of Energy Robert Card toured the facility. He commented, "I would have hated to come all this way and miss this. The EPTC is an important, educational gift to the nation."

Safety in the Air

Increased demands on power meant expanding existing transmission networks and building additional power-generating facilities. By the 1950s, extra-high voltages of 345-kV, 500-kV and 765-kV were increasingly common. Live-line, bare-hand maintenance technique is the most effective way of maintaining the continuity of the electrical system. Since 1979, Western has regularly offered training courses to linemen to transmit the live-line, bare-hand knowledge throughout the industry. A fiberglass pole known as a "hot stick" allows linemen to work safely around energized high voltage.

Western blazed a trail for liveline barehand training, like this class in May 1992 on the Stegall-Wayside 230-kV transmission line near Stegall, Neb.

In addition to live-line, bare-hand training, Western employees have pioneered a lot of climbing safety regulations in the power industry. Al Peschong noted: "Several of the fatalities and injuries we've had were fall-type accidents. We got involved with OSHA (Occupational Safety and Health Administration) and formed several internal teams to tackle real safety problems involved with transmission tower and pole climbing. Working with OSHA, we were the leaders in the United States on fall protection and probably the most active organization OSHA was associated with on that one issue."[67]

The End of the Line

During the 1990s, customer demand and deregulation put the power system and the people who run it on alert. In 1996, FERC issued Orders No. 888 and 889 requiring jurisdictional utilities to provide open access to their transmission systems for wholesale transactions. While not required to, Western has complied with these orders voluntarily as an open access advocate. An early side effect of deregulation was utilities lowering their costs to remain competitive. This came for some at the price of postponing or canceling transmission improvements and maintenance.[68]

Transmission development in the West is at a crossroads as a new century begins. New powerplants are being built, but transmission construction is lagging. Western's deployment of the Kayenta ASC project and expansion on existing DC systems helped to ensure reliability. Innovations will come, but the safe delivery of transmission remains rooted in a tradition of reliability. Lloyd Greiner explained why some choose to make service and technology work together to benefit the customer: "In my early days, I got out and was able to put new facilities into service and do troubleshooting. Several times, I was called out when a substation was in the dark and people were out hollering, and I was able to find the problem and restore power. That always made you feel pretty good."[69] ▼

CHAPTER THREE

'As many touchdowns as you want': Headquarters and the regional offices

Mountains and prairie. Oceans and deserts. Freezing temperatures and burning heat. The rural cooperative formed by neighbors and the big city filled with strangers. Worries over not enough power to run medical equipment, but plenty for empty skyscrapers to burn their lights all night, every night. Western Area Power Administration's service territory is a 15-state area full of contrasts, all bound by electricity.

To address the needs of different power customers in the West's diverse regions, the agency depends on four regional offices and a network of merchants, operations and maintenance facilities. At the center of this power marketing panoply is Western's Corporate Services Office in suburban Lakewood, Colo.

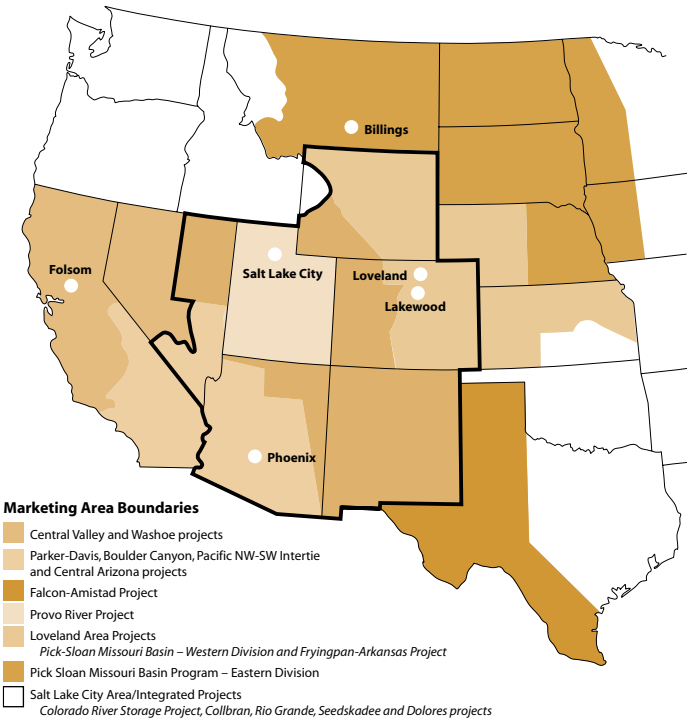
Like other aspects of the agency's foundation, Western's area/regional office framework evolved from a blueprint created by Reclamation during its authority over Federal power in the West. For Western, the nature of this system has often fostered internal competition and periods of disagreement between headquarters and the regional outposts. Despite occasional episodes of friction, the area—and later regional—office system and headquarters have worked together to ensure Western's survival when outside forces threatened the agency's existence.

Go with the Status Quo

As word of a new power agency in the West made its way from Washington, long-time power customers wondered if the functions of the just-minted power marketing administration would be that much different from Reclamation's. Individual expressions of curiosity soon became public declarations of uncertainty after President Carter signed the Department of Energy Act during the first week of August 1977. Two weeks later in Denver, on Aug. 18, about 85 Reclamation power customers passed a resolution seeking to "maintain the status quo" regarding rates, service and regional offices.

Familiar ways were comfortable, but there was always room for improvement. Fred Simonton, executive director of the Mid-West Electric Consumers Association customer group, counseled that the new Federal authority should try to forge better relationships with its customers: "The closer this function is to the people being served, the better."[1]

PROJECT MARKETING AREAS



Western's incoming managers agreed that the best way to manage more than a million square miles was to duplicate much of the Reclamation model. In October 1977, during its first month of operations, an administrative review advocated: "The Western Area Power Administration will be comprised of several definite regions having many different river basins as resources and several Federal power systems. Therefore, it will be necessary for Area Offices of the Western Area Power Administration to have greater authority for action than has been true of other power administrations."[2]

Robert McPhail was Western's first Administrator and led the effort to create a new agency.

An established PMA like Bonneville had the luxury of one major generation system: legislation dealing with a single project on the Columbia River and a comparatively compact service territory. Besides binding a diverse, far-flung mass into a cohesive unit, Western's leadership faced the physical and political quirks of various projects in different river systems, in addition to project-specific marketing plans and calculating the varying repayment costs of discrete water and power projects. However inescapable those challenges, management did not lament the job at hand. One memo commented: "Uniformity within the Western Area Power Administration is a desirable goal within the practical limits of the different operating conditions. However, forced uniformity of factors that are basically different can result in inefficiency and undesirable regulations for the sake of regulations."[3]

What to call each area office was another question. In January 1978, Conrad Miller, then acting area manager in Billings, wrote to Western Administrator Robert McPhail, "any chance of confusion by the public of WAPA area offices and USBR regions should be avoided." He recommended Western copy the Bonneville model and adopt the name of the city for its area and district offices.[4]

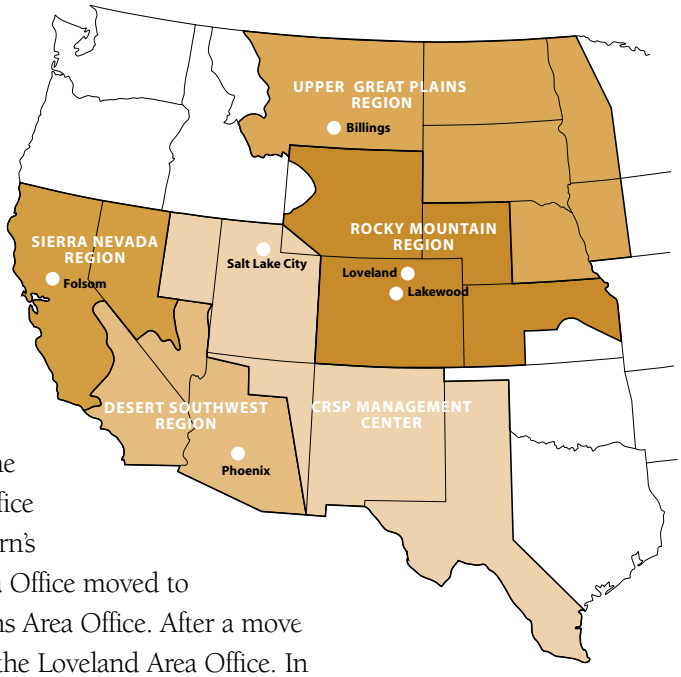
Within 60 days of Miller's letter, McPhail approved an internal organization plan for the Headquarters office, designated five area offices (Denver, Billings, Sacramento, Salt Lake City and Boulder City, Nevada) and subordinate district offices. Six months later, in September 1978, management implemented an organizational structure comprised of nearly a thousand employees. Three branches—Engineering, Power Management, Operation and Maintenance—formed the top level of senior management at the Golden Headquarters reporting directly to the administrator. In addition, an Office of General Counsel reported directly to the administrator.[5]

The Department of Energy was slow to support regionalism within Western. Initially, many of the Department's senior managers openly favored running the activities of each PMA out of Washington. This group included George McIsaac, the Department's assistant secretary for resource applications. McIsaac was DOE's presence in Western's affairs during the first year of the

agency's existence. By his first major policy speech in May 1978, customer demands for regionalism changed McIsaac's stance: "We (DOE) recognize that people in the Missouri Basin and in the lower Colorado Basin need representatives of the Administration in their service area—people who know them, understand them and are ready to serve them."[6]

Veteran Western Senior Manager Victoria Ponce said that Western's state of semi-autonomy under the DOE had it advantages. Almost from the outset, Western's managers shifted or recreated the organizational chart. The agency's first attempt at remodeling came in 1978 when Western disbanded the Casper District Office inherited from Reclamation. Two years later, while Western's administrative staff remained in Golden, the Denver Area Office moved to Fort Collins, Colo., and became the Loveland-Fort Collins Area Office. After a move to a new facility in 1984, Loveland-Fort Collins became the Loveland Area Office. In 1990, the Boulder City Office relocated to Phoenix, Ariz. Half a decade later, in 1995, the Sacramento Office moved to nearby Folsom, Calif.

CUSTOMER SERVICE TERRITORIES



The most dramatic reconfiguration resulted from the mid-1990s Transformation makeover, when senior managers revamped the five area offices into four renamed regional offices and a management center. The aftermath of Transformation also brought a new division of duties between the new Corporate Services Office (formerly Headquarters) and the regions. Post-Transformation, the CSO staff would design new construction, consolidate Western's budget and manage other support functions while the regions assumed responsibility for power marketing, rate studies, customer billing and management of power contracts. Regional employees also continued to operate and maintain the power system and design small construction projects.

WESTERN AREA POWER ADMINISTRATION ORGANIZATION CHART

OFFICE of the ADMINISTRATOR

ADMINISTRATOR — OFFICE of GENERAL COUNSEL

DEPUTY ADMINISTRATOR

DIVISION of ENGINEERING
Assistant Administrator

DIVISION of POWER MANAGEMENT and OPERATION and MAINTENANCE
Assistant Administrator

DIVISION of MANAGEMENT SERVICES
Assistant Administrator

BILLINGS AREA OFFICE
Waterton Operations Office
Bismarck District Office
Huron District Office
Ft. Peck District Office

DENVER AREA OFFICE
Loveland District Office

SALT LAKE CITY AREA OFFICE
Montrose District Office

BOULDER CITY AREA OFFICE
Phoenix District Office

SACRAMENTO AREA OFFICE

Based on the 1978 Annual Report

Despite changes in address and authorities, one standby over the years was Golden, Colo., as the center of Western's administrative universe. Eventually, time and money also brought changes to that constant.

Completed in late 1999, the new CSO building in Lakewood, Colo., was dedicated on Feb 12, 2000.

Corporate Services Office – Lakewood, Colorado

In the last days of December 1999 came a moment two decades in the making. Western moved into a new building in the western Denver suburb of Lakewood. For employees, the new building meant more than a different address; it represented the first time that the majority of Western's headquarters staff was under one roof.

From trailer days to the dedication of the new complex, Western's Headquarters staff spent about 20 years housed in a cluster of buildings scattered around Denver West Office Park in Golden, Colo. It was there that Western overcame growing pains like the energy crisis, completed accomplishments like COTP and adapted to changes in the utility industry. For half that period, the agency's guiding hand through those and a dozen other minefields was William "Bill" Clagett.

Clagett joined Western as deputy administrator in 1978 after spending seven years as Bonneville's assistant administrator in its Washington, D.C. office. Having grown up in the shadow of Grand Coulee Dam in Washington, Clagett spent his entire 33-year Federal career in power. Looking back on his decision to leave the oldest power administration to join the newest, Clagett explained he saw an opportunity to participate in something original: "At the time, (1977-78) as far as DOE was concerned, the power administrations didn't really exist, as other stuff was so much more important. So it was up to Bob (McPhail) and the people who worked for him, including me, to put together an organization that we hoped would stand the test of time."[7]

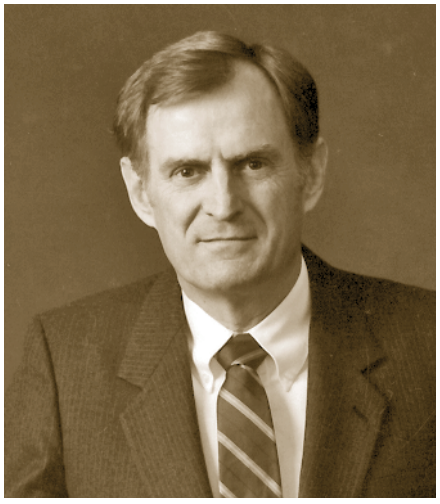
Clagett assumed the administrator's job in June 1985 after McPhail retired from Federal service. Clagett noted that McPhail's managerial style reflected the type of organization Western was during its early years: "I thought McPhail was so good at trying to come up with family kinds of decisions. That was very important in the early days. If you're part of WAPA, or if you're a WAPA customer, you're part of a family, which meant we were all expected to work together—have differences just like a family, but still we're all in this together."[8]

Like all families, Western has had its arguments over the dinner table. During the first few months of its existence, the area offices competed over employees transferring from Reclamation. Peter Ungerman, as head of the Loveland-Fort Collins Area Office, recalled, "I was right in the middle of it, so I'm not throwing rocks. It was kind of tumultuous in those days. We had to compete for people. If you were kind of laying back, you weren't going home with anyone."[9]

Another event that still inspires a wave of nostalgic dread among Western's first generation of senior managers is the 1978 "Massacre at Monument." A two-day meeting held at Monument, Colo., and designed by McPhail as a team-building exercise, pitted area managers and headquarters administration into two teams known as "Shirts and Skins." A misunderstanding over the division of authority among DOE in Washington, Western's Golden head-

quarters and the area offices grew into open hostility as the meeting progressed. Clagett remembered that the discord from that session threatened to turn teamwork into turmoil. "It was a team-building effort that blew up," Clagett reflected. "There was enough tension there because you have enough people who cared about the organization and cared about its future. Everybody was pushing for his own view of how it ought to work. Bob (McPhail) was steadfast—(he believed) field stuff belonged to the field and Headquarters stuff belonged to Headquarters. It took a lot of work to put people back to where they were before the meeting."[10]

The agency survived "Shirts and Skins" to make it to its eighth birthday. When Clagett took over as administrator in 1985, he inherited a maturing agency with big plans to make a name for itself in the power industry. To succeed in the competitive power-marketing world, the new administrator sought to enact a private-sector approach toward the business of a Federal agency. Clagett was convinced that personal accountability would serve as the foundation of this philosophy: "One of the great things about our organization is you can make as many touchdowns as you want. You just put more people on the field with more footballs. The idea that only the administrator can carry the football, or only the assistant administrator or regional administrators can carry the football; if that's all the players you're going to put on the field, then that's all the touchdowns you're going to make. Unlike some organizations, you make a mistake and all of sudden you're shut in a corner for the next six months. If you want lots of touchdowns, you've got to have experienced people, and they've got to experience fixing things as well as making commitments."[11]



William Clagett became Western's second Administrator in 1985.

Clagett added that to make touchdowns, it helped to have a good game plan in the face of an aggressive defense. The inconsistency of a partner involved in Western's most ambitious endeavor, the California-Oregon Transmission Project, demonstrates the logic of keeping your guard up:

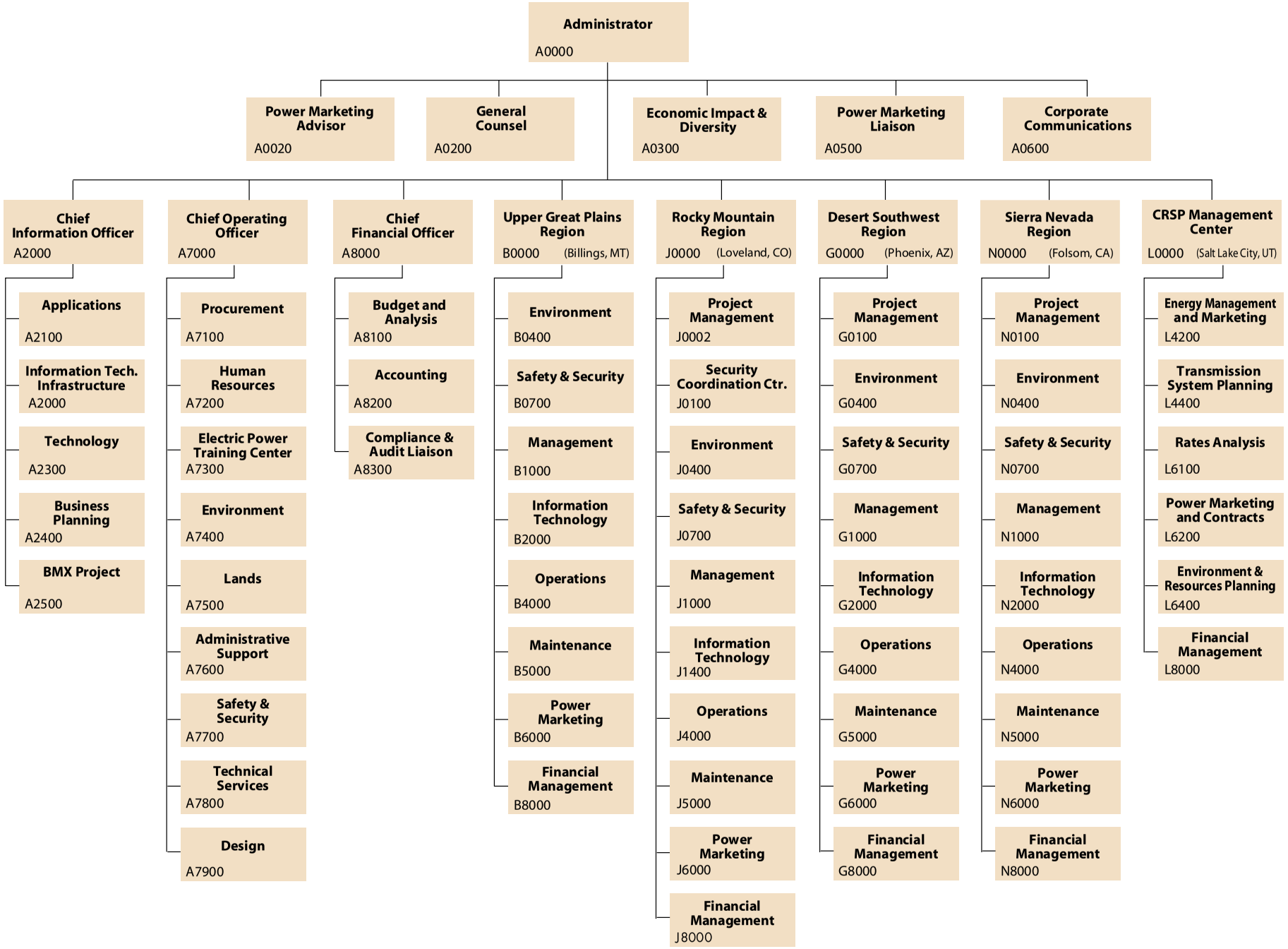
> *I had a vice president of Southern California Edison trying to build a third AC line into California tell me at a WSCC meeting "Bill, our company needs to make an arrangement on getting that line built. And it might not look like we always appreciate it, but California needs that line. We have to make some noise once and a while, but basically we respect what you're doing and if it comes down to a difficult situation, we'll support you.*
>
> *Okay, six weeks later: a representative from Southern California Edison, same company—different person—was in the Deputy Secretary's office (at DOE in Washington) trying to get me fired, because I was pushing so hard to get the line built. So, while one guy is telling me that, the organization is planning this guy's trip to get me ousted.*

When asked, "As the head of a Federal agency, how do you react?" "Just smile," Clagett said. "Because they failed."[12]

The Flow Chart

Numerous times throughout its history, Western's headquarters reorganized and added new departments. DOE was responsible for Western's first major shake-up in 1980. The DOE reorganization resulted in Western adding a conservation officer and an auditor-in-charge to

WESTERN AREA POWER ADMINISTRATION
October 2002



the Administrator's Office. In turn, Western elevated all branch chiefs to division directors. The agency added other offices as the 1980s progressed, including Washington Liaison, Equal Employment Opportunity and Public Affairs. Later in the decade, Western added an Office of the Assistant to the Administrator for Conservation, Environment and Safety.

Reflecting the business philosophy driving the Transformation process, in 1996, Headquarters changed its name to the Corporate Services Office. Echoing Western's first organizational matrix, the redesigned CSO features three staff functions—the Chief Program Office, the Chief Financial Office and the Chief Administrative Office. Supplementing them were the offices of General Counsel, Economic Impact and Diversity and Corporate Communications at CSO and the Power Marketing Liaison Office, based at DOE's Headquarters in Washington, D.C.[13]

Western continues to change its organizational structure to meet the agency's changing needs. On April 9, 2000, Western's organization added a Chief Information Office.[14] On Dec. 31, 2001, the Chief Administrative Office and Chief Program Office merged, forming the Program Support Office now called the Chief Operating Office.[15]

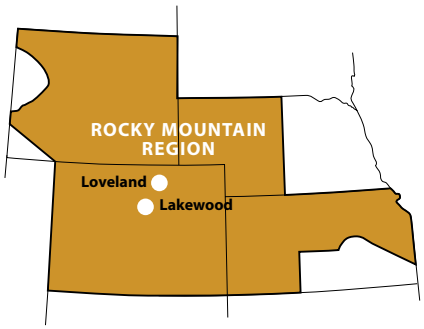
Fifty miles to the north of the CSO is the Rocky Mountain Regional Office. Despite bouts of organizational expansion and contraction during its first few years, Rocky Mountain has earned a reputation as a solid member of Western's regional family.

Western's Loveland office serves the Rocky Mountain Region. (Photo by Bureau of Reclamation)

Rocky Mountain Regional Office – Loveland, Colorado

The *Loveland Reporter-Herald* newspaper once compared Western's presence to an unknown force in its midst: "Many don't know what it does and some don't even know it exists. However, it is the center of such energy and power, it can bring entire communities to their respective knees.

"Not that WAPA would ever do that, of course."[16]



Since 1984, the Rocky Mountain Regional Office has sat beside Interstate 25, a few miles east of the city of Loveland, Colo. Between the Rocky Mountains and the high prairie, the office location symbolizes the connection between the high-country snowmelt driving hydropower generation and the end-use customer.[17]

Rocky Mountain markets power from several Reclamation-built projects. Power from 20 plants provides about 860 megawatts of capacity to 31 preference customers across eastern Colorado and Wyoming and western Kansas and Nebraska. Rocky Mountain staff operate and maintain nearly 3,500 miles of transmission lines and 79 substations. Pick-Sloan's Eastern and Western divisions share electrical facilities at Yellowtail Dam in Montana and at a point near Gering, Neb., but they have separate firm-power allocations and rate structures. Western Division generating resources include five Pick-Sloan units—Boysen, Glendo, Fremont Canyon, Kortes, Pilot Butte and Yellowtail powerplants—and four other Reclamation projects that are integrated with Pick-Sloan for repayment. The Colorado-Big Thompson, Kendrick, North Platte and Shoshone projects include

Alcova, Big Thompson, Buffalo Bill, Estes, Flat Iron, Green Mountain, Guernsey, Heart Mountain, Marys Lake, Pole Hill, Seminoe, Shoshone and Spirit Mountain powerplants. Reclamation staff operate and maintain all Western Division powerplants. Their combined installed generating capacity is 653 MW.

The remaining major resource under RM domain is the Fryingpan-Arkansas Project in south-central Colorado. Built by Reclamation, this trans-mountain diversion project transports water from the Fryingpan River on the West Slope of the Rocky Mountains to the eastern half of the state to support irrigation, deliver municipal water and provide power generation. Fryingpan-Arkansas consists of six dams, five reservoirs and two generating units with a capacity of 206.[18]

The most dramatic marketing change in Rocky Mountain's history came in 1989 when Western combined the Fryingpan-Arkansas Project and the Pick-Sloan Missouri Basin Program–Western Division for marketing and ratesetting purposes into the Loveland Area Projects.

Western works closely with the major public utility in the region—Tri-State Generation and Transmission Association based in Westminster, Colo., to maintain system reliability. In 2001, Western sold Tri-State 857,354 MWh for delivery to more than 700,000 consumers in Colorado, Wyoming, New Mexico and Nebraska. Tri-State is Western's second-largest customer for power and accounts for 44 percent of total power sales in the Rocky Mountain Region.[19]

Peter Ungerman was the Loveland Area Office's first area manager from 1978 to 1984. Reclamation left Western a handful of operations offices in Casper and Cheyenne, Wyo., and Denver, Loveland and Fort Collins, Colo. Ungerman remembered many days in the early years occupied with consolidating operations and finding employees. "The Loveland-Fort Collins Area Office started out with a lot of craft people and few management and administrative people. The move to Fort Collins and the consolidation of our operation was necessary to get the area up on its feet."[20]

After Ungerman's retirement from Federal service in 1984, Mark Silverman ran the Loveland office. Silverman believed that all area office employees should take an active part in the communities where they live and work. "I don't really know why, but my predecessors have maintained a low profile at Western, so many people in the surrounding communities don't even know we are here. We are a large agency with a significant impact on this area, and we want to have people know a little bit more about us."[21]

Over time, the Loveland Area Office worked to strengthen relations with local customer groups. In the early 1980s, the Loveland Area Office developed a coordinated marketing program with what came to be the Rocky Mountain Generation Cooperative and municipal utilities. From that original marketing program, RMGC grew to include Western, Tri-State, Basin Electric Power Cooperative, Wyoming Municipal Power Agency and the Municipal Energy Agency of Nebraska. These organizations pooled their power to increase the efficiency of existing hydro and thermal plants through shaping and storage.

The four owners of coal-fired plants generated thermal energy during off-peak hours and stored that energy in Western's hydro system resources. This storage meant better revenues for the thermal producers during on-peak hours and allowed Western to store energy for the future and avoid buying high-priced energy during low-water years. Members reimbursed the Loveland Office for shaping and storage services and administrative costs.

From the early to mid-1980s, the Loveland Area Office earned more than $11 million from this partnership. That amount offset project costs and avoided rate increases to customers.[22] A later example of customer cooperation began in 1995 when Loveland opened its budget review process to customers for construction projects scheduled for FY 1996. Customer input and participation led area staff to make their involvement in regional office business decisions an annual occurrence.[23]

The Estes Powerplant in Estes Park, Colo., is part of the Big Thompson Project.

Late in 1995, a broken flow pump at Reclamation's Flatiron Powerplant in northern Colorado launched a three-way partnership toward a new method of funding repairs. Crews estimated that repairs would take nine months, curtailing water supplies to 23 communities along Colorado's Front Range. The local irrigation authority, the Northern Colorado Water Conservancy District, asked both Reclamation and Western to build a bypass to ensure water in case of emergency.

However, the flow of Federal dollars for maintenance slowed by the mid-1990s. Western and Reclamation officials explained to the water district that they could not get congressional funding to perform the work. Rocky Mountain Region customers took control of the situation by forming Western States Power Corporation to provide nontraditional financing alternatives for operations and maintenance. The first project completed through WSPC funding was a $1.4 million bypass at Flatiron. Through credits on their power bills, customers contributed $660,000 to this construction project.

The Western States approach was unique among Westernwide customer partnerships, as other construction projects relied on capital funding, not non-Federal dollars.[24] Subsequent funding by Western States included replacing transformers at Estes Powerplant and drawing down and rebuilding Horsetooth Reservoir near Fort Collins, Colo.[25]

In 1997, Western's Rocky Mountain Region took on another role to help maintain system reliability when it developed and began operating one of four regional security coordination centers in the West. The centers grew from a concern that open access to transmission could degrade the electric grid's reliability. The security coordination centers monitor real-time electric power system conditions to promptly identify and correct potential problems and effectively react to system emergencies.[26]

Sierra Nevada Regional Office

If California were a nation, it would rank sixth among the countries in the world in agricultural and industrial production. A small but key component within this economic empire is Western's Sierra Nevada Area Office. Since its beginning in 1978, Sierra Nevada has been a Federal David working with, and occasionally battling, a private-power Goliath—the Pacific Gas and Electric Company—for a place in the California power market.

Western's Sierra Nevada Region markets power from the Central Valley Project. The water from the project feeds the fertile fields of California's large agriculture industry. (Photo by Bureau of Reclamation)

Sandwiched between Northern California high tech and Southern California glitz, the Central Valley Project is an engineering labyrinth built by the Federal government and integrated with the state's water system. CVP stretches 400 miles long by 45 miles wide. After meeting its primary obligation to deliver irrigation pumping power, CVP's powerplants produce energy electricity to serve the needs of 650,000 Californians annually. Western's Sierra Nevada Region operates and maintains 1,300 miles of transmission lines serving 73 wholesale power customers within a 175,000-square mile area of northern and central California. Sierra Nevada sells power from Reclamation-operated powerplants: Carr, Folsom, Keswick, New Melones, Nimbus, O'Neill, Shasta, Spring Creek and Trinity and from the Gianelli powerplant operated by the California Department of Water Resources. The regional office also imports power over Western's share of the Pacific Northwest-Pacific Southwest Intertie and the COTP.[27]

In the 1850s, Anglo settlers first considered irrigating the Central Valley on a grand scale, but development of water resources proceeded slowly. It took another 70 years before the state's leadership considered a comprehensive strategy to direct water throughout the valley. In 1920, Colonel Robert Marshall served as the chief geographer of the U.S. Geological Survey. In a private capacity, he designed a multidam, canal and pumping plant framework to deliver water from the Sacramento and San Joaquin rivers to Central Valley irrigators. By 1933, the state legislature approved many elements of Marshall's blueprint as part of the state's Central Valley Project Act. However, the Depression hurt bond sales to pay for construction and forced California to seek alternate sources of funding, including assistance from the Federal government.

In 1937, Reclamation began building the Contra Costa Canal, a small step that launched a multidecade partnership between the Federal government and the state of California in the Central Valley. Over the succeeding years, as dams rose and canals cut across the landscape, hydropower developed alongside irrigation. When Western came on the scene in the late 1970s, the CVP included eight powerplants and two pump-generating plants with a total installed capacity of 1,700 megawatts operationally integrated with PG&E.[28]

A New Player in Town

Western arrived on the scene after four decades of highly publicized CVP construction by Reclamation. Despite a late start, managers in Sacramento sought to create an identity for Western in California. Gordon Estes served as the first manager of the Sacramento Area Office, when the office was formed in 1978. He was succeeded by David Coleman two years later. When Coleman arrived from Reclamation's office in Amarillo, Texas, in 1980, he found the Sacramento staff scattered in five locations around the city. "We had some people in one office, some down the street—it was not accessible," Coleman recalled. He looked at an abandoned building that "the Post Office didn't want anymore. Birds were flying in and out of the roof. I didn't want my people looking outside at bums in the park and no parking. I wanted some-

thing for an agency on the move, not going downhill." The Sacramento Office consolidated in a Bell Street building before settling at its present location in Folsom, Calif., in 1995. The new Sierra Nevada Regional Office building is located 25 miles north of Sacramento along the American River Parkway and near the powerplant for which the town is named.[29]

For employees in Western's Sacramento office, more important than finding a home was establishing a presence among the state's power players. Californians' never-ending demand for power gave Western the opportunity to be a player in the state's electricity market. Within a decade of completion, the Pacific Northwest-Pacific Southwest Intertie was straining to meet demand, causing both the public and private sectors to cry out for more transmission lines. By the mid-1980s, Congress debated allocating funding to complete the COTP. Congressional passage of COTP legislation in the summer of 1984 provided Western's Sacramento office with three things previously in short supply —people, material and budget.

On his arrival in 1980, Coleman counted "35 civil servants in the Sacramento office and 30 or 40 under contract." A year later, that total crept to 100. As construction of the COTP ran at top speed in 1992, there were 200 workers in the Sacramento office—an even split between full-time Federal employees and contractors. Those few employees completed the COTP and other jobs, but Coleman regretted that he stretched himself and his staff too thin during the late 1980s and early 1990s. "Sierra Nevada had 17 different projects going on at once," he said.[30]

Coleman found that the most difficult element of his job involved politics. "It was a balancing act," he recalled. "Managing people is a piece of cake, but sitting between Norm Shumway and Vic Fazio (both Northern California congressmen during the 1980s) arguing was a different matter. I can hire a good engineer, but politics was a whole different side."

In addition to accommodating high-profile politicians, Coleman's office was often seen as being in competition with the private industry giants on the road to completing the COTP. This required a readjustment in tactics, according to Coleman: "Western had to act more like a private utility than a Federal agency in California when representing the customers against the likes of PG&E and Southern California Edison. Because we had to think like a competitor of the IOUs, Western, in the end, made a significant contribution to California's growth."[31]

Western Administrator Bill Clagett turns earth at the groundbreaking for the California-Oregon Transmission Project in October 1990.

Money Changes Everything

Hydroelectricity represents a partnership of nature's mood and man's logic. Insert money into the equation and smooth waters turn troubled. During the 1980s, weather and an old accounting error forced Western's Sacramento Area Office to implement the biggest rate increases in the agency's history. In 1983, Western instituted a 300-percent rate increase—the largest in its history—to recover a $250 million deficit left over from the Reclamation era. A Western analysis revealed that the Federal government undercharged customers from 1972 to 1982 compared to the rising costs of power purchased from the Northwest. Before 1982, composite CVP power sales rates totaled 1 cent per kilowatthour. To lessen the impact of the increase, Western stair-stepped the rate over a four-year period in increments from 10 to 40

mills. No customer group seriously protested the increase, and Western retired the deficit in April 1988.[32]

Another big-dollar transaction came in 1987 when Coleman signed a 25-year, $1 billion contract with Portland General Electric for the purchase of power. The deal remains the largest transaction in Western's history. Starting in 1990, the Western-Portland General Electric contract called for 65 MW of established power deliveries with firm transmission to the California-Oregon border, and energy shaping and storage at no additional cost.[33]

Improving on Nature

In 1992, Congress authorized the Central Valley Improvement Act. The legislation set aside money to restore fish and wildlife damaged by the construction and operation of the Central Valley Project over the previous six decades. Western's Sacramento Office spent the mid-1990s immersed in environmental research, taking part in three major environmental impact statements dealing with various aspects of the CVP. In addition to serving as a cooperating agency for Interior's programmatic environmental impact statement on the CVPIA, Western conducted its own EIS to examine the environmental and socioeconomic impacts of a new marketing plan for CVP power after 2004.

At the same time, Western contributed to a separate EIS examining fish restoration projects on the Trinity River in the Central Valley. Water from the Trinity is diverted into the northern portion of the CVP. The information gathered by Western eventually made its way into the Secretary of the Interior's decision regarding instream flows and Trinity River Division operating criteria.[34]

Stranded on the Electron Highway

In 1996, the leaders of California's private power industry promised a new day would soon illuminate the state's power landscape. In less than five years, their vision turned sour.

Born of promises of choice and cheaper power, the California Independent System Operator oversaw one of the nation's first attempts at deregulation. The reality left consumers dazed and disturbed by bills up to nine times higher than the previous year's.[35]

The CAISO's creation resulted from legislation passed by the State Legislature and landmark decisions by the California Public Utilities Commission to introduce competition. On the day it opened for business in March 1998, CAISO's directors hailed the moment as "opening the tollgates of the electron highway." The investor-owned utilities told residential users that deregulation would deliver to customers a 10-percent rate cut, averaging a $5 savings every month. IOU retail consumers could buy energy from independent suppliers.

Drawn into the deregulation drama, Sierra Nevada staff and Western's California customers participated in numerous statewide restructuring debates. When CAISO opened the state's power grid to competition in March 1998, the new organization controlled 75 percent of the electricity sold in the state. Western formalized its relationship with the new grid operator in town in June of that year when CAISO granted scheduling coordinator certification to the Sierra Nevada Regional Office. This certification gave the Regional Office a role to perform between the CAISO and customers who wanted Western to schedule power on their behalf. In addition, Sierra Nevada Regional Manager Jerry Toenyes served on the ISO's board during

the long, hot summer of 2000, when prices skyrocketed and the new organization was faced with setting price caps.[38]

If the summer brought high prices, the fall and winter brought even worse woes. Low hydroelectric resources in the Pacific Northwest and unseasonably warm weather in California, combined with seasonal powerplant outages for maintenance, led to nearly daily pleas to residents to curb their energy use. Western rode to the state's rescue. On Sept. 21, 2000, California ISO President Terry Winter sent a letter to Western's Administrator thanking him for his help: "We would particularly like to thank the Western Area Power Administration and the Bonneville Power Administration, whose timely delivery of emergency power on two different occasions has helped the California ISO avoid initiating rotating outages in its control area."[39]

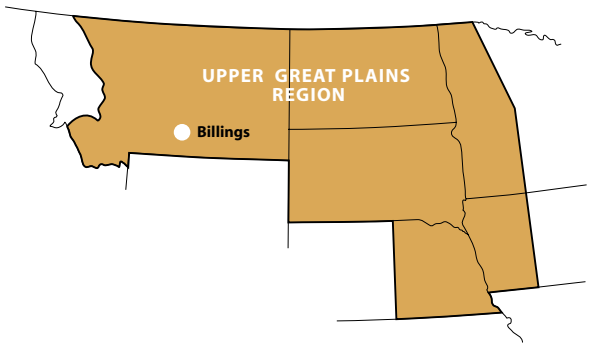
No one knows how rolling blackouts, through-the-roof prices and subsequent customer reaction will determine Sierra Nevada's place in the evolving California market. If the California power market has come to symbolize unpredictability and displays a "market first" mentality, in the nation's middle lives a contrast based on upholding the traditions of cooperation and reliability.

The Upper Great Plains region serves electric cooperatives and municipal utilities that serve farm communities and towns across the Upper Great Plains. (Photo by Bureau of Reclamation)

Upper Great Plains Region – Billings, Montana

Between symmetrical vistas of sky and soil flows the murky Missouri River. Once the wildest river in the West, the rolling Missouri became an obedient stream when tamed by seven Federal dams.

The dams did more than subdue the Missouri; their presence advanced the lives of an entire region of people. For those who were there "The Day the Lights Went On," that moment ranks with births, deaths and weddings as a defining milestone in their lives. This appreciation of the wonder of electricity and the concepts of Federal preference guided the attitudes of many of Western's first-generation senior managers who grew up, or spent part of their careers, in the Upper Great Plains.



Based in Billings, Mont., Western's Upper Great Plains Office markets Federal hydropower to an area of 378,000 square miles, easily the largest of the agency's four regional offices. UGP transmits power across 7,750 miles of high-voltage transmission lines and through nearly 100 substations to reach almost 300 preference customers. Western sells about 12 billion kWh of firm power generated from the powerplants of the Pick-Sloan's Eastern Division, which serves customers in western Iowa, western Minnesota, Montana east of the Continental Divide, North and South Dakota and the eastern two-thirds of Nebraska.

Staff at an Operations Office and Dispatch Center in Watertown, S.D., support the Billings office. Watertown staff manages power deliveries around the clock and ensures system reliability. Three additional maintenance offices (located in Bismarck, N.D.; Huron, S.D., and Fort Peck, Mont.) oversee the activities of 12 line and eight substation crews who maintain the region's extensive transmission system[40]

Before Pick Met Sloan

For much of the 20th century, the Upper Great Plains was largely beyond the reach of electricity development. Transmission was first introduced to the region on May 1, 1919. On the North Platte River, Reclamation completed its first powerplant on the project of the same name at Lingle, in eastern Wyoming. The Federal government placed local demand on hold, as the first priority was to run electric draglines powered by two 300-kW generators to burrow out a canal system. By the end of 1920, Reclamation made its first sale of power in the Great Plains to the town of Torrington, Wyo. Within the year, the local system expanded to the east, as Federal crews ran a 33-kV line to connect the towns of Morrill and Mitchell, Neb.[41]

Fort Peck Dam straddles the Missouri in eastern Montana.

Over the next 15 years, Reclamation built Shoshone, Riverton and Kendrick plants in Wyoming and built dams, bored tunnels and dug canals from the Rockies to the farmlands of northern Colorado as part of the Colorado-Big Thompson Project. The government, however, proceeded with caution when it came to tackling the Missouri. From the 1920s to mid-1930s, lack of interest in Washington and interagency competition over how to control the Missouri and its tributaries postponed large-scale Federal development of the river. It took New Deal dollars to pave the way toward controlling the wild Missouri when President Franklin Roosevelt signed the legislation to build the Fort Peck Dam in eastern Montana in 1935. As with other Reclamation projects, the first power from Fort Peck went toward running construction equipment to complete the dam.[42] The massive construction project achieved fame when *Life* magazine featured a photo of the dam on the cover of its first issue.[43]

As massive as Fort Peck is, its completion was only a prelude. Both Reclamation and the U.S. Army Corps of Engineers submitted to Congress elaborate plans to harness the rest of the Missouri River. It would be the first, and perhaps the most important, occasion when two parties that did not normally agree came together for the good of the Missouri River and its users. Both presentations detailed post-construction uses of the river, including flood control, irrigation, navigation, municipal and industrial water and power generation.

Soon after Reclamation and the Corps delivered their separate proposals to the appropriate congressional committees, the documents assumed the names of their authors. The Corps plan adopted the name of Major General Lewis A. Pick, and Reclamation's plan became identified with the assistant director of Reclamation's Billings office, William Glenn Sloan. Congress selected the best of both proposals for the final authorizing legislation, and in the process, immortalized both men up and down the Missouri. In 1970, Congress honored the authors of the Missouri plan by renaming the project the Pick-Sloan Missouri River Basin Program.

Edward Weinberg was a young lawyer from Wisconsin before coming to the Department of the Interior's solicitor office in Washington in 1944. Fifty years later, in 1994,

he remembered the pluses and minuses of both the Corps' and Reclamation's plans as they made their way to the altar:

> *In December of 1944, the Flood Control Act was passed, and Section 9 authorizes the Pick/Sloan plan, and it does in a very short paragraph. The Army report (Pick's plan) was very sketchy and had concepts for these dams, that waters from one of the dams would be useful for irrigation in the Dakotas, but it didn't really say how.*
>
> *The Sloan Plan (Reclamation) on the other hand, was a very elaborate document. It spelled out what was to be done. Unfortunately, the spelling out was better than the engineering. Because of a lack of manpower and the haste in meeting the deadlines, they hadn't a chance to do the extensive fieldwork that should have been done, but at least it focused on what ought to be done in the Upper Basin states. And in December of '44, the shotgun wedding was consummated.*[44]

Looking back a half-century, Weinberg still marveled that it took only a few words to make a massive project like Pick-Sloan come to life:

> *You couldn't possibly have an authorization like that today. We're talking about one-sixth of the area of the United States, and in a paragraph, Congress authorized—they probably didn't realize it—$5 billion to 6 billion of projects, and this was at 1940 prices. You couldn't possibly get something like that through Congress today. The environmental impact statements alone would take years to complete. So with that authorization, they got started, and really by the seat of their pants, they had to re-engineer what they were going to do. And they made a lot of changes.*[45]

Under the Flood Control Act of 1944, Congress assigned the Corps main-stem responsibility on the Missouri River for flood control and navigation. Reclamation's responsibility was tributary development for irrigation, municipal and industrial water supplies. Proponents of the Act saw it as the Tennessee Valley Act of the Missouri River Basin. However, establishing a regionwide transmission system was an afterthought. The Federal government would initially have a capacity between 400 and 500 megawatts.[46]

Jim Davies served in Billings for 18 years as Western's area manager—longer than any of his area or regional colleagues. Before becoming a civil servant, Davies grew up on a farm in South Dakota. He remembered the mood of anticipation in his family and among his neighbors when Reclamation delivered what the Missouri River Basin Project promised.

"The customers were deeply involved in the Pick-Sloan plan since the beginning," Davies said. "People in North and South Dakota had the foresight for electricity and knew that affordable electricity would provide a tremendous benefit."[47]

As envisioned by Pick and Sloan, and executed by the Corps and Reclamation, Canyon Ferry Dam is the initial link of the seven-dam chain, 50 miles downstream from the headwaters of the Missouri in western Montana. The Reclamation-built Canyon Ferry plant generates 60 MW of power. Next downstream is the four-mile-wide, 250-feet high embankment at Fort Peck, Mont. This first dam built on the mainstem of the Missouri remains the largest earth-filled hydroelectric dam in the world. The storage reservoir, Fort Peck Lake, is 135 miles long with more than 1,500 miles of shoreline. The powerplant has a generating capacity of 218 MW.

The next facility downstream is Garrison Dam at Riverdale, N.D. Five turbine generators at Garrison's powerplant produce 546 MW of power. Another 120 miles downstream is Oahe

Dam, just outside of Pierre, S.D. Oahe is a massive structure, more than 9,000 feet long and 200 feet high. The powerplant features seven generating units producing 786 MW. Behind the dam, a manmade lake 230 miles long holds enough water to cover the state of Iowa to a depth of eight inches. From Oahe, 39 miles down the Missouri, Big Bend Dam at Fort Thompson, S.D., stands as the last of the mainstem projects completed under the Pick-Sloan program in 1964. Big Bend contributes 538 MW of hydropower. The next stop is 40 miles south of the Nebraska border at Fort Randall Dam, with a powerplant that features eight turbine generators producing 538 MW. The last mainstem facility is Gavin's Point, at Yankton, S.D., 40 miles southeast of Fort Randall Dam.
Its three generators produce 387 MW of power.[48]

The Miles City Converter Station was the first Western facility to connect the eastern and western power grids.

In addition to the seven multipurpose dams on the mainstem of the Missouri, Pick-Sloan—Eastern Division incorporates four generating units at Yellowtail Dam on the Bighorn River in south central Montana. These units contribute a total of 288 MW—equally divided between the Eastern and Western divisions.[49]

Like the ripples from a stone dropped in the muddy Missouri, the scope of Pick-Sloan expanded after the completion of the Garrison and Fort Randall powerplants in the early 1950s. Unfortunately, the promise of Federal power could only travel so far. Lloyd Greiner got his start in Reclamation's Billings Office in the early 1960s and remembered the constraints placed on the growth of Federal transmission: "Interior started building the transmission system stretching out into the marketing areas. The investor-owned utilities were successful in getting through Congress a law stopping the Bureau of Reclamation from building east of a certain line in Iowa and Minnesota. They could build up to it, but not beyond it."[50]

Western upgraded the Pick-Sloan transmission system over the years. Completed in 1983 and 1985 respectively, the Miles City and Virginia Smith converter stations use direct current to connect power grids across the nation's transmission divide. Besides those important ties, Western's Billings office also directed the construction of a number of transmission projects during the late 1970s and early 1980s. These included the 177-mile Watertown, S.D., to Sioux City, Iowa, line. Construction projects continued throughout the decade with the completion of the Jamestown-Grand Forks line segment in North Dakota and the Conrad-Shelby line in Montana.[51]

Besides irrigation, the Missouri River Basin Program created an economic source for hydropower in the Upper Great Plains. To deliver power reliably, however, Western and its customers needed to partner to upgrade the transmission system for their mutual benefit.

The Joint Transmission System

The Joint Transmission System represents the longest-lasting bond between Federal transmission agencies and power customers in the Upper Great Plains. Creation of the JTS came in the afterglow of Pick-Sloan in the late 1950s, when the Federal government made it known that there might not be enough power to go around the basin. In 1958, President

Eisenhower's Secretary of the Interior, Fred Seaton, warned preference customers in the Eastern Division of the looming limits to the hydropower resource. Reclamation management followed by encouraging customers to develop alternative supplies to meet their load growth.[52]

Similar to co-op and G&T formation, the customers provided the dynamic to resolve the situation. On Jan. 31, 1963, 94 consumer-owned utilities met in the Orpheum Theater in Sioux Falls to form the Missouri Basin Power Systems Group. MBSG members pledged to pool resources, develop and build additions to the existing transmission system.[53] Ed Speare, Western's former director of power marketing in Billings, noted: "Duplication of facilities is one of the nastiest expressions in the power business. In the past, facilities have been duplicated because power entities refused to sit down and cooperate in joint planning."[54]

By the late 1990s, the JTS comprised nearly 9,500 miles of transmission lines, 106 substations and a control and monitoring system. Under this model of cooperation, Western and other organizations, including Basin Electric Power Cooperative, Missouri Basin Power Agency and Heartland Public Power District, shared planning, operation and the cost of transmission lines and facilities. Pooling resources kept rates low for customers who needed the power most—the residents of the largely rural Upper Great Plains. The JTS has evolved into the Integrated System and so has the organization that brought it into the world. MBSG merged with the Mid-West Electric Consumers Association in 1999.[55]

To accommodate changes in the marketplace, Western proposed to revise the transmission agreements with its JTS partners. When the negotiations were completed, the agency joined its transmission facilities with those of Basin Electric of Bismarck, N.D., and South Dakota's Heartland Consumers Public Power District to form a regional Integrated System. This IS partnership allows Upper Great Plains to transmit power across all three organizations lines using a single integrated system rate. The IS was developed in response to FERC's open-access transmission order No. 888 and 889, as certain billing methods in the JTS contracts made it difficult to develop a tariff consistent with FERC's orders. Western posts notices of available IS capacity on an Internet-based Open Access Same-Time Information System. Third-party users pay the same transmission charges as do the three system owners. The cost to use the IS in 2001 was about $3 per kWmonth.[56]

New Customers, New Needs

Four percent of anything is not a lot. However, that number promised to pay dividends to new Western customers down the road. That 4 percent meant Western could offer firm electric service contracts to 11 new utility customers and reserve contracts to 25 Native American tribes.

In 1999, UGP made the first of about 20 20-year commitments to provide about 60 MW of power to tribes across the Northern Great Plains. Western rate specialists estimated the allocation contracts would deliver $100 million in financial benefits to the tribes. Before accepting applications to market power from the post-2000 resource pool, Western delivered Federal power to eight of 100 Federally-identified tribes in the 15-state service area. A year into the process, Western signed power contracts with twice that many tribes. According to Robert Harris, UGP's Power Marketing manager at the time, making the Federal hydropower allocations available would "assist tribes in creating sustainable economies and develop cultural well being and sovereignty on tribal lands."[57]

Master Operating Manual

By the close of the 1990s, the relationships among the different interest groups using the Missouri became strained. As the manager of Missouri River resources, the Army Corps of Engineers led a public process to determine future river operations. The Corps would codify the results of this process in a document known as the Master Operating Manual. Through public forums in 1998 and 1999, the Corps recognized and tried to placate the river's many users. Tensions grew among environmentalists, recreational users and commercial interests that carried cargo on the river. By 2000, the possibility of litigation threatened to stall the entire process. The Master Manual process signaled the beginning of a new, troubled era for Federal hydropower in the Missouri Basin that threatened to shatter the region's reputation for cooperation. By the summer of 2002, with drought conditions blanketing the west, and Missouri River operations pulled between protecting both upstream and downstream resources, Corps officials were also faced with a series of lawsuits from several basin states challenging how the Corps was managing reservoir levels. Corps officials had planned to publish a final EIS and a proposed decision on future river operations in May 2002, but that plan is now on hold.

Meanwhile, Western's Watertown dispatchers continue to schedule power to meet the needs of Western's Upper Great Plains customers, buying and selling as needed to supplement the hydroelectricity generated by the powerplants on the Mighty Missouri.

The Billings Crash

In addition to converter stations, marketing contracts and river operation issues, Billings is also associated with the most tragic moment in Western's history. On Dec. 18, 1992, a Western-owned Cessna Citation airplane carrying six employees and two pilots crashed 1.5 miles short of the city's airport, killing all aboard. According to an internal Western study, and the subsequent findings of the National Transportation Safety Board, the pilot lost control of the Citation due to wake turbulence while flying too close behind a Boeing 757. The plane dove at a 70-degree angle into a warehouse before folding in half on impact and skidding through a school warehouse. The force of the crash set off a fireball that burned for the next two days.[58]

Victims included Western employees Gary Miller, Dale Corey, Richard Schirk, Magdalena "Monday" Tafoya, and Robert Nordmeier; Tracy Erger, an employee of Source One Management, Inc., a Western contractor; and pilots Curt Schwartz and Dan Arnold. Those five Western employees represented nearly a tenth of Western's total work force in Billings. Almost a decade later, Jim Davies' impressions of that time centered around how his staff dealt with the daily office routine despite their grief in the days after the accident: "Everybody stepped up and took on additional duties after the crash. There wasn't any unraveling among staff."[59] Norm Ellertson, UGP's assistant manager area manager for management services at the time, said, "This whole thing is filled with hundreds and hundreds of little stories (about the way) people stepped forward to help. It was truly a group effort. The Federal community, our customers and the rest of Western have each had such an outpouring of support that it's been overwhelming."[60]

Desert Southwest Regional Office –Phoenix, Arizona

Boulder City, Nev., is an unassuming little community in the middle of the desert. While Hoover Dam was being built 70 years ago, Boulder City was the closest thing the Federal government had to a "company town." In contrast, the city of Phoenix, driven by corporate and civic urges to build and expand, has become a bustling metropolitan area. Over the past quarter century, both places served as home for Western's Desert Southwest headquarters.

Born in Boulder City

Boulder City is home to one of the 20th century's triumphs of engineering, Hoover Dam. Twenty-five miles from Las Vegas, Nev., Boulder Dam, later renamed Hoover Dam, represented the Federal government's initial development of the Colorado River. The Boulder Canyon Project Act authorized construction of a dam and powerplant across the Colorado River in 1928. Hoover's powerplant generated its first commercial electricity in 1936 and now features 19 generating units with an installed capacity of more than 2 million kW. Since 1936, Hoover has served the annual electrical needs of nearly 8 million people in southern California, southern Nevada and Arizona. Without Hoover, Las Vegas loses its sparkle and Los Angeles would shut down early every night.[61]

The powerplant at Hoover Dam provides energy to customers in California, Nevada and Arizona. Western's staff in Phoenix serves the Desert Southwest Region.

Hoover is the main performer on the lower Colorado, but transmission along the river features a strong supporting cast. Parker and Davis dams are 155 and 67 miles, respectively, downstream of Hoover. Reclamation consolidated the two dams into the Parker-Davis Project in 1954. The Davis powerplant capacity is 236 MW while Parker generates less than a quarter of that capacity at 54 MW. The Parker-Davis transmission system includes just under 1,600 miles of high-voltage lines and 34 substations. Parker-Davis provides firm electric service to 24 municipalities, cooperatives, Federal and state agencies, irrigation districts and Native American tribes in central and southern Arizona, southern Nevada and southern California.[62]

The other large-scale Reclamation project in the region is the Central Arizona Project. Authorized in 1968, the project's primary function is to deliver water from the Colorado River to Phoenix and Tucson. The 1968 authorization allowed Federal participation in the Navajo Generating Station near Page, Ariz., as a source of power for CAP water pumps. Western's Desert Southwest Office markets surplus Navajo power on behalf of Reclamation's Central Arizona Project. Completed in 1976, the station has three coal-fired steam generating units for a combined capacity of 2.25 million kW. The Federal share of 24.3 percent, or 546,750 kW, powers the pumps that propel Colorado River water through CAP canals. Through an arrangement with the Salt River Project, Western markets about 400 MW of Navajo power as surplus, with 760 kWh of energy available annually with each kW of capacity.

Under the regional umbrella, Western delivers energy from these three projects through 2,300 miles of transmission lines and operates 39 substations.[63]

Down the Highway

There are no office towers or monumental Federal buildings in Boulder City. In keeping with this spirit, eight people working out of a local strip mall made up the Boulder City Area Office staff in 1978. Robert Olson, former regional supervisor of power in Reclamation's Boulder City office, led this group as area manager. Life in Boulder City was good, but it was not the center of transmission in the Lower Colorado River Basin. On Jan. 9, 1990, Western proposed consolidating the Boulder City Area Office with the district office in Phoenix to reduce costs. Western spent the next two years relocating Boulder City operations. Area manager from 1983 to 1994, Thomas Hine, commented that since completing the move in January 1992, Western saved more than $2.5 million annually.[64] The change of addresses culminated when the Phoenix Area Office began operations in a new facility in fall 1993. Besides the regional office in Phoenix, Desert Southwest Region has five duty locations: Coolidge, Flagstaff, Page and Yuma, Ariz., and the old home at Boulder City, Nev.[65]

For 25 years, the Desert Southwest story is notable for the massive amount of electricity transmitted across the region to customers without any major incident. That is not the case with the Colorado River's upper basin. Based in Salt Lake City, Western's area office participated in a series of contentious struggles that cut to the very meaning of balancing competing interests and man's role in altering the river's ecosystem.

Colorado River Storage Project Management Center—Salt Lake City

Each area/regional office has had its share of confrontations with the world outside Western. However, the Salt Lake Area Office faced more than its share. Although no longer a regional office, its role in managing the electricity produced by dams on the Colorado River lives on.

Reorganized in 1995, the Colorado River Storage Project Management Center began as the Salt Lake City Area Office in 1978. The Westernwide change process known as Transformation turned the Salt Lake Area Office into the CRSP Management Center. This move also redistributed construction, system operations and transmission maintenance activities to the Desert Southwest and the Rocky Mountain regional offices.

Power generated at CRSP plants—Glen Canyon, Flaming Gorge, Navajo and the three Wayne N. Aspinall units Crystal, Morrow Point and Blue Mesa—and from the Collbran and Rio Grande projects were combined for marketing purposes into the Salt Lake City Area Integrated Projects in October 1987. Besides the Salt Lake City Area Integrated Projects, Western staff based in Salt Lake City market power from the Provo River Project and the International Boundary and Water Commission's Falcon-Amistad Project in Texas. These resources total nearly 1,970 MW of installed generating capacity, enough energy to power 1.9 million homes.[66]

The Colorado River runs 1,360 miles from the jagged peaks of Rocky Mountain National Park in northern Colorado to the Gulf of California in Mexico. Federal development of the river is a tale of two basins. In 1922, the Colorado River Compact divided the river at Lee's Ferry, just south of the Utah-Arizona border. The agreement guaranteed the lower-basin states of California, Nevada and Arizona 7.5 million acre-feet of water annually. To ensure regulation and development of the river, in 1930, President Herbert Hoover signed the Federal appropriation to begin construction of Boulder Dam. The facility was later renamed in his honor.

For most of the 20th century, development in the upper basin was almost nonexistent. Decades of planning by Reclamation eventually culminated in a proposal to authorize construction of the Colorado River Storage Project. President Dwight Eisenhower supported the project in his 1955 State of the Union address, and Congress authorized it the following year. This project marked the end of an era.

Before the late 1950s, irrigation construction had the support of most citizens and legislators in the West. With CRSP, the first stirrings of the environmental movement put Reclamation employees on the defensive as the agency attempted to build dams and powerplants in the face
of mounting environmental and political dissatisfaction. On another front, Leroy Michael, former associate general manager of the Salt River Project in Phoenix, called the construction of CRSP during the 1960s "the last major battle between the investor-owned utilities and public power in the southwestern United States."[67]

Opponents of the project believed that "the power will never be sold" and the costs to produce it would be much higher than burning coal or oil. The CRSP proposal included a series of big dams and reservoirs on the upper Colorado and its major tributaries. The planned project would store more than 33 million acre-feet of water and produce more than 1.4 million kilowatts of electricity.

Glen Canyon Dam creates Lake Powell on the Utah-Arizona border.

Beginning commercial operation in 1964, the project's main facility, Glen Canyon Dam and powerplant, sits just south of the Utah-Arizona border. The massive Glen Canyon generates nearly 8 percent of Western's net generation and nearly 80 percent of all Federal hydropower produced in the upper Colorado River basin. Despite charging cost-based rates, CRSP has generated $3.2 billion in revenues.[68]

Other major features in CRSP include Flaming Gorge Dam and Powerplant on the Green River in northeastern Utah, Navajo Dam on the San Juan River at the Colorado-New Mexico border and three-dam, Aspinall powerplant combination on the Gunnison River, east of Montrose, Colo.—Blue Mesa, Morrow Point and Crystal. CRSP transmits annual generation of 7 billion kWh to customers in six states across more than 2,400 miles of high-voltage transmission lines.[69] No Federal transmission lines were built in Utah or New Mexico due to assurances from investor-owned utilities that they would provide transmission service.

For the Common Good

The work of Al Gabiola illustrates Western's early commitment to think ahead and reach out to groups beyond the walls of the area office. Soon after becoming Western's first Salt Lake City area manager in 1978, Gabiola organized a Utah-Western Colorado transmission-planning group. Mainly comprised of investor-owned and public power utility systems, the planning group determined long-range requirements for additions to the bulk power transmission system. Further review and two subsequent reports found there was a pressing need for major transmission additions in western Colorado.

Concerns about Glen Canyon Dam's environmental effects on the Grand Canyon ecosystem led to changes in the way the dam is operated.

Armed with the estimates and documentation, Gabiola contacted one of the leading generation and transmission cooperatives in the area, the Colorado-Ute Electric Association, to explore the possibility of jointly building a 300-mile, 345-kV transmission system from Rifle, Colo., to the Four Corners region in New Mexico. In November 1980, Western and Colorado-Ute signed a joint agreement to build, operate and maintain the system, and the line was completed in late 1983.[70]

Succeeding Gabiola, Lloyd Greiner served the longest of any Salt Lake City area manager. During his tenure from 1985 to 1994, he faced technical problems like loopflow and environmental negotiations on conflicting concerns over control of the Colorado River. Since the 1960s, Glen Canyon has been Public Enemy No.1 among environmentalists fearing the effects of releases from the dam on the Grand Canyon ecosystem. Greiner recalled this tension between Federal representatives and environmentalists as the most unsatisfying aspect of his time in Salt Lake City. One adventure down the river particularly sticks in his memory: "One trip I'll never forget was one actually sponsored by the environmentalists. They had invited media, and I was the only power representative. I got my backside chewed more than once on that trip. There was a reporter from *U.S. News and World Report*. After the first or second day down the river he came to me and said, 'OK, now that you see the problems you're causing, what are you going to do about it?'"[71]

As always, attempting to please everybody was a losing battle. The complaints of an unlikely group caused the environmental issue to snowball during 1987-88:

> *Seventeen miles downstream from Glen Canyon Dam is Lees Ferry. Lees Ferry is the first spot where you can put in, so Lees Ferry back to the dam is where the good fishing is. We would go into Sunday operations where we would reduce flows and generation and buy thermal power to meet load. We stored water to use during the week. Reducing flows caused problems for the fishermen, because they were blocked from going upstream on the weekends. They wanted a minimum flow of 5,000 cfs (cubic feet per second). When we took on the fishermen, they got the rafters on their side, and the rafters got the hard-core environmentalists, and at that point the issue really got away from us.*[72]

Soon after arriving from Western's headquarters to take the Salt Lake City area manager's job, Greiner stepped into the middle of a dispute regarding a contract with Utah Power & Light Company. Utah Power & Light complained about an omission in the original 1963 contract regarding CRSP's entitlement to the transmission. Greiner spent most of his time trying to bring UP&L into the fold: "One of the things I did in the '80s was to negotiate that whole contract with Utah Power & Light. While the contract was pretty clear on a number of issues, it did not specify how much capacity the Federal government would have built, or the rights we would have in the Utah system."[73]

Those negotiations and "related problems seriously affected daily operations and strained relations among Western, the Utah preference customers and UP&L," Greiner added. UP&L went before FERC over the original fixed-price contract claiming the terms were so "onerous" it would go bankrupt. In 1985, FERC ruled against UP&L. Greiner believed that worked out well for Western's customers. "With that in my hip pocket, it was pretty easy for me to negotiate some good terms."[74]

Once Western and UP&L returned to the negotiation table, Greiner proposed a three-tiered approach to wheel capacity and pricing that protected CRSP's interests, satisfied the utility and offered provisions to keep those terms in future contracts.

"Negotiations were extremely intense," he noted. "Besides having millions of dollars at stake, it was a classic confrontation between public power and investor-owned utilities. I would compare the event to two boxers standing toe-to-toe and pummeling each other, then taking breaks to return to ringside for advice on how to protect themselves while instilling more punishment on their opponent."[75]

A Major Legal Challenge

Both the Salt Lake City Area Office and Headquarters spent the late 1980s engaged in a pincer attack from Utah Power & Light and a host of conservation groups.[75]

The courtroom drama began on Oct. 31, 1986, when UP&L and 156 Utah cities and towns filed *Salt Lake City, et. al. v. Western Area Power Administration, et. al.* The suit was an all-out assault; UP&L's complaint challenged the constitutionality of the preference clause, claimed Western operated outside of the law when purchasing nonpreference hydro or thermal power and said Western was in violation of environmental laws and trampled states rights in Wyoming and Utah over marketing power. Rooted in UP&L's strategy to overturn the preference clause was its desire to obtain low-cost power from Federal hydro dams for cities in its service territory. According to Western's then-General Counsel, Michael Hacskaylo, the UP&L lawsuit represented "a major legal challenge to the manner in which Western conducts its programs."[76]

On Oct. 29, 1987, the legal teams for UP&L and Western presented five hours of arguments before Judge J. Thomas Greene in United States District Court in Salt Lake City. Greene held off on a decision for six months, until April 14, 1988, when he issued an 86-page decision favoring Western's arguments. The judge ruled that the 1939 Reclamation Project Act was "inconclusive" on the question of municipalities that didn't own distribution systems qualifying for preference power from the Federal government, and there was "no clearly discernible congressional intent" regarding utility responsibility.[77]

Western won the major points of the suit and the 10th Circuit Court upheld that ruling on appeal,[78] but one issued remained: Did Western have to file an Environmental Impact Statement before it could sign the post-1989 power contracts to market power from the Salt Lake City Area Integrated Projects?

In mid-September 1989, Western announced it would prepare an EIS on the Post-1989 Marketing Criteria to facilitate better public understanding of the power marketing program and its role in Glen Canyon Dam's operations.[79]

The Montrose Legacy

For three decades, the small town of Montrose, Colo., has played a large role in keeping the West's power system running.

In 1960, Reclamation established a Power Operations Center for CRSP in Montrose. Western took over the operations center after the break with Reclamation, and Leo DeGuire became the agency's first Montrose district manager. In 1982, DeGuire recalled, "Some people might see Montrose as a little town isolated from the rest of the world, but we know differently. When you think of the power operations that are controlled from here, it's awesome."[80]

However, operations in Montrose would not see the end of the 1990s. July 9, 1993, was the high note for Western operations in Montrose as the town celebrated the opening of Western's Craft Training Center. Resulting from the joint efforts of Western, Tri-State G&T and the International Brotherhood of Electrical Workers, the training facility offered classroom instruction and hands-on apprentice training for 500 linemen, electricians, metering relay mechanics and communications technicians employed by Western, Tri-State and Tri-State member cooperatives.[81]

The warmth of civic good will toward Western on that July afternoon turned frosty two summers later. In 1995, word got out that Western's Transformation plans did not include a large presence in Montrose. City administration and local business became openly emotional over Western's proposal to close the office and split its work between Western's regional offices in Phoenix and Loveland, leaving about 40 of the existing 150 jobs in Montrose. The town feared the economic impact of the agency's departure, as Western jobs paid $45,000 to $60,000 a year, well above the county's average per-household income of $22,610. At a public hearing involving Western and the City Council, one Montrose City councilwoman pointedly questioned the agency's leadership: "We feel our community is being sacrificed for the benefit of Tri-State." Western Administrator J. M. Shafer shot back, "You're questioning our integrity. Why would I set up Western for private industry?"[82] After the meeting, Ken Maxey, then Salt Lake City area manager with oversight for the Montrose office, said that Western had decided to remain in the Rockies for the foreseeable future, but consolidation or abandonment of Montrose was the ultimate reality.[83]

Established in 1960 by Reclamation, the Montrose Operations Center ceased operation on April 1, 1998.

On April Fool's Day 1998, when, after three years of detailed planning, Western's control centers in Loveland and Phoenix took over the area previously controlled out of Montrose. Since then, the Rocky Mountain Regional Office in Loveland operates the CRSP transmission system north of Shiprock, N.M., and Phoenix's Desert Southwest operators control the CRSP transmission system south of Shiprock. The consolidation is notable for both its technical difficulty and its smooth completion, accomplished without disrupting the transmission system.

But Western had another role for its Montrose office to play. Following FERC Orders No. 888 and 889 issued in 1996, Western separated the work of those who operate the transmission system and maintain its reliability from those who market power. In 1998, the agency

opened the CRSP Resource Scheduling Office in Montrose to market energy. The merchant office runs 24 hours a day to help Western meet its contract obligations by purchasing firming energy when needed and selling surplus hydropower when it's available. Montrose-based marketing staff also provide merchant services for the Rocky Mountain and Desert Southwest regions.[84]

Our Middle Name

As more than one PMA employee has observed, "marketing is our middle name." Western's success is closely tied to its ability to market power fairly and effectively. Without controlling costs, which directly affect rates charged for Western's products and services, customers may look elsewhere for low-cost energy.

The main purpose of the West's major water projects was never energy production.[85] By law, power generation plays a secondary role to irrigation and flood control. Although secondary in priority, power sales are the major source of dollars for repaying Federal investment in these projects. At Western's silver anniversary, public interest is increasingly served by environmentally beneficial changes in managing Federal resources. Western's marketing efforts are flexible in responding to the changing balance among project purposes.

Western markets power through public processes. Although the primary participants are current and potential new customers, public-interest and environmental groups often provide input as Western staff develops power marketing policy. Issues raised range from the technical to the political, and from local to national in implications. In addition to open public processes, marketing plans are subject to oversight by DOE and Congress.

Customers and the public are interested in Western's marketing plans because of the price of its power. Western's rates are low for several reasons. Western's firm power rates are cost-based by law.[86] Although Western repays, with interest, the U.S. Treasury for power and transmission investment, the Federal power program is non-profit so Western's rate computations contain no return to its shareholders—the American taxpayers. Western's resources are predominately hydro-based, so the agency has no fuel cost. Western sells wholesale power, which means its rates contain no distribution costs. Since Western is not responsible for load growth, it doesn't need to acquire additional power resources. All of these factors working together help to keep Western's rates low.

The first 25 years of Western's power marketing efforts have been full of challenge and contention, frustration and success. From the high plains of the Dakotas, to the Southwest desert, to the farms of California's Central Valley, power marketing has been an important chapter in the story of Western.

Litigation and Legislation—Hoover Marketing in the 1980s

The most famous dam from which Western markets power sits in the Colorado River's Boulder Canyon between Arizona and Nevada. Hoover Dam is the highest concrete dam in the United States, and Lake Mead is still the nation's largest manmade reservoir. This enormous facility began with 1928 legislation approving construction of the Boulder Canyon Project.[87] Hoover Powerplant has 19 generating units and an installed capacity of 2,074 MW. Its average annual generation serves the energy needs of almost 8 million people in Arizona, California and Nevada.

With Hoover power sales contracts set to expire in 1987, Western began a formal public process to allocate power in September 1981. On Aug. 27, 1982, the State of Nevada, joined by Arizona, filed suit in Las Vegas District Court against the United States and Hoover contractors in California. Nevada sought one-third of the Hoover resource when existing contracts expired, and any power not applied for by California as a state.

To settle the controversy, Congress passed the Hoover Power Plant Act of 1984.[88] Besides quantifying the amount of power reserved for existing customers, Congress authorized the Department of the Interior to increase the capacity of Hoover Dam's existing generating equipment. Through direct customer funding of Reclamation's uprating program, Hoover's contingent capacity increased by 503 MW, and the associated firm energy was available for allocation. In November 1985, Western allocated resources available from the increased generation to Arizona, Nevada and nine municipal utilities in California.[89]

The Boulder Canyon Project is unique because Congress specified how Western would market its power, down to individual allocations to each customer. It was also among the first to rely on customer funding rather than congressional appropriations to carry out capital improvements, a trend that is growing today. The Hoover Power Plant Act of 1984 also required Western's long-term firm power contractors to develop and implement energy conservation programs.[90]

CRSP—the Early Days

Western's first marketing plan was the revised general power marketing criteria for the Colorado River Storage Project. Published in the Federal Register on February 9, 1978, the development process started before Western was even created by the Department of Energy Organization Act of 1977.[91] The February 1978 document revised the original 1962 CRPS marketing criteria by redefining the marketing area, describing the availability of additional peaking power (due mainly to the completion of Crystal powerplant on the Gunnison River in western Colorado), establishing additional delivery points and revising delivery conditions.

Although CRSP dams and powerplants are located in the Colorado River's upper basin, the existing preference customer load couldn't initially absorb all of the CRSP hydropower. As a result, Western sold CRSP power to preference entities in the Southern Division of the marketing area (primarily Arizona). To avoid the expensive construction of high-voltage transmission, the United States and the Salt River Project entered into a generation exchange arrangement, where thermal power in northern Colorado was used to meet local preference customer load. In return, Glen Canyon generation went to the Salt River Project to meet loads in Arizona.

In a sidelight that illuminates the transitional issues surrounding Western's creation, the *Federal Register* notice containing the revised CRSP marketing criteria was signed by William S. Heffelfinger, the Director of Administration in the Washington headquarters of the newly created Department of Energy. It wasn't until February 1979, when Western announced its allocation of CRSP peaking power, that Bob McPhail signed a FRN as an official act of Western's administrator.[92]

Upper Great Plains—one of Western's first marketing programs

In January 1979, soon after its creation, Western began a marketing effort for the Pick-Sloan's Eastern Division. The Corps of Engineers prepared new water depletion studies to help Western determine the resource available for marketing when existing contracts expired.

Western launched a broad public process to encourage the public to comment on the marketing plan. It included three informal public information forums in May 1980, followed by three formal informational meetings in June. In August 1980, Western also held public comment forums in six different states. The process generated more than 200 comments, mostly in favor of Western's marketing proposal.

On Oct. 30, 1980, Western adopted the final post-1985 Eastern Division marketing plan.[93] It extended power commitments through 2000 and reserved 35 to 40 MW for allocations to new preference customers. The *Federal Register* notice describing the major elements of this marketing plan took less than two pages. This is quite a contrast to the lengthy documents prepared in future power marketing processes.

Yellowtail Dam is part of the Pick-Sloan Missouri Basin Program.

Integrated Resource Planning and Power Marketing—A Powerful Linkage

The early 1990s turned Western's attention to numerous long-term firm hydropower contracts that were set to expire between 2000 and 2004. Western also needed to update its conservation and renewable energy program, which had required customers to carry out certain demand-side management and renewable activities since November 1981.

In response to these dual needs, in April 1991, Western proposed a two-part Energy Planning and Management Program that more directly tied the allocation of Western's hydroelectric resources to long-term planning and the effective use of electric energy.[94] Western's objectives were to give customers stability in their planning efforts by extending a major portion of existing hydropower commitments, while also encouraging customers to consider cost-effective demand-side management alternatives and supply-side alternatives including renewable resources.

This proposal started a four-and-a-half-year public process that included an environmental impact statement, 53 public meetings and workshops, 14 newsletters, two congressional hearings, passage of the Energy Policy Act of 1992 (section 114 mandated customer integrated resource planning) and creation of a new part within the Code of Federal Regulations.[95]

As finally adopted, the Energy Planning and Management Program has two major components: 1) an integrated resource planning provision conforming to the provisions of the Energy Policy Act, and 2) a power marketing initiative. Integrated resource planning involves customer choice from a broad range of supply-side (including renewable resources) and demand-side options. Customers develop plans to meet future energy use needs based upon cost-effectiveness and public input, while working to reduce adverse environmental impacts. Since its adoption, IRP has helped customers manage least-cost resource planning and resulted in an impressive series of annual reports to Congress documenting the commitment of public power utilities and rural electric cooperatives to renewables and energy conservation.

Under the power marketing initiative, and in response to changes in the utility industry, Western altered its power allocation policies to add flexibility to its power sales contracts and

changed its marketing policies to emphasize customer choice and diminish Western's future need for appropriations to purchase power. Western's contracts now accommodate environmentally beneficial changes in operations at large Federal dams. Native American tribes have benefited from Western power allocations that don't require tribes to form utilities. Western continues to prohibit inappropriate resale of its power and assure that consumers receive the benefits of cost-based Federal hydroelectricity.

After adopting the power marketing initiative, Western extended 96 percent of the marketable resource to existing Eastern Division and Loveland Area Projects customers. On June 25, 1999, Western concluded an evaluation of the impact of electric utility industry restructuring on its power marketing policies.[96] Simultaneously, Western announced that its Sierra Nevada Region's power resources would be marketed consistent with the power marketing initiative, extending the majority of the base hydroelectric resource to existing customers while planning to offer additional customized services upon customer request.[97] On that same day, application of the power marketing initiative to the Salt Lake City Area Integrated Projects was published in the *Federal Register*.[98]

Western recently allocated significant amounts of power to new customers, including Indian tribes. Besides the 25 Native American tribes allocated Eastern Division power for deliveries beginning in 2001, in July 2000, Sierra Nevada Region allocated power to four tribes, with deliveries starting in January 2005.[99] In January 2002, Western announced that five Indian reservations, Yellowstone National Park and a mass transit district in Colorado would receive resource pool allocations from the Loveland Area Projects beginning in 2005.[100] In February 2002, Western announced allocations to 54 tribes from the Salt Lake City Area Integrated Projects also beginning in 2005.[101] And in August 2002, Western announced that it proposed to apply the power marketing initiative to the Parker-Davis Project under a new marketing plan that will govern power sales beginning in 2008.[102]

CLOSED CIRCUIT

WESTERN AREA POWER ADMINISTRATION

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Drought knocks out New Melones generation

by Richard Thomas

Due to drought conditions and lack of significant precipitation (rain and/or snowfall) in the Stanislaus River watershed, the 383,000-kV New Melones Powerplant quit generating hydroelectric power on July 1, 1992 for the first time since construction was completed in June 1979.

Gross generation for the New Melones powerplant averaged 400 million kWh per year from 1986 to 1990.

CVP powerplants' combined generation capability—more than 6 billion kWh in an average water year—is enough power to supply the needs of about 2 million people when operating at full capacity.

Western markets power generated at CVP powerplants, such as Shasta, Trinity, Folsom, and New Melones, which is the CVP's second largest generating facility.

"To prevent interruption of power deliveries to our customers, Western plans to purchase additional power to supplement reduced CVP generation," **Dave Coleman,** Sacramento area manager, said. Potential sources include other power suppliers in California, as well as in the Midwest and Pacific Northwest.

Western expects to receive proposals from power suppliers in mid-July, and will review the proposals and determine a course of action as quickly as is prudent. Noting that it is difficult to single out the cost of loss of generation at New Melones, Coleman estimated that expenses associated with replacing New Melones energy alone for the next six months will range from $6 million to $7 million.

Additional expenses for replacing the ability of New Melones to provide capacity to meet peak loads may also occur as other CVP reservoirs continue to drop adversely, affecting CVP overall generation capability.

"We would like to see all CVP powerplants operating as they would under normal conditions," Coleman said. "However, current forecasts indicate that it would take more than 50 inches of rain in the Stanislaus water basin during a single water year to bring New Melones up to its maximum (water) storage level. Average rainfall for the basin is only 23 inches. Providing near normal reservoir water inflow occurs in the fall, we expect the (power) plant may return to limited service sometime next spring."

Forecasts indicate that the other CVP powerplants will continue to operate through the remainder of this water year, but at only about 50 percent of their maximum generating capacity.

Coleman said it is difficult to say when New Melones will be above minimum power pool; storage level in the lake is totally dependent upon precipitation.

Coleman noted that the New Melones loss took place when releases for water supply, fishery needs and water quality caused the water stored in the reservoir to be drawn below the minimum power pool level (the lowest level at which the turbines can be operated without the possibility of incurring damage to the equip-

(See DROUGHT, page 3)

This Oct. 7, 1991, photo of New Melones Reservoir shows how California's six-year drought has affected Central Valley Project facilities. The powerplant's intake structures (right) are far above the water line. **(Photo courtesy of BuRec)**

Under Mother Nature's Thumb

Few things in the West can divide neighbors as deeply as when the well runs dry. However, a seven-year region-wide drought from the late 1980s into the early 1990s united Western's area offices under the threat of raising customer rates and the specter of keeping the lights on.

As the reservoirs dried up and the air turned dusty in the late 1980s, no area had less experience with drought that the Upper Great Plains. The extended period of dry weather was the first since the Pick-Sloan facilities were completed in the 1960s. In the Billings Area, six years of dry weather culminated in a loss of 13.5 billion kilowatthours by 1992.

According to Jim Davies, keeping a good working relationship with the U.S. Army Corps of Engineers and Upper Great Plains customers saved Upper Missouri River Basin power customers from disaster: "The relationship we had with customers allowed us to pur-

chase a lot of energy at reasonable prices." In 1992, the Billings Office purchased 2.7 billion kWh of energy to supplement generation of 7.3 billion kWh. Those purchases totaled $42 million compared to Billings' average purchases of $5 to $6 million a year.[103]

According to Salt Lake City-based staff, the years 1987 to 1992 were the six lowest consecutive years of inflow into Lake Powell, the largest CRSP storage reservoir. At the end of that cycle, Reclamation predicted it would take 10 years of average inflow to refill the reservoir. The southern reaches of the Colorado River were suffering by 1992. Western's Phoenix Area Office had to buy the most energy in project history, about 118 million kWh, or $2 million worth of purchases for both Parker and Davis customers. Of all the area offices, Loveland escaped relatively unscathed by meeting energy shortfalls through purchases, interchange and interarea transactions.[104]

The lack of moisture in California made national headlines, and every brief cloudburst was front-page news. Miniscule snowmelt from the Sierra Nevada Mountains and decreased rainfall for seven years meant reservoirs were at record low storage. Sacramento Area Manager Dave Coleman remembered it would take more than 50 inches of rain in the Stanislaus River water basin during one year to bring the reservoir behind New Melones Dam up to its maximum level. The odds of it happening were long, as average annual rainfall in the basin totaled 23 inches.[105]

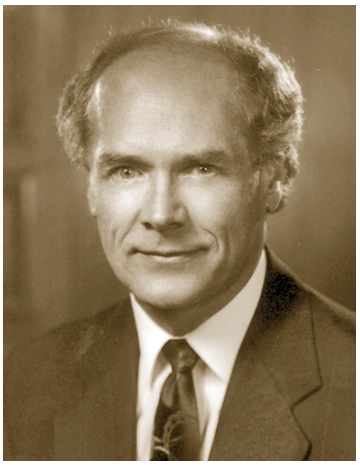
As long as the drought had lasted, the rains that fell during the winter of 1992-93 quickly washed away their memories. Davies said that system recovery on the Pick-Sloan mainstem dams was "rapid beyond belief," taking one extremely wet year in the Missouri River Basin to get the reservoirs back to normal.[106]

Nature's great drought put the West to a test, but man's patience and planning waited out the unforgiving weather. After clearing that hurdle, Western's staff entered the mid-1990s to face an organizational challenge with continuing repercussions.

Transformation

Perception often triumphs over reality. No matter how well a Federal employee goes about his or her job, some see all civil servants as the appendages of a bloated, out-of-touch bureaucracy. Perceptions regarding the Federal government involvement in the business of marketing power and the future of the PMAs had haunted Western since its earliest years. After attempts by the Clinton Administration to legislate Western out of business, the agency spent the mid-1990s locked in self-examination. This period of the agency's history was known as "Transformation," and depending on where you stood, it was Western's commitment toward becoming more
"efficient and businesslike," or the wedge that divides Western's history into two chapters—before and after.

By the early 1990s, new business management philosophies flooded the private sector, and the trend for Federal agencies was to do more with less. Owing mainly to COTP construction, in FY 1991 Western's construction budget peaked at $225 million. To prevent construction program costs from driving up rates, the agency had cut back to $45 million for construction by FY 1997. Other forces, such as electricity industry deregulation, FERC's moves to increase transmission access in the bulk power market and wholesale competition that threatened to drop market prices below Western's firm-power rates placed new constraints on Western. Senior managers met with employees and customers during 1994 and 1995 to



Western's third Administrator, J. M. Shafer led the agency through the turbulent Transformation era.

address how the organization could survive an upcoming succession of rapid changes.[107]

Dropped into the middle of the situation was J. M. Shafer. In 1994, Bill Clagett retired from Federal service, making way for the former Assistant Area Manager at Loveland to return to Western as Administrator. Shafer left Western in 1988 for the administrator's job at Southwestern Power Administration. Before his return to Golden, DOE officials apprised Shafer of the situation he would face: "Western's construction budgets had dropped from $120 million annually, heading toward the $20 to $30 million level by the mid-90s. It was pretty obvious that things had to be cut back. Senior staffers from the Department of Energy had some frank discussions with me about staff levels before I accepted the job. It wasn't as much pressure from DOE as a realization that we had to minimize things."[108]

First tried by the Reagan Administration in the 1980s and repeated by President Bill Clinton 10 years later, official attempts to wipe the PMAs off the map had many in the Federal power business understandably concerned. Speeches from DOE's top brass did little to sooth jittery nerves. Later that year, Assistant DOE Secretary Don Pearman told a group of customer service advocates, "the train (for realignment) has left the station, and hopefully you're aboard."[109]

Senior management officially launched the Transformation process in winter 1995, and by that summer morale was at an all-time low. In October 1995, Western's senior management presented a "Will Be" plan outlining Western's new organization. It called for staffing 1,283 Federal positions and 265 contract positions by the end of the middle of 1998. Those numbers represented a drop from 1,916 Western Federal and contract employees as of Aug. 3, 1995, and the all-time high of 1,558 Federal and 565 contract employees in September 1992. A full-time implementation manager ensured that the agency met 1,300 specified tasks toward completing the Transformation process, specifically reducing Western's overall workforce by 24 percent. Senior management estimated that implementing Transformation would cost $15 million, followed by $25 million annual savings.[110]

As senior managers issued policy statements, staffers in Headquarters and across the area offices were confused and concerned. Many did not see how private industry could threaten a Federal agency's operations. Administrator J. M. Shafer interpreted the prevailing concept—"businesslike manner"—to mean customer-focused, delivering high-quality products at reasonable cost and cutting costs. Proposals included turning Western's Salt Lake City Area Office into a customer service center and possibly moving the Billings office to Sioux Falls, S.D.

Speaking before a group of Western's managers and supervisors on Oct. 23, 1995, Shafer explained: "The IOUs believe competition in the industry will solve the PMA sale issue. If we aren't competitive, if we don't push responsibility down to the lowest level and we don't empower those people on the front lines nearest our customers, if we don't develop our people to manage programs, we'll prove them right."[111]

Shafer retired as Transformation was winding down in mid-1997. Nearly a half-decade later, he recalled: "My three years as administrator were the toughest time at any job in my 37 years of Federal service."[112] General Counsel Michael S. Hacskaylo succeeded Shafer as Western's fourth administrator. In an Oct. 10, 1997, letter in Western's employee publication, Hacskaylo urged the people of Western to unify: "I've been a Western employee since 1981. Over the years, I've heard there are really six Westerns—the four regional offices, our Customer Service Center in Salt Lake City and the CSO. I've even heard there are more—each senior manager represents a separate Western. At times, we have certainly acted like that. I believe the problem was exacerbated by Transformation. I am convinced, there must be one and only one Western. Western can only survive and thrive if we work together."[113]

Michael S. Hacskaylo became Western's fourth Administrator in 1997.

Western's senior managers declared Transformation completed on June 1, 1998. Reflecting on the legacy of that period in 2000, Hacskaylo believed the process was necessary for Western's survival: "The philosophical disconnect is there—'wait a minute, we're a Federal agency, not a corporation, so what are you doing?' The answer is if we expect to survive, we have to blend the best of the Federal agencies with what a corporation does. We have to be flexible enough to deal with issues and quick enough to respond to issues in the context of the Federal government."[114]

Shafer left Western to run the Western Farmers Electric Cooperative in Oklahoma. Looking back on the tumult of Transformation, he believes that the modern Western is in tune with the times: "Western employees stuck with the plan, and it made them the right size for the tasks they have to complete."[115]

Outside considerations, such as competitive pressures, put Western into three years of internal re-evaluation. At the end of that period, the agency adopted a corporate approach toward doing business, but it lost many people along the way. Transformation made Western run leaner, but left scar tissue that the organization will have to carry for years to come.

A New Home for Headquarters

The move to new office space in Lakewood was Western's signal to the world that it had survived the Transformation era. Completed in 1999, the building contains 97,000 square feet and saves Western $850,000 each year in rent over the previous lease on 112,047 square feet of space within four office buildings at Denver West Office Park.[116]

Acting as Western's agent for either staying put or finding a new home, the General Services Administration weighed a number of factors against remaining in Golden, Administrator Hacskaylo said: "The office park in Denver West in Golden was certainly good office space, but it was old. The buildings we were in did not meet the present life and safety codes. They were grandfathered in, so it was not unsafe to be there, but they did not meet the current code. Also, the rent was high. We knew our lease was coming up. This was (accomplished) under J.M. Shafer's leadership. I was the lucky recipient of everything working."[117]

Forces from Within and Without

Pressure can strengthen or fracture an organization made of people. In meeting a variety of regional needs, overcoming natural calamities and responding to oncoming concerns, Western survived internal and external stresses. The aftermath of the UP&L case and the reorganization and staff cutbacks of the mid-1990s captured the change in the public's mood from the New Deal era regarding the government's operation of public resources. Western survived these dire events, but they also served as a foreshadowing of what might happen if restructuring or budgetary constraints take a bite out of the power marketing administrations. ▼

CHAPTER FOUR:

'The real recipe': The Community of Transmission

A foundation of connections supports Western. To the uninitiated, the obvious connection is physical—the conductor that carries power along the transmission lines. The unseen bond between Western and its various customers, while not as apparent, is the foundation that supports the Federal power program.

In 2001, Western did business with 688 firm-power customers.[1] Together, these customers form a political force few movements can match. A journal of the western environmental movement, *High Country News*, marveled at this amalgam's capability: "Environmental critics of Western have been unable to match the backlash generated by Western's 600 customers. The environmentalists must travel a slower, longer, quieter path. And they have had to recognize the enormous political power that the intersection of cheap power, subsidized irrigation projects and long-time practices have created."[2]

Examining the relationship between a single customer organization and Western does not offer a true indication of what the agency is all about. This chapter reviews a variety of connections as an insight to the importance of the customer to the agency. The stories gathered from individuals across Western's service area provide the human element to 25 years of triumphs and setbacks.

Keep Your Friends Close

The year after Western's birth, Western's first administrator, Robert McPhail, reflected on the importance of partnerships, comparing his working with many different customers to following a recipe in a cookbook. Defying an old cliché, McPhail believed that many cooks could work together to produce a well-balanced Federal-customer menu: "The real recipe calls for many things. The basic ingredient for Western's success is best exemplified by the close working relationship between preference customers and WAPA."[3]

During Western's first year of operations, the customers, on more than one occasion, wondered aloud if the new Federal agency would work. The Department of Energy's first Assistant Secretary for Resource Applications, George McIsaac, spoke to public power customers in the spring of 1978 to allay their fears: "In a fairly short period of time, you were faced with new institutions, new faces and new proposals.... In fact, judging from comments that

I've heard, the word 'concerned,' when applied to this situation, is mild. It's the same as saying the people of Atlanta were concerned about General Sherman."[4]

After more than two decades, Western learned in the heat of the kitchen how to be a skilled chef. As of 2001, Western had more than 1,700 active contract agreements with utilities and power marketers in 27 states and Canada that include 688 firm power customers.[5] Western also maintains more than 1,600 load-serving interconnections with 382 customers within its load control boundaries.[6] Western maintains ongoing relationships with many organizations. These can be grouped into a handful of categories.

Western's preference customers include towns like Morrill, Neb., above, and Lusk, Wyo.

Individual Preference Customers

Western's mission is most closely bound to rural co-ops, small-town and big-city municipal utilities. Individual preference customers include hamlets and metropolises across Western's service area. They range from large municipal utilities like Los Angeles Department of Water and Power, Salt River Project of Phoenix and Sacramento Municipal Utility District to small rural co-ops and municipalities scattered across the upper Midwest. Native American tribes and Federal and state agencies have a "preference" to Federal hydropower marketed by Western.

In a 1999 Federal inquiry into the impact of electric utility restructuring on Western's power allocation policy, one utility maintained, "One of the benefits of public power is local control. Our utility is a relatively new public-power entity, and our customers have a keen memory of how badly they were treated when decisions about their services were made remotely."[7] Occasionally, issues and policies can be too much for one local co-op to handle. To pool resources and strengthen their political clout, the smaller co-ops and municipals banded together to form the next category.

Parent Preference Customer Groups

Some customers combine their need for transmission and generation, technical expertise or political positions regionally to gain the benefits of economies of scale. These organizations include Arizona Power Authority, Colorado River Energy Distributors Association, Loveland Area Customers Association, Mid-West Electric Consumers Association, Northern California Power Agency and Wyoming Municipal Power Agency. Some of these organizations are eligible for preference power allocations and others formed to be the regional customer association.

Trade Associations

Western also maintains ties with the American Public Power Association, the trade association for municipal public utilities, and the National Rural Electric Cooperative Association, the trade association for co-ops.

Technical Organizations

Western forges links with regional and national industry groups as part of its effort to promote competition and reliability in the evolving electric utility industry. These organizations include EPRI, Mid-Continent Area Power Pool, North American Electric Reliability Council, and the Western Electricity Coordinating Council.

Western has partnered with EPRI on numerous projects, including studies on electric and magnetic fields.

Regional Transmission Organizations

RTOs have added a new wrinkle to the familiar transmission landscape. Encouraged by the Federal Energy Regulatory Commission in 1999, RTOs are still in development. No one is sure how they will impact rates and alter traditional partnerships, as the day may come when the RTOs overshadow existing institutions in importance to the customer. Western staff members participate in formation discussions and planning activities for a handful of RTOs, including Desert STAR and its follow-on organization West Connect, the Midwest Independent System Operator, the California Independent System Operator and TransConnect. Western staff is also monitoring development of the RTO West.

Investor-owned Utilities

Western works with many investor-owned utilities across its service area. The connections continue through power sales. By 2000, IOUs accounted for 4 percent of Western's customer base and 11 percent of its total revenues.[8] Former Administrator Bill Clagett described the ground rules of this particular alliance: "WAPA's geography puts us in the midst of many non-Federal utilities with whom we are interconnected and with whom we must be good neighbors. We have, over the years, grown to know each other quite well and have established committees, power pools and coordinating councils to make our missions meld efficiently to mutual best interests."[9]

These ties are vital to maintain transmission system reliability, interconnection and transmission wheeling service. These connections need cooperation to flourish. This spirit blossomed in an America much different than today.

The Road Less Taken

In his study of the rural cooperative movement in Minnesota, historian Steven Keillor wrote that in modern America, mention of cooperatives "evokes a wistful nostalgia, like thoughts of a crossroad community bypassed by the interstate. But they were important to rural life a century ago, and centralized cooperatives are still vital to rural America."[10]

President John Kennedy dedicated Oahe Dam in August 1962. It's part of the Pick-Sloan Missouri Basin Program, which helped to light up the Great Plains.

The rural electric cooperative movement grew out of this tradition at a time when citizens living in America's countryside were at their lowest, figuratively and literally. Passage of the Rural Electrification Act of 1936 lit the way for rural America to join the rest of the nation. Before President Franklin Roosevelt signed the REA, electric service in the West was a region of have-nots dotted with enclaves of haves. In California, almost 81,000 of the state's farms, or 54 percent, were electrified by 1935. However, the nation's heartland was still in the dark 50 years after Edison lit Wall Street. During the 1930s, the national black hole of electrification was North Dakota, where only 2.3 percent of its citizens enjoyed electric light.[11]

The arrival of the REA stimulated the electrification of rural America during the 1930s and 1940s. Water projects across the West also brought light as a secondary benefit. By the time President John Kennedy dedicated Pick-Sloan's Oahe Dam in August 1962, more than 95 percent of rural American homes had electricity.[12]

The spread of electricity across the country encouraged rural citizens to organize their resources and start their own co-ops. One example representing dozens is Wheat Belt Public Power District of Sidney, Neb. A gathering of interested locals agreed on Aug. 9, 1941, to pay a $5 membership fee to form a local cooperative. By that December, the echo of bombs dropping on Pearl Harbor rippled eastward across the United States, and plans to build transmission lines were put on hold. The citizens around Sidney kept the home fires burning during the war years, but they remained in the dark.

With the lifting of wartime restrictions in August 1946, Wheat Belt PPD officially formed with no board members, no money and no members. However, support for a co-op was still there after five years. By August 1947, Wheat Belt served 319 customers, sold 390,264 kWh and carried a payroll of $512 for three employees. That foundation was strong enough that by October 1948, the co-op built and energized its first transmission lines. In the late 1970s, Wheat Belt was one of Western's original 457 customers; by the 1990s, the public power district was one of more than 900 consumer-owned rural electric cooperatives serving 11 percent of the American people.[13]

After the Second World War, the rural electric movement took steps across the West, fueled by the Bureau of Reclamation's dam-building projects. A point man for Reclamation dur-

ing this period was Andrew Bryce, who started his Federal career as a surveyor for Reclamation before transferring to Western in 1977. Working primarily in the Upper Great Plains, Bryce was the customers' contact out in the field when Reclamation surveyed land to build transmission lines. A visitor to many different properties during his career, Bryce claimed he was most proud of the personal bonds he forged with farmers, municipalities and Native American tribes. In 2000, he discussed Western's approaches to customer relations:

> *Landowner goodwill; Western [sought] that from the very first. They really took the feelings of the landowners into consideration.*
>
> *I spent a lot of time on the ground talking to people when Western started. Up in the Billings Area Office they held meetings in school gymnasiums and places like that. You always had to have them at night after the farmers got through in their fields. We tried to present what we were going to do and what it would entail.*
>
> *One of the things we did right was listen to the landowners and work out their concerns. We changed the alignment to fit the landowner desires; we changed the size of the structure so we could span clear across their fields without putting the structure in their fields. Up in South Dakota, in one place we raised the transmission line high on wood poles about as high as you could possibly get just to go over the tops of some big cottonwood trees in a draw, because the landowner wanted to keep the trees to shelter his cattle in the winter time.*[14]

Co-op customers like this woman entered the electricity age—and even checked their own meters to save money.

For many, the construction of the Pick-Sloan dams in the Upper Great Plains was the harbinger of better times. However, a few years into the program, in 1952, the Department of the Interior advised all its long-term contract customers that in spite of Pick-Sloan, Reclamation could not guarantee long-term power. This pronouncement forced individual cooperatives to band together to build generation and transmission facilities that would maintain the power supply. The possibility of everything going back to black was a real, nagging possibility by the mid-1950s. In 1993, Robert Risch, an engineer for Tri-State Generation and Transmission Association, recalled, "Nowadays, to say that we are going to run out of power in two years would scare the life out of you, but back in those days it was kind of the way of living."[15]

It was that uncertainty that pushed Upper Great Plains customers into the next generation of cooperative groups. Thanks to customer initiative, by the time of Western's birth 20 years later, those concerns were but a memory.

In Three States . . . And Beyond

Growing from a scattering of co-ops on the High Plains and in the mountain ranges of the West to a major power player, Tri-State is among the most successful examples of regional cooperation. In 1952, 26 rural electric cooperatives and public power districts joined to create a central source of wholesale power serving 41,000 end-use consumers. Through an aggressive business strategy, it is now an energy force from Wyoming to New Mexico.

In the early 1950s, if a co-op wanted a guaranteed supply of power from Reclamation, it would sign a long-term contract and pay for all the power it agreed to buy, whether it used the power or not. Since the rural electrical cooperative movement was less than a decade old, each

co-op's board of directors had no way of knowing what the region's future loads would be, or how to pay for them. The possibility of joint action and economies of scale encouraged the co-ops to form Tri-State. Forming a G&T also offered the individual co-ops the chance to share power among themselves or sell excess thermal power as a group to level future costs.[16]

The co-op movement gathered strength by the 1960s. An era of new plant construction began by the mid-1960s, coinciding with reduced kilowatt-hour costs to consumers. Tri-State saw this climate as an opportunity to build generation facilities and transmission lines.[17]

Tri-State Generation and Transmission serves member co-ops in Colorado, Wyoming, Nebraska and New Mexico from its Westminster, Colo., headquarters.

Giant Steps

An improving regional economy during the late 1960s and early 1970s led Tri-State to build new transmission facilities and develop an additional power supply beyond the Bureau of Reclamation allocation. The fuel of choice was coal, not hydro.

Leland Olds, former chairman of the Federal Power Commission, first proposed integrating fossil fuels and Federal hydropower in October 1959 to the second gathering of the Mid-West Electric Consumers Association in Rapid City. Employing the catch phrase "Giant Power," Olds' plan to merge steam-generated power with hydro was, according to Ken Holum, "a real landmark in the Missouri River Basin energy field."[18]

Drawing on large coal reserves in the Upper Great Plains, Tri-State and several other public power entities built two coal-fired power projects—the Craig and Laramie River stations—under the aegis of the Missouri Basin Power Project. The Missouri Basin Power Project consists of Tri-State, North Dakota's Basin Electric Power Cooperative; the Western Minnesota Municipal Power Agency, Lincoln Electric System of Lincoln, Neb., Heartland Consumers Power District and the Wyoming Municipal Power Agency. It's one of the largest consumer-owned energy organizations in the nation. MBPP provides electricity to more than 100 rural electric cooperatives and 80 municipal electric systems that serve 2 million consumers in Colorado, the Dakotas, Iowa, Minnesota, Montana, Nebraska and Wyoming. Completed in 1982 near Wheatland, Wyo., Laramie River Station cost $1.6 billion and produces 1,650 MW. Laramie River is one of the largest and most efficient consumer-owned power supply projects in the United States.[19]

With demands for power increasing during the mid-1970s, Tri-State built its first powerplant, the Republican River Station in Wray, Colo., to meet summer loads. The shining example of Tri-State's independent nature was construction of the nation's first east-west power grid tie at Stegall, Neb. Despite following its own path, Tri-State Board Member David Hamil reminded those present at the Stegall opening on Dec. 7, 1976, "by joining together we could accomplish things we could not do as single entities."[20] Hamil uttered those words before throwing the "knife switch" that brought the AC-DC-AC tie on line nearly eight years before Western completed its own Miles City Converter Station.

By the late 1970s, Tri-State was an organization on the move, and Western was a new kid on the block. Peter Ungerman, head of the Loveland-Fort Collins Area Office, recalled Tri-State's wariness regarding Western's ability to handle the job. This suspicion turned into an outright power play when Tri-State produced a document challenging Western's authority:

We were having a day-in, day-out fight with Tri-State. Several mornings, I'd get up and say 'Jeez, maybe I'm just grouchy, maybe it's just me.' I found out later that (Bob) McPhail was very appreciative. We were out in California one time and we were fighting a customer group over something to do with the Central Valley. It was obvious that these guys were really taking Western to task and Bob said, 'Peter, you just think you got it bad. These are our friends.'

We sure as hell didn't have any friends in the first year. It was a dogfight, primarily for existence. They had been told they had a letter, signed by the Bureau of Reclamation that gave to Tri-State the operation of the transmission lines. So, that's what they've got. They've got a letter from an authorized source saying that on such-and-such a date we (the Federal government) are out of the power business.

I thought, 'Well, we've got to countermand that.' The last thing I wanted to do was look like a power-grabbing bureaucrat, but on the other hand, I figured they're not going to let me have this job—give me that green check—if I give away every feature we own. We got into name calling, letter writing—barely civil. It's so ironic now that our lieutenant, Frank Knutson (a Western original in the Loveland-Fort Collins Area Office), is over there and is the best general manager public power has ever had.[21]

Good relations with one of the largest customer-owned utilities were a priority with Western managers, but it did not happen overnight. An internal game plan from the early 1980s, "Western's Efforts to Develop Good Working Relationships with Tri-State," outlined the importance of Tri-State to Western. According to the document, the Federal agency sought new agreements recognizing Tri-State's status as a major area utility and the importance of sharing technical talent to help Tri-State test and energize new substation facilities and expedite a new contract resolving a transmission transfer mess.[22]

By the mid-1980s, Tri-State and Western worked to resolve the twin dilemmas of increasing demand and diminishing resource margins. The two organizations collaborated on an on-time and in-budget completion of Tri-State's 55-mile portion of the Hayden-Blue River transmission line on Colorado's Western Slope and upgraded 22 miles of the Kremmling-Windy Gap line along the Continental Divide.[23]

Archaeological work was part of the Kremmling-Windy Gap project, a collaborative effort of Tri-State Generation and Transmission Cooperative and Western.

In 1992, Tri-State grew with new territories when it acquired some of Colorado-Ute Electric Association's transmission assets and load. Eight years later, in 2000, the G&T outgrew its name when it merged with Plains Electric Generation and Transmission Cooperative of Albuquerque. Tri-State's step outside its three-state area garnered an additional 12 cooperatives in New Mexico for its distribution system network. The deal also allowed Tri-State to own and operate the 250-megawatt Plains Escalante Generating Station in northwestern New Mexico.[24]

Reclamation powerplants generate almost a third of the energy Tri-State sells to its 32 members systems. In 2001, Tri-State was Western's third largest customer (behind Salt River Project of Phoenix and the Sacramento Municipal Utility District) in firm energy sales, with purchases totaling almost 1.9 million MWh. That year, Tri-State ranked second in revenue with $4 million in total firm-power sales and providing Western 7 percent of its firm power revenues.[25]

Tri-State is not Western's only powerful G&T customer. Based in the northern Great Plains, Basin Electric Cooperative started from a position of strength, only to get stronger.

Basin Electric and Western

Basin is a consumer-owned regional cooperative whose member cooperatives supply power to more than 124 rural electric systems in nine states from North Dakota to New Mexico.

Created after more than 30 months of planning and study, Basin Electric was born in May 1961 when rural electric leaders representing 67 distribution cooperatives from eight Missouri Basin states joined together. Basin's formation was based on three primary goals: building large-scale generation; maintaining "postage stamp" rates for delivered power, (a postage stamp rate is a standard payment to transmit power anywhere on a utility's transmission grid) and keeping the cost of electricity as low as possible.[27]

Basin also operates nearly a million kilowatts of generating capacity on behalf of participants in the Missouri Basin Power Project. An illustration of Basin and Western's ability to work together, and the evolving nature of the transmission systems, came in 1982. Western contracted with Basin Electric to purchase 185 MW of power to deliver to Western customers in California. To deliver the power, the agency signed a four-year purchase contract from 1986 to 1990 to establish a firm transmission path across the Montana Power Company and Bonneville systems. As part of the contract, Western and Bonneville agreed to work toward economic energy exchanges, minimizing construction of new generation by taking advantage of "load diversity" and making full use of Western's AC-DC-AC Miles City converter station.[28] Former Sierra Nevada Regional Manager Jerry Toeynes recalled there was "some resentment" among the 72 customers Western dealt with in his region over contractual arrangements once Basin's power got to California. However, Toeynes believed, "We will never reach Utopia, but we try to work for what's best for the most."[29]

Basin Electric operates several coal-fired powerplants in the Upper Great Plains.

Western also shared Robert McPhail with Basin. After leaving the administrator's job at Western in 1984, McPhail accepted the job of general manager with Basin the following year. Economically, the Upper Great Plains hit rock bottom by the mid-1980s. Coming on board in 1985, McPhail was faced with downsizing staff while also reducing wholesale rates from 56 to 35

mills per kilowatthour. Under McPhail's leadership, Dakota Gasification Company, a subsidiary of Basin, purchased the financially troubled Great Plains Synfuels Plant in Beulah, N.D., in 1988. The synfuels plant was a wise acquisition. It provided $30 million in annual benefits to Basin and its members. By the close of the century, Basin owned and operated generating and transmission resources with a supply capacity of 2.3 million kilowatts.[30]

Since their beginnings, Tri-State and Basin aimed high and became major forces in the regional transmission system. However, not all ambitious co-ops could make it into the big leagues. In those cases, all Western could do was stand back and watch events unfold.

For Those No Longer with Us

Playing for high stakes, and losing, often results in a messy aftermath. In the mid-1980s, one of the most controversial co-ops in the history of the movement, Montrose's Colorado-Ute Electric Association Inc., worked alongside Western to complete the Bears Ears-Bonanza transmission line and the contentious 345-kV power line from Rifle, Colo., to San Juan, N.M. Despite its ambitions, within a few years the cooperative filed for bankruptcy.

From the 1960s to the 1980s, Colorado-Ute was intent on completing coal-fired plants at Hayden and Craig, Colo., to supplement its CRSP allocation. Colorado-Ute was so committed to the future of coal that it laid off its hydropower allocation from CRSP to use otherwise-surplus capacity from new coal-fired powerplants.

In its heyday, Colorado-Ute's service territory spanned half the state, including parts of metro Denver.

At its zenith in the mid-1970s, Colorado-Ute served 600,000 people in more than half the state, including parts of the Denver metropolitan area. The association's final financial report tallied net revenues of $198 million with sales of 6.4 million megawatthours.[31]

Colorado-Ute's tendency to attract controversy rubbed off on Western during one important project. From 1977 to 1987, Western worked with Colorado-Ute on the $100 million Rifle-San Juan 345-kV line. Then-Administrator Bill Clagett justified the construction of the line as a regional necessity: "We sell two times as much power in Colorado as we generate here. The existing 230-kV line was beginning to get pretty well overloaded. We needed this line to reliably perform those transactions."

Originally proposed as a double-circuit project, the transmission line created a controversy that divided residents across Southwestern Colorado, as an unlikely alliance of "conservative ranchers and long-haired activists" fought construction. Their unofficial leader was the Western novelist, Louis L'Amour, who vehemently fought the line passing over his property. The author of volumes celebrating America's mythic described the impact of the possible view out his back window: "I can't sit around trying to write looking at these monsters. That's what they (transmission lines) look like—monsters from Mars." L'Amour's monsters conquered on Oct. 14, 1987, as Western and Colorado-Ute celebrated the opening of the downsized single-circuit line.[32]

The Rifle-to-San Juan project was the last positive event for Colorado-Ute. The cost of building the line, with additional plant construction in an oil-shale economy gone bust, was

too much for the co-op. For most of the late 1980s and early 1990s, the financially beleaguered co-op talked merger with Tri-State and other interested G&Ts. In 1991, after three years of off-and-on discussion, Colorado-Ute agreed to a reorganization plan involving Tri-State and two private utilities, Public Service Company of Colorado and PacifiCorp, that divided the electric load, assets and liabilities. The agreement split Colorado-Ute's 100-MW hydro allocation from Western to between Tri-State and four former members of the defunct organization. Tri-State officially absorbed the association in April 1992.[33]

Among Western's closest working relationships are those rooted in the regional traditions of cooperation. However, most of the agency's customers are split between small-town America and the sprawling cities and suburbs of the modern West.

Municipals

A new kind of urban development flourished across the West during the 20th century. Sparked by the automobile, sustained by a network of highways and roads, the towns and cities of the West began to grow after the Second World War and never stopped. When Western began operations in the late 1970s, the West was reeling from the oil crisis and locked in a bust cycle. By the close of the century, new technologies and a more balanced regional economy brought more money and more people to the region. Approximately 35 million Americans receive their electricity from a public power utility. Of the 10 largest American cities with publicly owned electric utilities, three—Los Angeles, Sacramento and Omaha—are in Western's service territory. The majority of the nation's 2,000 publicly owned electric utilities only distribute power, but the larger municipals both produce and transmit electricity.[34]

During the last 25 years, municipals have represented the bulk of Western's power sales and the majority of its customer base. In 1978, Western's first Annual Report counted 210 municipals, or 46 percent of its overall customers. The importance of municipals never diminished, and by 2001 municipals comprised 42 percent of Western's customer base. In Western's service area, the top 25 municipal customers in both power revenues and energy sales are primarily in California. These include Sacramento, Santa Clara, Palo Alto, Redding, Roseville and Los Angeles. The municipal utility buying the most energy from Western is the Sacramento Municipal Utility District with an average of more than 2 million kWh purchased each year during the 1990s.[35]

Established in the early days of the 20th century, municipal utilities were a point of civic pride in the communities they served. Formation of community-owned utilities followed no set pattern in the West. Communities as different as conservative Los Angeles and pro-union Seattle both enjoy municipal power. California's capital, Sacramento, has a long history of power innovations and a tradition of fighting for the public's right to run its own power system.

Sacramento Municipal Utility District

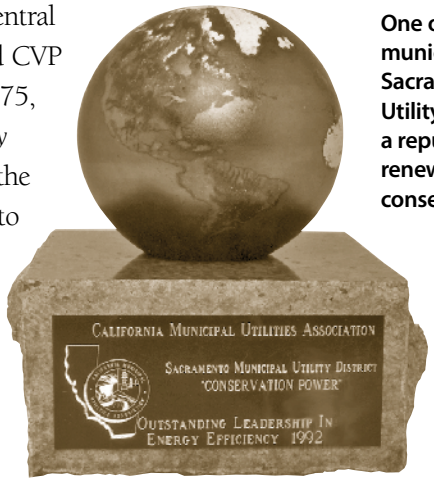
Sacramento had years of experience with electricity before the protracted birth of its municipal utility district in the 1940s. One of the West Coast's first demonstrations of the electric light came to Sacramento on Sept. 8, 1879. However, it would be a long time before all the city's citizens could economically enjoy the benefits of electricity.

During the early 1920s, the United States Congress passed legislation allowing cities to establish municipal utilities. The legislation established that citizens of a city could vote to establish nonprofit electric companies owned by the people. At the ballot box, Sacramento's

citizens supported creation of their own municipal utility district on July 23, 1923. Establishing a municipal utility district came with a set of hurdles; the first was finding enough money to buy the distribution system from the current owner, Pacific Gas & Electric Company. During the 1930s, a series of bond sales provided enough money to purchase the system, but PG&E fought the sale. After 12 years of court battles, in April 1946 a California Superior Court judge ordered PG&E to transfer title to Sacramento's electric distribution system for $13 million.[36]

SMUD grew to be a model of a successful municipal utility district. By 2001, SMUD generated, transmitted and distributed electric power to a 900-square-mile service area that includes all of Sacramento County and a portion of Placer County, Calif.

But Western and SMUD haven't always seen the issues from the same side. The nation's largest power marketing administration and one of the West's most influential municipal utility districts met head-on in court over one important point of law. Since 1952, SMUD held an allocation of 360 MW from the Central Valley Project, or approximately one-third of all allocated CVP firm power. Filed two years before Western's birth, in 1975, the *United States of America v. Sacramento Municipal Utility District* lawsuit resulted from an April 1974 decision by the Secretary of the Interior to increase rates for power sold to CVP customers. Because of the seasonal limit on the availability of water, and resulting energy from the CVP, Western had to purchase power to meet its contracts with CVP customers, including SMUD.



One of Western's largest municipal customers, the Sacramento Municipal Utility District has earned a reputation as a leader in renewable energy and conservation programs.

SMUD countered that its firm-power contract entitled it to purchase power at rates based solely on the cost of CVP generation. The utility refused to pay for its portion of the increased rates, and the United States filed a complaint asking for a declaratory judgment, or, an interpretation of the contract by the court. The contested money went into an escrow account pending resolution of the case.[37]

The district court supported Western's position that there were no Federal issues, granting judgment in favor of the government. On appeal, the Ninth Circuit reversed sending the case back to Sacramento for trial. Western's legal team determined that if the case had gone to court, and if SMUD won, other CVP customers would have had to pay a drastically increased rate to cover the purchased power costs that SMUD did not have to pay. Settlement was the best way out of the situation, and on April 15, 1983, both sides agreed to the following terms:

- dismissal of the lawsuit;
- extending SMUD's power contract through Dec. 31, 2004, instead of the 1994 expiration;
- giving SMUD a right to a percentage of CVP power until 2014;
- money in the escrow account reverted to SMUD; and
- an agreement by SMUD to pay the CVP composite rate starting in 1984, including purchase power costs, subject to certain provisions that expired in 1984 and 1988.

Western also agreed that SMUD rates would be based on project-related costs and not market based rates.[38] Administrator McPhail recalled that the settlement was equitable compared to potential court costs. His fondest memory of the entire litigation was meeting with SMUD chairman John Kehoe in California Congressman's Vic Fazio's office "to tell the press that the agreement was fair."[39]

Western and SMUD have also worked toward the future in other areas. In 1984, Western presented SMUD with a Conservation and Renewable Energy award for its photovoltaic development, energy-efficient building design and load management practices. SMUD also participated in the construction of the PV roof over Western's Sierra Nevada Regional Office building in Folsom, Calif. Over the years, the utility has earned a reputation as a strong supporter of alternative energy sources. In 2000, SMUD received an international Energy Globe Award for its continuing installation of photovoltaic systems.

While California rushed toward deregulation by the close of the 1990s, two notable city-run utilities, Sacramento and Los Angeles, avoided rolling blackouts and promoted conservation with "near-religious fervor." Mike Weedall, a manager with SMUD, told the *New York Times*: "Over the last 10 years, we have conserved enough energy to save us the equivalent of having to build one huge new powerplant. We like to say we built the conservation powerplant."[40]

As Sacramento was relatively unaffected by the rolling blackouts across Northern California in the winter of 2000, many pointed to Sacramento's transformation from private to public power 60 years earlier as an example to create a new generation of municipal utility districts. In the darkest days of the California power crunch, some of the leadership of the large California community to the west, San Francisco, spoke openly of forming a municipal utility similar to the model Sacramento had successfully followed for years.

Not every municipal burns the bright lights of the big city well into the night. In places like Grand Island, Neb.; Alta, Iowa; and Thatcher, Ariz., the pace of life is slower. In rural America, there is a great appreciation of the benefits of electricity. These citizens understand it is the lifeline that supports businesses, schools and homes. As a new century began, that lifeline was about to take another shape.

A Path of Uncertainty: Regional Transmission Organizations

The talk of the power industry during 2000 and 2001 came down to three letters–RTO, or regional transmission organizations. Western was not directly subject to the Federal Energy Regulatory Commission's Order No. 2000 that launched the age of the RTOs on Dec. 20, 1999. Nevertheless, Western voluntarily participated in efforts to develop RTOs within its service territory. By spring 2000, Western found itself involved in the formation of several proposed RTOs and monitoring the creation of others. They included: the California ISO based in Folsom, Calif.; the Desert Southwest Transmission and Reliability RTO, or DesertSTAR, in Arizona (later abandoned in favor of the for-profit WestConnect RTO); RTO West in Portland, Ore.; the Midwest Independent System Operator in Indianapolis, Ind. and the Crescent Moon RTO of Sioux Falls, S.D.

FERC strongly advocated RTO development, claiming they would be vehicles for improved system reliability, enhanced management efficiency and reduced operating costs. Order 2000 encouraged public utilities (investor-owned utilities with interstate transmission) to join RTOs by October 2000.

There have been some differences of opinion over Western's participation in RTO creation. Lloyd Greiner believed, "If Western is forced to unbundle the transmission and start providing it under one type of contract and generation under another type of contract, I think in the long-term that's a very good argument for Western to get out of the transmission business. If you turn the ownership of the transmission system to a single entity operated by a single board, but truly a transmission company, the Federal power will still be marketed. Western will still set rates and market the power, but the operation and control of the transmission could be turned over to a private entity. The customers will have to go to the generator to pick up the power."[41]

Western's administrator during the launch of the RTOs, Mike Hacskaylo, could not deny that this new wrinkle could alter Western's mission, but it was not in Western's and the other PMA's interest to block change. "In part, I think it (RTO formation) is (in Western's interest), because that's where the Secretary (of Energy) said we are going; that's the policy direction. But, also it is a model than can work, if the cost shifts are controlled."[42] Eliminating the practice of "pancaking" transmission rates also promises to make it more attractive to buy and sell power over longer distances.

Hacskaylo, in numerous settings, continued to remind both employees, customers and industry observers that Western would join an RTO only when it made business sense. In this vein, late in the summer of 2002, Western's Upper Great Plains Region began studying the costs and benefits to it and to its customers of joining MISO. Much of Western's survival over the past two decades is due to planning in cooperation with its customer base. It is a tradition that the agency will draw on as RTOs develop.

The integrated resource planning requirements encouraged Western customers to consider renewable energy options such as wind power.

Nature Lovers

Another Western program required the agency to walk a fine line between environment stewardship and selling the maximum amount of energy possible. On April 19, 1991, Western proposed an Energy Planning and Management Program to promote long-term energy planning and efficient energy use, and to support those policies through power resource allocations designed to enhance resource certainty and stability. Western's program required more than 600 publicly owned utilities to add renewable resources and energy efficiency to their planning procedures or face forfeiting their right to buy cost-based Federal hydropower.[43]

By legislative decree, the integrated resource planning feature of the EPAMP proposal was fine-tuned a year-and-a-half later. On Oct. 24, 1992, President George Bush signed into law the Energy Policy Act of 1992. Section 114 of the Act required Western's customers with long-term firm power contracts to prepare and implement individual integrated resources

plans. Western adjusted its proposed program to reflect the IRP provisions of this law. The IRP requirement brought changes to co-ops and municipal utility operations. Under IRP rules, utilities had to open their planning procedures to broader public involvement; compare traditional power sources such as coal-fired power plants to alternative sources such as wind, solar, cogeneration and energy efficiency; use those alternatives with the least economic and environmental costs; and monitor both economic and environmental performance. Western also decided it would use IRP principles when purchasing supplemental resources. This included accurately identifying all practical energy efficiency and supply resource options and full public participation.[44]

Administrator Clagett believed in IRPs. As the Federal proposal made its way into customer consciousness, on May 21, 1993, Clagett told a gathering of Western's managers and supervisors, "Sure, we've taken our customers further than they wanted to go. We've also been cited as forward thinking and innovative. We need to continue to be innovative and to take risks as we respond to changes in society and in our industry."[45] Clagett was clear that "utilities that don't do IRPs will not be prepared, economically or technically, for the changes of the future. Ask your customers what they want. Lead them further than they need to go."[46]

Western employees such as Clarence Council, right, met with customers to advise them on IRP requirements and ways to improve energy efficiency.

Western points to the example of the "friendly" IRP process as developed by the Municipal Energy Agency of Nebraska. Through its IRP, MEAN monitored its costs of purchased power, investigated emerging high-voltage AC and water-heating technologies and explored other ways to fine-tune the transmission system.

Getting customers to look at new ways of saving energy took a great deal of personal interaction. For half of the 1990s, Susan DeBelle criss-crossed Western's service area on behalf of Western's Energy Service Program. Her travels as an Energy Services specialist took her from the backroads of Montana to the boardrooms of the California power industry. DeBelle spoke to the many miles and moods the Energy Services Program covered, "The way we defined ourselves at the time was helping our customers help their customers save energy," she said. "For example, teaching our customers that when a new business came to town, or wanted to stay there, how you could help them become profitable. A supermarket could upgrade its freezer department so it saved energy. Freezers suck a lot of energy and the costs are passed on (to consumers in higher grocery costs). Supermarkets are highly competitive businesses—it's like one cent out of every dollar goes to profit. We helped customers understand the more you can help individual businesses, the more likely they can stay in town."[47]

Despite a changing utility industry and changing national budget priorities, IRPs continue to save kilowatthours and dollars and helped introduce more energy-saving technologies to the lives of the customer.[48]

An Out-of-Agency Experience

Dwindling budgets will make people and agencies forget about traditions and longstanding animosities in favor of working together for mutual benefit. By the mid-1990s, Federal dollars drying up pushed the Corps and Reclamation to fund the operations and maintenance of

Federal hydroelectric facilities. The ultimate beneficiary, the customer, also had to shoulder a greater funding burden to keep the projects running. Deregulation also pushed both agencies and their customers to reduce costs to keep in the race with private power.

Political mandates always direct the fortunes of Federal programs. To get things done that benefit both the agency and the customer, Western has made some very close friends who have not shirked from fighting some of the agency's battles.

The Voice and the Hands

Western also deals with trade and political organizations on a regional and national level. Two groups, the National Rural Electric Cooperative Association and the American Public Power Association, represent the concerns of preference power customers nationwide. Within Western's service area, two groups of note—Mid-West Electric Consumers Association in Wheat Ridge, Colo., and the Colorado River Energy Distributors Association in Tempe, Ariz.—act on behalf of power customers in the Missouri River and Colorado River basins respectively.

In the nation's heartland, the Mid-West Electric Consumers Association is the voice of rural electric cooperatives and municipal utilities in the upper Midwest. Created in 1958 in Sioux Falls, S.D., members of the fledging consumers group immediately went to work on solutions that persuaded the Bureau of Reclamation to extend its power supply commitments into the mid-1960s. Since that time, Mid-West Electric Consumers Association grew to represent more than 300 systems serving more than 3 million consumers in the Upper Great Plains.

Ken Holum was one of the giants of preference power in the Missouri Basin. Holum started, or had a role, in most major regional customer organizations in the Upper Great Plains. Holum was Mid-West's first executive director and later participated in the creation of the fossil-fuel cooperative organization, Western Fuels Association. He also took part in establishing East River Electric Co-op of Madison, S.D. Holum left the Upper Great Plains in the early 1960s as Assistant Secretary for Water and Power in the Department of the Interior during the Kennedy and Johnson administrations.[49] In a 1973 speech, he stated that the ties between consumers and Federal entities were a partnership that always needed improvement. "Without downgrading the Tennessee Valley Authority or the program of the Bonneville Power Administration or the working relationships between preference customers and Federal power marketing agencies in any other region of the country, I am convinced that we have the very best program right here in the Missouri River Basin—*when* we have realized its complete potential."[50]

Holum noted in his autobiography that the creation of Mid-West was a reaction to Assistant Secretary Aandahl. "In effect, each preference customer was told to go and see the friendly investor-owned utility in its area and begin buying kilowatthours," he said, adding, "The consumer-owned electric utilities knew that they had work to do—and they had to do it quickly."[51]

After Holum left the executive directorship of Mid-West, Fred Simonton served as a one-man organization for 22 years, from 1964 to his death in 1986. Simonton lobbied, spoke and battled on behalf of the Missouri River Basin's customers in the region and in Washington. Western's first administrator, Robert McPhail, said it was Simonton who encouraged him more than anyone outside of the Department of the Interior to take the reins of the new agency back in the summer of 1977.[52]

Under Simonton's leadership, the Denver-based Mid-West placed itself in the middle of a number of preference power struggles over the years. On its 25th anniversary, Simonton

recalled how Mid-West typified "creative regionalism at its best" when its membership first came together:

> *Lee Olds (Leland Olds, former chair of the Federal Power Commission and a champion of consumer-owned power) explained to Mid-West members in 1959 how the rural electric cooperatives, the municipal electric systems and the public power districts could get together and in partnership with the Federal hydro and transmission systems, supply themselves with electricity on a region wide basis.*
>
> *The pioneers in this program worked out an arrangement with the Bureau of Reclamation for supplemental power supply. This gave breathing room for preference customers to establish the Missouri Basin Systems Group, your planning organization with the Federal government participating. You established the Missouri Basin Systems Group and a pooling agreement between the Bureau of Reclamation and the preference customers.*
>
> *The pooling agreement made the Federal transmission system available for delivery of power generated by the preference customers, and for the integration of Federal hydropower with non-Federal steam. The pooling agreement, and now the established Joint Transmission System, permitted the construction of Basin Electric's first and second units—and the distribution of that power throughout the entire area served by the Bureau of Reclamation.*[53]

Ken Ziegler served for 29 years as Basin's manager of Communications and Government Relations. In 2001, he remembered Simonton in action, calling him "an outstanding servant of the people" who "would keep cajoling to get people to work together; he never gave up." According to Ziegler, those talents were particularly useful in bringing together co-ops and municipal power districts in the Upper Great Plains to voice their opinions on issues that would unite both sides: "The co-ops were much more disorganized as separate groups. The municipals had more structure. Fred got both sides to work together—he had the ability to convince the co-ops and the munis that the picture's bigger than the sum of the parts."[54]

Gary Williamson, general manager of Central Power Electric Cooperative of Minot, N.D., and former president of Mid-West Electric Consumers Association found that Mid-West evolved from a customer sounding board discussing rates and political squabbles to become a forum representing a number of different regional interests. "Mid-West has truly become the voice of the Upper Missouri Basin regarding resource issues, and aside from the millions of dollars our association has saved the consumers by holding off hydro rate increases and protecting the preference clause, the major accomplishment of Mid-West has been the forums created for a vocal and highly public exchange of information for the good of the customers."[55]

Williamson believed that Simonton's "gifted mind held together the complex and unseen web which represents Mid-West's solidarity and strength."[56]

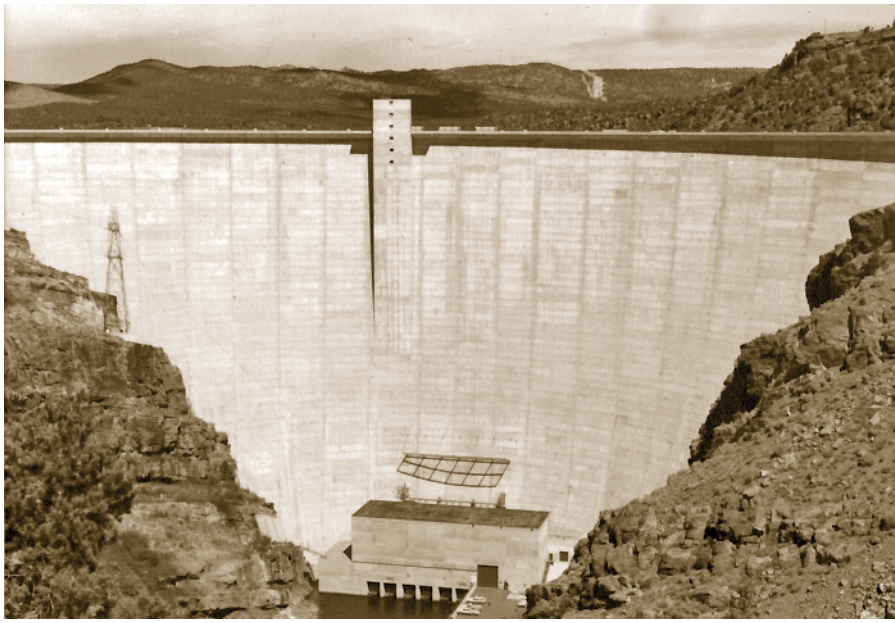
So close is the bond between Mid-West and Western that the only major rift in 25 years came early in the partnership. In 1978, Bill Clagett pushed for legislation creating a revolving fund for the new agency. Fred Simonton agreed with the concept of a revolving fund, but believed that the rest of the language in the proposed legislation was anti-preference customer. For two years, the difference of opinions played out in Denver and Washington before the revolving fund for Western died on the floor of the House of Representatives.

Since Simonton's death, Mid-West has fought two attempts to sell off the PMAs and a number of different assaults by Federal budget authorities and Presidential administrations seeking to alter Western's funding structure. Under the leadership of Tom Graves, it remains a strong gauge of customer opinion in Western's service territory.

Colorado River Energy Distributors Association

There's a long tradition of going for your guns over water in Arizona. Men have fought and died over the rights to a trickle of moisture at the bottom of an irrigation ditch. Fussing and feuding over the most precious resource of the desert escalated to the skies when power lines began to criss-cross the horizon.

Emotions over water and hydroelectric power run deep in Arizona, but in the other five western states represented by the members of the Colorado River Energy Distributors Association the desire to harness the rivers energy is equally as fierce. Las Vegas, Phoenix, and the up-and-coming communities of Western Colorado all want a piece of the Colorado River, and CREDA injects a note of unity among CRSP power customers in Colorado, Nevada, New Mexico, Utah, Wyoming and Arizona.



Flaming Gorge Dam is among the Colorado River Storage Project dams and powerplants providing energy to CREDA members.

According to one present at CREDA's creation, Leroy Michael of the Salt River Project, the association's original guiding principle was "maintaining the value of the hydropower resource for southwestern consumers under the existing marketing criteria."[57] Founded with a little more than a half-dozen members in 1978, by 2001 CREDA consisted of 155 voting members in six states in the Colorado River basin. CREDA members served nearly 3 million electric consumers in those six states. CREDA's members use more than 85 percent of the power produced by the Glen Canyon and Flaming Gorge dams and other features of the CRSP.

CREDA's current Executive Director Leslie James recalled that Western and CREDA shared "a checkered history" regarding rate increases to CRSP customers. James admitted that relations between the groups were never very good until 1992 when "a milestone" work program agreement served as the foundation for future CRSP power rates. She noted that since 1992, the rate package saved CREDA members money as less of the annual budget went toward litigation surrounding rate hikes.[58]

Similar to every other partnership over the years, not everything has gone smoothly between Western and CREDA. James observed that an unintended result of Transformation was friction between the two regional offices, the CRSP Management Center and Western's CSO regarding the administration of CRSP.[59]

Aside from the contentious nature of those wanting to take water and power from the Colorado, Michael recalled that CREDA served its members during later issues, including the

Utah Power & Light case and remarketing Hoover Dam power after the original 50-year contracts expired in 1985. "All this stuff began in the mid-1980s. The UP&L case and Hoover (remarketing) launched a set of forces that we continue to deal with today. Looking back on those times, I'm convinced that CREDA was the right thing to do."[60]

Avoiding Life Without Western

It remains an inescapable fact: the idea of privatizing, or outright eliminating, PMAs like Western is a recurring issue. After avoiding a Federal fire sale of the PMAs in 1995, Theresa Hall-Biescker, of the Mor-Gran-Sou Electric Co-op in the south central North Dakota town of Flasher, speculated what her customers would face if Western disappeared. "Mor-Gran-Sou currently purchases around 27 percent of our power from Western Area Power Administration, the regional PMA. If Western were sold, we would purchase this allocation from a different source, most likely Basin Electric Power Cooperative, of which we are members. In all likelihood, our rates would need to increase to accommodate this change."[61]

The welcome mat that once greeted the Federal government in the West has disappeared from most places. However, there remain strongholds of support for what the government did and continues to do. Dennis Hill is willing to stand with the Federal government. As the executive vice president and general manager of the North Dakota Association of Rural Electric Cooperatives, his state's future will forever be tied to the Federal presence. "North Dakota had the smallest population increase in the nation during the last census (2000). It is in virtual stagnation; the farm economy is suffering. There's growth everywhere else in the U.S.; in fact, there are some areas that wish that they would not grow so much."[62]

NDAREC is an umbrella organization of 17 individual distributor co-ops and five G&Ts. Hill referred to his organization's relationship with Western as "absolutely excellent. WAPA is a critically important long-term partner for the area's success."[63]

The winds of political change buffeted Western toward the rocks on more than one occasion during the past 25 years. Fortunately for Western, the customer helped right the ship when storms threatened to sink the PMA. The following chapter illustrates that in Washington, the customer has been the agency's best friend. ▼

CHAPTER FIVE:

Privatization Threats and Restructuring Challenges

Restructuring is a new playing field for old adversaries. It pits the forces of private power—the power industry and its representatives in Congress—against the defenders of public power—preference and municipal power customers and elected officials from states with strong public-power traditions. The specter of privatization has shadowed the agency for most its existence. Twice during its lifetime, Western has faced down this threat, also known as defederalization. By any name, it was the plan to sell Western and the other PMAs to the highest private bidder. For more than two decades, those pushing for deregulation of the power industry have sometimes targeted Federal resources management in general, and its sale of power, specifically.

Old Scores

Both private and public power successfully served their separate customer bases during the first years of the 20th century. During the 1900s, President Theodore Roosevelt championed Federal development of the nation's rivers for what some called "white coal," or hydroelectric power. Congressional authorization of Reclamation's first hydroelectric dam and powerplant, Arizona's Salt River Project, reflected Roosevelt's dynamism. The Federal government's success in "making the desert bloom" spurred the nation's interest in the hydroelectric potential of the Columbia, Colorado and St. Lawrence rivers and the Muscle Shoals region on the Tennessee River.[1]

Theodore Roosevelt attended the dedication of the first dam in the Salt River Project, which bears his name.

Roosevelt's enthusiasm for public control was only a momentary respite from corporate dominance of the nation's power system. From 1924 to 1934, private power holding companies bought out more than 1,500 municipal systems. Controlling most of the country's electrical market, a handful of powerful utility holding companies launched a campaign to discredit the "government in the power business," through sympathetic politicians and the press.

Typical of the anti-public power rhetoric during the mid-1920s were statements from Congressman Charles Eaton of New Jersey. In 1927, Eaton claimed that public power was a "Russian policy proposed by certain distinguished statesmen in Congress. A proposal for the adoption of a socialistic Russian scheme of having the Federal government go into the power business in competition with its own citizens in private fields." Statistics told another story; by the start of the 1930s, 16 holding companies controlled nearly 85 percent of the nation's supply of electricity.[2]

For publicly owned utilities, however, the darkness was just about to clear. In 1928, Congress ordered the Federal Trade Commission to investigate the political and financial practices of the private utility industry. In 1932, FTC's report charged the private power companies with abuse of the public's trust and unwarranted written and spoken attacks on the management of the nation's municipal utility systems.

Rural residents were anxious for the convenience of electricity in the 1930s.

Spurred by the election of Franklin Roosevelt, public interests launched their first counterattack against the "Power Trust" through passage of the Public Utilities Holding Company Act and the creation of the Rural Electric Administration, in 1935 and 1936. From the 1930s to the 1960s, Federal agencies like the Tennessee Valley Authority, U.S. Army Corps of Engineers and Bureau of Reclamation built dams and transmission facilities for the public good. The public watched the triumphs of TVA and the completion of engineering feats like Grand Coulee and Hoover dams.

After two decades of intense Federal development of the nation's resources, private industry saw a chance to reverse a trend with the election of Dwight Eisenhower as president in 1952. On Feb. 2, 1953, during his first State of the Union message, the new commander-in-chief shared his philosophy: "The best natural resources program for America will not result from exclusive dependence on Federal bureaucracy. It will involve a partnership of state and local communities, private citizens and the Federal Government, all working together."[3]

The Department of the Interior was Eisenhower's weapon against public power and Under Secretary of the Interior Ralph Tudor was one of the administration's lieutenants. According to a May 10, 1953, entry in his diary, Tudor wrote: "I wish they (Democrats in Congress) would realize that what we are doing is taking these things away from the bureaucrats and giving them back to the people. If there was a 'give-away' program in existence in this country, it has been during the last 20 years when the regime here in Washington has been 'giving away' the assets of the country for the benefit of a few."[4]

Some of Us Don't Want to Be Rescued

The Eisenhower Administration issued a strong signal to the power industry that it could come in from 20 years in the wilderness. Despite an ambitious start buoyed by pro-private rhetoric, Edward Weinberg, former solicitor for the Department of the Interior, recalled

that political expediency quickly changed some minds in the administration. "When the Eisenhower administration came in, they were going to clean house and change all the policies. Politically, the country wouldn't stand for it. After about six or seven months, the Eisenhower administration got over their antipathy to government development, and some of the biggest projects in the Bureau (history) were authorized during the Eisenhower administration; the Glen Canyon Dam and Pick-Sloan went ahead full speed."[5]

By the time of John Kennedy's election as President in 1960, public power was back on top. Powerful Western congressmen like Carl Hayden of Arizona, Wayne Aspinall of Colorado and the cadre of senators from the Pacific Northwest ensured that Federal dollars would continue to flow into their states to build high-profile projects like Glen Canyon Dam, and complete the Central Valley Project in California and Pick-Sloan Program in the Upper Missouri Basin.

Eventually, funding and popular support for the New Deal, Kennedy's New Frontier and Johnson's Great Society public works projects ran out of steam. By the 1970s, a new generation of Western irrigation and hydro projects faced strong opposition on two fronts: first, from a burgeoning environmental movement, and second, from another movement coming from the other end of the political spectrum. A philosophy based on distrust of all things Federal—a "sagebrush rebellion" found a home in the Rocky Mountains and Desert Southwest. *High Country News* captured the irony of one era evolving into another. "Had the Federal government managed its dams more prudently in the past, taxpayers and ratepayers might never have discovered a pervasive, socialized empire in the West, held together for the most part by conservative politicians fond of making speeches about the free market and rugged individualism."[6]

After decades of public support for Federal involvement in power, it was in an atmosphere of change that the newest PMA grew up.

Western on the Potomac

Not everything directing Western's course happens in its 15-state home base. The halls of Congress, the Department of Energy's Forrestal Building, or any place where the decision-makers get together in Washington, D.C., have provided backdrops for the agency's political triumphs and setbacks. From where the political action is, Western's eastern-most outpost monitors congressional action and serves as a liaison with DOE, Congress, the Federal Energy Regulatory Commission and other Federal agencies.

From the 1940s to the late 1970s, Bonneville Power Administration had established a strong political presence inside the Department of the Interior and had considerable influence on Capitol Hill. As a new agency, Western's approach had to be less proactive.

John DiNucci was named Western's first Washington liaison officer in 1978. The original incarnation of the office lasted only a few months, but DiNucci recalled how Western's presence out east began, "Once the liaison stuff evolved and we got the process started out here (Western's headquarters) on how to handle the contracts, all I handled was liaison. I think my main function was fireman putting out fires, because most of the people that went over to what later became the Office of Power Marketing Coordination were really not power-marketing oriented."[7]

The Department of Energy closed down Western's Liaison Office later in 1978. DiNucci and his staff joined DOE's Office of Power Marketing Coordination. DiNucci

In 1980, Assistant Secretary of Energy for Resource Applications Ruth Davis agreed that Western needed an office in Washington, D.C.

referred to the OPMC as "a dictating outfit. We had no jurisdiction over the PMAs. All we were there to do was to make sure whatever rate revisions they (the PMAs) needed, whatever contracts had to be executed, we had to expedite them."[8]

In early 1980, Western prepared a presentation for Assistant Secretary for Resource Applications, Ruth M. Davis, soon after her appointment to educate her about the agency's importance. After the presentation, Davis agreed that, because of the size of its service area and the complexity of its operations, Western should have representation in Washington similar to Bonneville. By August 1980, Western's Liaison Office was back in business. Administrator Robert McPhail selected Ron Greenhalgh as Assistant Administrator of Western's revamped Washington Liaison Office. Greenhalgh coordinated the agency's activities with other Federal authorities, served as Western's listening post and acted as a troubleshooter. The Washington Liaison Office underwent one more transformation by the early 1990s. In 1992, Western, Alaska, Southeastern and Southwestern power administrations consolidated their offices to present a united PMA front in Washington. Greenhalgh's successor as Assistant Administrator for Washington Liaison, Joel Bladow, managed the consolidated office.

The Money-Go-Round

Before Greenhalgh's arrival, Western had already found itself in the middle of a big political fight over an innovative financing plan and the concerns of the agency's most vocal preference customer group. In 1978 and 1979, Bill Clagett, fresh from seven years as Bonneville's liaison officer, advocated a revolving fund for Western and the other PMAs. A revolving fund would allow the PMAs the flexibility to schedule funding for operations, maintenance and purchase power, improving efficiency and economy. This method of repayment to the Federal Treasury adjusted the fluctuating need for power purchases based on water conditions without supplemental appropriations and allowed the PMAs to plan, operate and expend revenues on a more business-like basis.[10]

During the late 1970s, Western's sister PMAs, Southeastern and Southwestern, were under attack by the investor-owned utilities in their respective regions. After a Senate hearing held to save Western's chances for a revolving fund, the infant agency had to jettison its older colleagues, which "caused a lot of hard feelings," according to Greenhalgh. Bonneville's own revolving fund legislation, S. 734, the Federal Power Marketing Revolving Fund Act, caused additional hard feelings among the preference community outside the Northwest United States.[11] Although he personally favored a revolving fund, Fred Simonton of Mid-West Electric Consumers Association could not live with "provisos" he believed would take from the customer "the authority to purchase power and rent transmission capacity" and force Western's ratepayers to fund an additional $1.6 million in interest. Simonton believed S. 734 was "a terrible raid on preference" and came out against the bill by creating the National Preference Customer Committee.[12]

The debate over the revolving fund continued for two years. By 1980, Western had its own separate legislation making its way through Congress. The influential Senator from Washington, Henry "Scoop" Jackson, sponsored Bonneville's legislation and "in retaliation"

according to Greenhalgh, bottled up the Western revolving fund. "He poked Fred in the eye," he added. "Scoop wasn't opposed to it (Western's revolving fund), but he wanted to teach Fred Simonton a lesson." Western's legislation made its way through the Senate but died during a lame-duck session between the administrations of outgoing President Jimmy Carter and incoming President Ronald Reagan. Despite the disharmony, Greenhalgh felt things worked out for the best, "WAPA hasn't suffered any legislative defeats with the exception of the revolving fund, and that was probably the best thing that ever happened to the customers."[13]

The tussle over the revolving fund was the first of many battles Greenhalgh saw over the next two decades in Washington. His experiences convinced him that preference customers must accept that they're outnumbered and try to pick their battles with private sector forces: "Preference customers are like the colonists in the Revolutionary War. The other guys march around in the redcoats with the good equipment. We get to hide behind rocks and wear whatever we want to; shoot whatever we wanted. We became very adept guerillas."[14]

Ron Greenhalgh served in Western's Washington Liaison Office in the 1980s.

Greenhalgh's Washington odyssey may not have ever happened if the story had gone according to the script. His career as an electrical engineer with Reclamation included stops in Salt Lake City and Grand Coulee Dam before becoming Power Systems branch chief in the Central Valley Coordinating Office in 1972. Joining Western's Sacramento Area Office in 1979, he oversaw the power dispatching functions of the Central Valley Project. Those duties seemed minimal compared to what awaited almost 3,000 miles to the east. As a Reclamation employee, Greenhalgh admitted to a lack of enthusiasm for the nation's capital after his first detail to Washington: "The main thing I learned in Washington during the training program was that I never wanted to go back to Washington."[15]

However, Bill Clagett was persistent and persuaded Greenhalgh to take the job. After he won the position, Greenhalgh recalled the advice he received from Western's Administrator, Robert McPhail. "After it was advertised and I applied, McPhail told me I'd been selected. He gave me a little pep talk that sometimes good engineers don't always make good administrators or good politicians. I've never been quite sure what his message was; I guess it was, OK, he'd given me latitude to fail."[16]

Greenhalgh's first day on the job, Aug. 24, 1980, came five months before a change in administrations and attitudes toward the PMAs. The incoming administration of Ronald Reagan soon decided that Western and the other PMAs were prime examples of functions government should not do.

Grace, But No Favor

In more literate times, books could be the flashpoints of great controversies. In early 1983, the President's Private Sector Survey on Cost Control, or the Grace Commission Report, launched two decades of debate over the privatization of the PMAs. Named for the shipping magnate who headed the commission, J. Peter Grace, the report contained many troubling conclusions for public power. The most worrisome was the recommendation that the Federal government should begin "an orderly process of disengagement from participating in the commercial marketing" and sell the Federal government's "power-producing assets."[17]

According to the report, selling the PMAs would eliminate current operating deficits, avoid additional capital expenditures and give the government a lump-sum sale price. Besides auctioneer, the Grace Report also played broker. The commission suggested a list of potential buyers for the PMAs, including state and local governments, cooperatives, investor-owned utilities or other private firms looking to join the power business. Finally, the report concluded any future development of hydropower would be "financed from non-Federal sources."

President Ronald Reagan formed the Grace Commission, which recommended privatizing the power marketing administrations.

The Reagan Administration estimated that the sale of Federal hydro generation and transmission facilities would return $25 billion to the Treasury over five years. A bonus would come in the sixth year after the sale of those assets as a reduction in the net outlays for capital investment. The interest earned on the resulting cash flow would produce an estimated $5 billion in savings and revenue for the Federal Government, the report authors projected.[18]

In a report issued Feb. 19, 1985, the United States General Accounting Office took issue with the Grace Report's estimated value of the PMAs, but agreed with the Commission's recommendation to sell Western and the other four agencies. The Department of Energy followed the lead of the President, and in a position paper, DOE planned "to pursue defederalization through an open process which fully involves and seeks the views of all concerned groups and individuals.... Every attempt should be made to minimize the impact on existing power rates."[19]

Congress was under the spell of budget cutting during 1985, as the administration sent to the Hill a finance package designed to trim more than $40 billion from the national deficit. Two years after the Grace report was published, Reagan's budget team remained convinced that hydropower did not generate enough revenue for the Federal Treasury. In 1985, Western sold its firm hydropower for less than a cent a kilowatthour. In comparison, electricity generated by oil-fueled powerplants cost about five cents a kilowatthour. Looking at the numbers, Ron Greenhalgh told the *Denver Post* in December 1985 that if the government sold the power marketing administrations, it was a foregone conclusion that Western's former customers would have to charge their consumers higher rates.[20]

On Feb. 5, 1986, Reagan implemented the aims of the Grace Commission in his FY 1987 budget. Following administration dictates, Western's FY 1987 budget justification submitted to Congress included seeking a fair return to the Federal taxpayers from the privatization of the PMA assets, recognizing the benefits enjoyed by existing customers and providing appropriate protections for the personnel benefits of Federal employees.[21]

Reagan's proposal expected to sell the five PMAs to private interests by FY 1991. The Reagan administration first put Bonneville on the block, pushing for a quick sale by Oct. 1, 1987. However, not everyone could support the sale. California Congressman Vic Fazio stated on the floor of the House of Representatives that if the government auctioned off the PMAs, "Employee morale would be damaged." Fazio added that the proposal had already taken its toll on the Department. "The proposal to sell the PMAs has resulted in the abrupt resignation of the DOE's senior power marketing attorney, Richard K. Pelz, who said the proposal to sell the PMAs is 'economically disruptive, fiscally irresponsible, administratively harmful and intellectually dishonest.' We need people in Government who are motivated by a sense of service, since their pay falls far behind that of people with comparable responsibilities in the private sector."[22]

Despite such feelings, Western followed the Reagan Administration's wishes. In 1986,

Western's assistant administrator for Engineering, Tom Weaver, led an interdepartmental study regarding the proposed sale.[23]

National and local preference groups swung into action. The American Public Power Association represents nonprofit, community-owned electric utilities across the country. APPA countered the Administration, arguing that sale of the PMAs would not reduce the deficit, and privatization would undermine the utility industry's stability.[24]

During 1986, reaction from customers to President Reagan's plan combined the heartfelt with the heated. An illustration of the depth of customer resolve came from Hill County Electric Cooperative in Northern Montana. In a letter dated May 20, 1986, 369 members of the co-op reminded President Reagan and their congressional delegation, "Since the private utilities are allowed to operate in the retail marketplace without competition, the only meaningful measure of their efficiency is the yardstick provided by the PMAs and our rural electric cooperatives. The sale of the Federal transmission and hydropower generation facilities in our area will eliminate competition and put us once again at the mercy of the Montana Power Company for all of our wholesale power and thereby destroy the only incentive they have to operate with some degree of efficiency."[25]

On the floor of the House of Representatives, Democrat Tom Daschle complained that Reagan's proposal could not have come at a more inopportune time for the people of South Dakota: "The dramatic rate increases which would follow the sale of WAPA could not come at a worse time, as our farms and farm communities are suffering the harshest economic crisis since the Depression."[26]

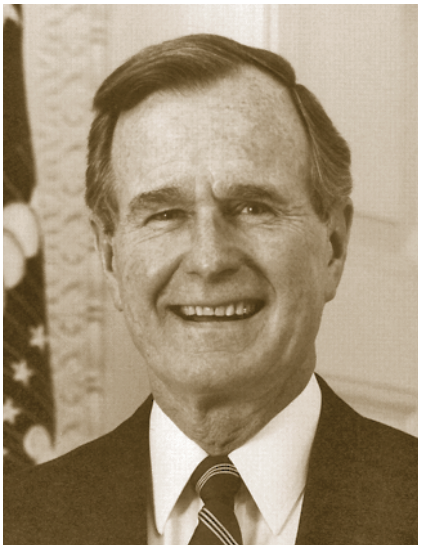
As the Congressional session wore on, it was clear there was no strong support for privatization. On July 2, 1986, Reagan realized the prognosis and signed a supplemental appropriations bill (H.R. 4515) into law. The law prohibited the Federal government from spending money to draft PMA divestiture proposals. Clagett was cautious in his reaction: "While asset divestiture is now a moot issue—and I don't want to debate the merits of the proposal—Congress sent us a message by prohibiting the expenditure of Federal funds to study it. I think the message is that the power marketing administrations are accomplishing their missions."[27] The issue hibernated for almost a decade, until 1995, when a Democrat took up where Reagan left off.[28]

Unleashing the PMA Pit Bulls

Signed by President George H. W. Bush, the Energy Policy Act of 1992 signaled round two of the privatization fight. Bush's successor, Bill Clinton, threw his support behind an idea that was an anathema to the New Dealers of his own party—sell the Federal power program to the highest bidder.

In early 1995, the Clinton Administration pushed for a sale of Southeastern, Southwestern and Western in the FY 1996 budget. By May, DOE forwarded draft legislation to Congress proposing sale of the three PMAs to their customers at a discount. The Clinton Administration publicly supported a sale, stating that the Federal government should stay out of the power business.

The Clinton Administration's perceptions were at odds with the facts. By the mid-1990s, most of the nation's consumer-owned electric systems had repaid a major portion of the original investment with interest. Many opponents argued that the sale would dramatically increase power rates by as much as 20 percent. During that time, in one key preference state, South Dakota, rural electric systems paid Western about one and a half cents for wholesale



President George H.W. Bush signed the Energy Policy Act of 1992.

electric power while the area's largest co-op, Basin Electric, wholesale rates averaged 4.6 cents—a difference of 207 percent.[29]

Western's administrator during the second battle of the PMAs, J. M. Shafer, maintained his confidence as the fight raged around him. "Selling the PMAs never was a real threat. I felt part of the reason that some people wanted to get rid of the PMAs was that they were too complicated, and a lot of Congressmen did not understand how they operated."[30]

Behind the big battles over the control of the nation's power supply are the small, personal stories detailing the importance of electricity in keeping communities alive. In the 1995 fight, David Holmgren, the town mayor of Henning, Minn., wrote to Energy Secretary Hazel O'Leary regarding the life-and-death nature of selling the PMAs on small-town America: "We are one of the 47 cities in Minnesota that rely on Federal hydropower. The Eastern Pick-Sloan Federal facilities (of which we are a part) has repaid approximately 40 percent of the original investment with interest. Sale to a private party could wipe out our equity contribution and increase electric bills for homes, businesses and industries. In our small city of 732, we are struggling to maintain businesses, schools and residents. A raise in the cost of this valuable commodity could be devastating."[31]

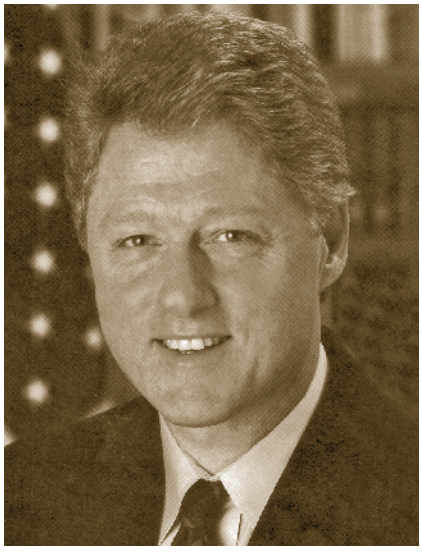
That letter from Henning, Minn., joined a chorus of pleas from places like Weaverville, Calif., Alda, Neb., and Pompeys Pillar, Mont. In the lost, forgotten places of rural America, and in Washington, anti-privatization forces sported buttons and promotional material identifying them as "PMA Pit Bulls," reflecting the ferocity with which they would defend the Federal assets. Arriving in Washington by the sackfull, in language eloquent and sentiments straightforward, the customer letters reminded Congress of the error of selling Western.[32] Because of their efforts, the 1995 mobilization to end Federal power advanced only a few steps before dying in its tracks.

In the early 1990s, Ron Greenhalgh retired from Western and went to work as chief engineer with NRECA in Arlington, Va. He remembered the 1995 fight from a different perspective than the fight a decade earlier and concluded this struggle would be the last for a while. "Selling off the PMAs won't happen—not with the makeup now; neither side has enough votes, so it's going to be a standoff. In addition, a lot of people remember the 1995 go-round and don't want to go through that again.... A Democratic Administration proposing and Republican Congress disposing means that selling the PMAs was not going to happen."[33]

After the smoke cleared in Congress, in the summer of 1995, President Clinton visited Montana. Yellowstone County Commissioner Bill Kennedy put the president in the hot seat: "Why would your administration advocate selling, at fire-sale prices, agencies that do not contribute one dime to the deficit, but conversely contribute to deficit reduction each year?"[34]

Clinton attempted to explain his deeds:

The Office of Management and Budget, under my administration and under previous Republican administrations, has always routinely tried to put something on this in the budget. When they brought it to me, I said, 'I don't necessarily believe this is going to save money. I will approve this only if you do two things. One, you have to put a lid on how much rates can go up, which makes it less attractive, obviously, to private utilities. And two, there has to be an extraordinary effort to let the public power authorities buy the capacity first.' I do not believe we should sell it and get a one-time gain out of it if it's going to explode electric rates in Montana or in any other state.[35]



President Bill Clinton initiated the second round of the privatization battle.

With that, the sale of the PMAs was dead—for the moment. Some in Congress spent the latter half of the 1990s examining and debating the fate of the PMAs. Hearings conducted by Rep. John Doolittle's House Resources Subcommittee on Water and Power resulted in the General Accounting Office cranking out volumes of reports on PMA rate-setting and business practices.

However, the Debate Continues

For the rest of the 1990s worries continued over the nature and future of the PMAs in a changing electric utility market. These concerns include that if the government sells its hydro plants, the new owners would have to finance these projects at today's interest rates and the cost would go directly to the consumer. In addition, there is an east vs. west aspect to this debate.

The July 25, 1998, *Congressional Quarterly* opined that "Opposition (to deregulation) came from Westerners fearful of losing cheap hydropower to other regions."[36]

After two attempts to sell the PMAs, the debate over the future of Federal transmission reverted to soundbites. Some made the case that the preference clause had outlived its usefulness. Congressmen Bob Franks (R-N.J.) and Marty Meehan (D-Mass.) stated in the November 1999 *Public Utilities Fortnightly* that Microsoft billionaire Bill Gates "pays an electric bill every month

subsidized by the rest of us," since the Gates estate is on land served by the Bonneville Power Administration. The duo continued their attack by saying that cost-based rates are "pernicious because they encourage waste and discourage efficiency. They lead to unnecessary pollution. They distort the market. And they often reward unneedy consumers."[37]

The same year Franks and Meehan attacked the PMAs in print, Senator Jeff Bingaman (D-N.M.) defended Western's mission of supplying low-cost power to his state. In 1999, New Mexico ranked 49th among 50 states in per-capita income: "In the rural parts of our state, we depend on Federal power to help keep costs down. Electricity is always more costly to deliver to rural communities, but this Federal power helps keep the price as low as possible. Reliable and economical electric power is a key ingredient to attract new businesses and industry to a community."[38]

At the close of the century, there were 230,000 rural electricity customers in New Mexico. Rural customers in New Mexico get 25 percent of their power from the cheaper Federal supply. The cost of their power from Western was 2 cents per kilowatthour—almost half the price of other power generated in-state by coal or natural gas. That difference saved the average consumer in rural New Mexico between $30 to $60 per year.[39]

A Second Front

As defederalization was the mood in Washington, local and state officials in Western's service territory publicly expressed their own post-PMA plans. In 1984, the Western Governors Association explored a proposal that would increase Federal power revenues with a surcharge to provide immediate funding for future water projects. Colorado's Governor Richard Lamm proposed a surcharge on all Federal power marketed in his state with the money going to a separate fund for frontend financing earmarked for future water projects.

Western' senior managers considered the various state propositions and took an even-handed approach. In 1984, Bill Clagett told a customer meeting in Las Vegas that Western had no argument with the concept of upfront financing. But, he added, "we also think that it is unfair for the Federal power allottees, who have been providing repayment for the original projects from the very beginning, to bear the entire brunt of new construction of projects from which they will receive no benefit. If we were to follow the Colorado governor's suggestion, then customers of Tri-State G&T, Platte River Power Authority and the City of Colorado Springs, just to name a few, would have their power rates increased while neither water, state coffers or investor-owned rates are affected."[40]

In 1986, Governor Lamm's successor, Roy Romer, pushed for the 15 states under Western's authority to buy the Federal agency. On the campaign trail that year, Romer said it was "an opportunity to get a perpetual money machine." Romer believed that his offer kept the transmission system in regional hands: "If it's going to be sold, we ought to get right up there and say, 'We'll buy it.' After all, it's our water. We ought to try and retain the resources of the West for the people of the West." Federal hydropower projects in Colorado yielded about $60 million a year. Romer figured that $27 million was needed to pay costs, leaving a $33 million surplus.[41]

Loveland Area Manager Mark Silverman disagreed with Romer's proposal and math: "Northern California can't even agree with Southern California. Just think of 15 states trying to agree on how to market Federal power."[42] Romer later went on to serve three terms as Colorado's governor, but after the defeat of privatization in Washington, his proposal died.

Sometimes the IOUs have tried to go through the backdoor to influence the Federal power marketing program. In 1989, during the customer comment phase for the 1994 marketing plan of Central Valley Project, Pacific Gas and Electric Co. proposed that Western sell power to nonpreference customers based on market costs while allocating Federal power to customers through an auction or bidding.[43] PG&E also pressed for selling Federal power to a wider range of customers, including nonpreference customers, and demanded that the agency place provisions into post-1994 contracts requiring reopening to confirm subsequently changed laws, regulations or executive orders relating to pricing and delivery conditions.[44]

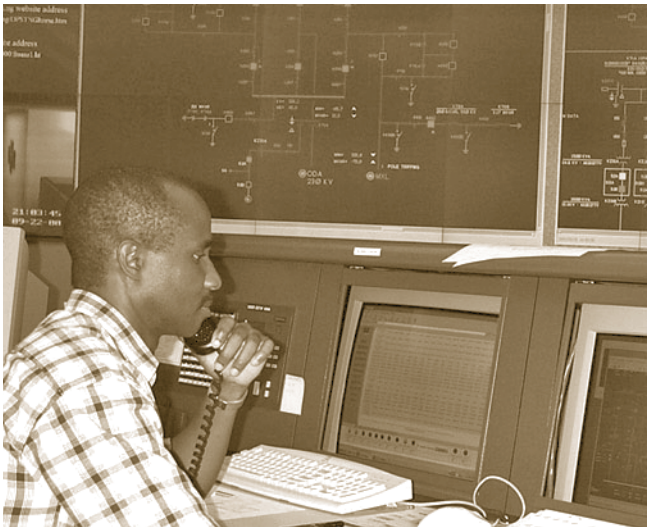
By the close of the 1990s, everything was in place in one important state in Western's service area to usher in a new day of customer choice and low rates. However, a funny thing happened on the road to deregulation in California. In 2000, in this bellwether state, a bell tolled that stopped deregulation in its tracks.

Sweating in the Dark: A California Summer

The past speaks lessons that the present often ignores. Public utilities first came to California on July 11, 1887, when the city of Alameda, on the east side of San Francisco Bay, bought out a local electric company incapable of offering adequate service to its customers. By the close of the 19th century, nine city-owned utilities dotted the state. The resolve of the Alameda city fathers to change a system that did not work provides an example to today's power customers that the people can still control the nation's resources.[45]

California was supposed to be an early, shining example of deregulation. Within two years, it served as a lesson of what can go wrong. Initiated in 1996 through the passage of Assembly Bill 1890, the nation's trendsetter launched the first major experiment with market-based electricity rates. The state's big three investor-owned utilities (PG&E, Southern California Edison and San Diego Gas and Electric Company) served 27 million customers statewide, with the exception of Los Angeles, Sacramento and a handful of other cities with publicly owned electric utilities. Under the state's deregulation plan, the IOUs would sell most of their powerplants to independent energy generators, and those leaner generators would produce power more cheaply than the monopolies. The utilities would buy power from the independents, from one another's nuclear and hydro plants and out-of-state generators through a marketplace called the California Power Exchange.

By the summer of 2000, the state faced all kinds of chaos after prices shot up as a result of an imperfect state law, a booming economy and below-normal hydropower production. The marching band of deregulation stopped dead in its tracks when retail customers around San Diego opened their monthly power bills and discovered charges triple the previous summer's rates—as much as 21.4 cents per kilowatthour.



The California energy shortages of late 2000 and early 2001 kept dispatchers like Francois Montoute scrambling for ways to keep the lights on.

Higher bills were only an indication of bigger troubles ahead. The late fall of 2000 saw a transmission version of a multi-car collision on Interstate 5. In California, demand for power has always been high, but no new construction of generation facilities increased the state's reliance on imported power. Then nature took a hand, as a lingering drought in the Pacific Northwest tightened hydropower generation.

The leaders of the state, like many of its citizens, watched as the blackouts rolled. On the state's home page, "California's Energy Challenge," the government urged Californians to "Flex your Power" by minimizing energy use during the peak demand hours of 5 a.m to 9 a.m. and 4 p.m. to 7 p.m. by turning down thermostats to 68 degrees or below and turning off computers at the end of the workday.[46]

As the summer of discontent gave way to a winter of chaos, Ron Greenhalgh surveyed the situation:

> *California wouldn't listen to anybody. They got on this ideological bent. You can't have a free market when you're short of resources. When your demand exceeds your supply, a large part of your supply is coming from outside of the state, you don't have any control over those people who have been traditionally selling it to you and they can now get a better price for it elsewhere, or hold you up for a higher price.*

The only way they are ever going to solve that problem is become generation independent. The worst thing to me is, what generation they did have they sold it to outside forces they had no regulatory control over, like Duke Power Company (a large IOU based in the Southeast U.S. involved with utilities nationwide). Duke's attitude is 'Hey, we didn't buy those plants with a service attitude, we bought those powerplants to make money.' They freely admit that the only people they have in mind is their stockholders.[47]

Swearing in the Dark: A California Winter

Western's former Sierra Nevada Regional Manager Jerry Toenyes ticked off all the reasons why the first 60 days of 2001 in California were unlike any other two-month period in the history of the power industry:

In addition to the IOUs being on the verge of bankruptcy, we have seen the PX's (California Power Exchange) demise; the Energy Secretary's emergency order requiring generators to sell power into California; historic low levels at Columbia River reservoirs and reduced available generation; significant rate increases spreading throughout the West; continuos Stage 3 alerts; two rolling blackouts; increased generation at Glen Canyon Dam to avoid further blackouts; a temporary restraining order to force generators to keep producing energy; replacement of the CAISO board with gubernatorial appointees; the California governor's Executive Order requiring the state to purchase energy to keep the lights on; and the governor's proposal to buy the IOUs' transmission to generate revenue for the IOUs to pay their debt.[48]

From September 2000 to February 2001, Western and Reclamation shored up California's dwindling power supply twice in five months. CAISO praised both agencies for delivering 330 MW on Sept. 18, 2000, and 350 MW of emergency assistance from Glen Canyon Dam during a Stage 3 power shortage on Feb. 15 and 16, 2001. Within a half-hour of the ISO's emergency declaration, Western and Reclamation worked to provide power to worried consumers.

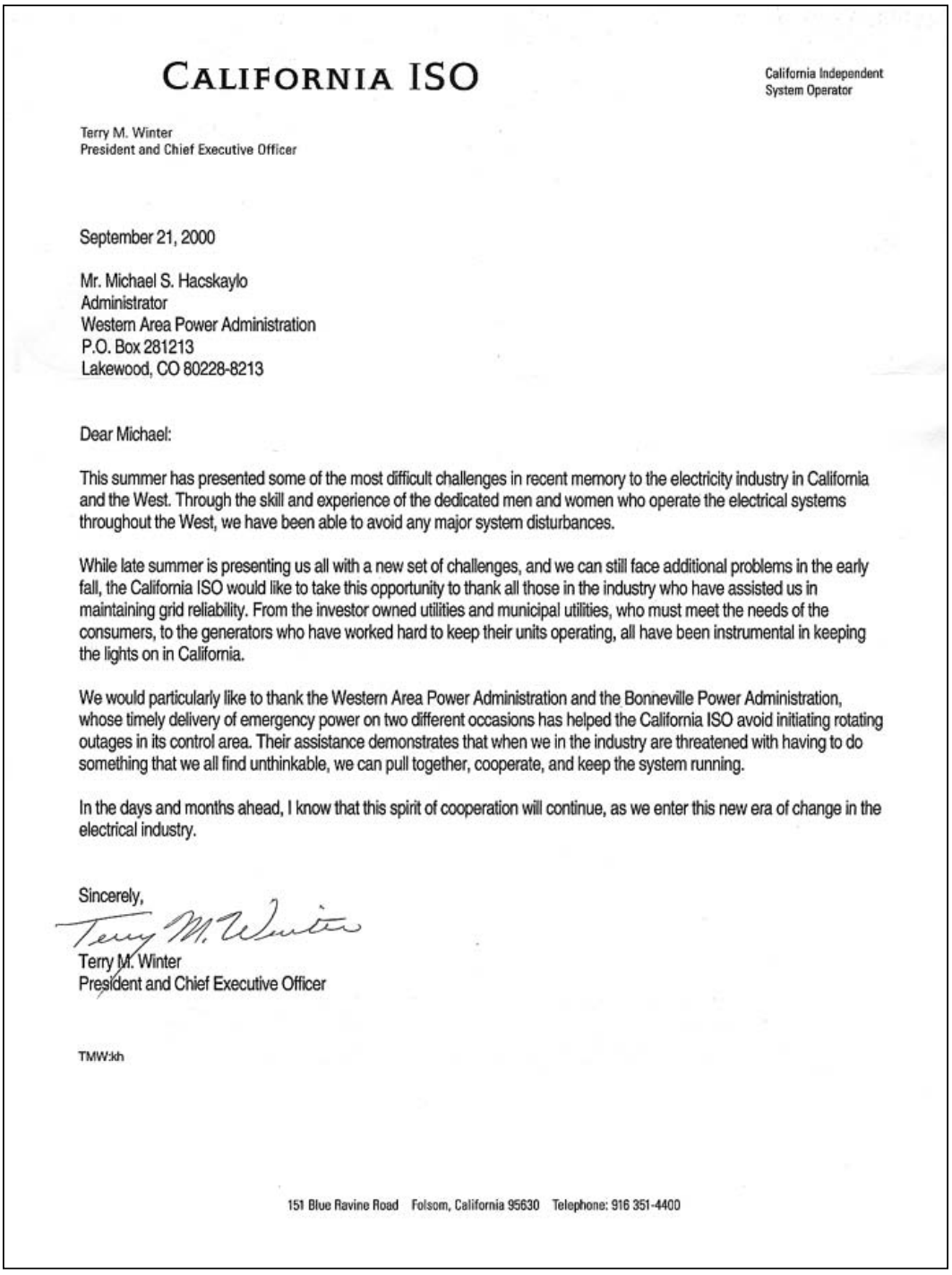
Dan Ogden, a lifetime veteran of Federal power, offered this observation, "The failure of deregulation in California will bring a resurgence of interest in public power. The California experience will weigh heavily on the public mind. At some point, California will have to reregulate."[49]

A contemporary of Ogden's, Gus Norwood, chronicled the history of the nation's power marketing administrations and served as the administrator of the Alaska Power Administration during the 1960s. Looking forward, the 85-year-old Norwood counted heads when predicting the future of the PMAs, "Politically, you take all the states. You have a majority of the states in the Senate covered by the PMAs. The senators don't want their dog kicked around. Whatever changes deregulation brings, if it comes, the PMAs will remain as 'A Friend of the Court.'"[50]

Not All the Trouble is in California

The media's attention on California's rolling blackouts ignored another state in Western's service area. At about the same time as California's electricity market was going haywire, the Big Sky Country of Montana went through its own deregulation pangs in comparative silence.

During the mid-1990s, the state's largest utility, Montana Power, offered some of the West's cheapest power. After deregulation in 1997, retail prices dropped for a brief period before wholesale electricity prices jumped from $30 to $150 to $300 a MWh. After customers got over the shock of receiving their monthly bill, the state legislature took up the issue of reregulation of rates. In May 2001, the Montana Public Service Commission reasserted its authority to regulate Montana power rates.[51]



CALIFORNIA ISO

California Independent System Operator

Terry M. Winter
President and Chief Executive Officer

September 21, 2000

Mr. Michael S. Hacskaylo
Administrator
Western Area Power Administration
P.O. Box 281213
Lakewood, CO 80228-8213

Dear Michael:

This summer has presented some of the most difficult challenges in recent memory to the electricity industry in California and the West. Through the skill and experience of the dedicated men and women who operate the electrical systems throughout the West, we have been able to avoid any major system disturbances.

While late summer is presenting us all with a new set of challenges, and we can still face additional problems in the early fall, the California ISO would like to take this opportunity to thank all those in the industry who have assisted us in maintaining grid reliability. From the investor owned utilities and municipal utilities, who must meet the needs of the consumers, to the generators who have worked hard to keep their units operating, all have been instrumental in keeping the lights on in California.

We would particularly like to thank the Western Area Power Administration and the Bonneville Power Administration, whose timely delivery of emergency power on two different occasions has helped the California ISO avoid initiating rotating outages in its control area. Their assistance demonstrates that when we in the industry are threatened with having to do something that we all find unthinkable, we can pull together, cooperate, and keep the system running.

In the days and months ahead, I know that this spirit of cooperation will continue, as we enter this new era of change in the electrical industry.

Sincerely,

Terry M. Winter

Terry M. Winter
President and Chief Executive Officer

TMW:kh

151 Blue Ravine Road Folsom, California 95630 Telephone: 916 351-4400

Darling to Pariah

In February 2001, Phoenix's *Arizona Republic* newspaper capsulized the future of electric deregulation, "In less than a year, electric deregulation has gone from being the darling of consumers, politicians and business leaders, to pariah."[52]

The events of winter 2001 culminated in a PG&E filing for bankruptcy on April 6, 2001. The only certainty in this morass of confusion is that by the time of Western's 25th birthday, the power industry in the Golden State will have gone through a few more seismic shocks.

After seeing where the agency has been politically, Ron Greenhalgh concluded that Western can weather, and survive, the storms on the way to where it is going, "Western doesn't need to carve out a role. It's got a role. It's an anchor in a safe harbor. As we really learned . . . in California, there's no substitute for stable rates. I heard this recently and I believe its true— 'Public dissatisfaction trumps economic theory.'"[53] ▼

CHAPTER SIX

'The least most objectionable solution': Regulation, Legislation and the Environment

Since its birth, Western has faced numerous practical decisions brought by the rise of the environmental movement. Guided by a new generation of Federal policy and regulation, Western implemented policies that balanced resources management with customer demand.

How Green is Our Valley?

The early 20th century environmental movement thrived on the teachings of John Muir and the public declarations and actions of Gifford Pinchot and Theodore Roosevelt. However, two world wars, a national depression and a post-war economy driven by increasing consumption pushed the conservation movement from the top of the national agenda to the history pages. From the 1920s to the 1960s, few focused on environmental issues.

In the early 1960s, Rachel Carson's book "Silent Spring" alerted the public to pesticide residue in the soil, the increasing lack of breathable air and toxic drinking water. The nation's mass media spread Carson's homespun message of conservation with a warning that mankind was sowing the seeds of its destruction. In the years that followed, stories of rivers stilled by sludge and birds choking in oil created public anxiety. Public anxiety galvanized Federal and state representatives into legislative action by the late 1960s and early 1970s, resulting in numerous laws directing regulatory management of the environment.

"Silent Spring" raised public awareness of environmental impacts to wildlife, giving new life to the environmental movement in the 1960s and 1970s.

The new environmental legislation opened unfamiliar territory for Federal agencies charged with executing these policies. Born in 1902, the United States Bureau of Reclamation's mission was to dam the rivers and domesticate a West still wild. Early pieces of legislation establishing Western's transmission and project repayment tenets—the 1902 Reclamation Act and the Reclamation Project Act of 1939—gave the Federal government boundless latitude to harness rivers and string transmission lines. The new environmental laws and policies altered the mission of Reclamation, and subsequently Western, to create sweeping masterplans, leaving both agencies to maintain existing facilities and works.

Reclamation's pass of the power torch to Western in the 1970s came during an unusual period in our nation's history. Almost immediately after passage of the 1977 DOE Act, the legislative branch of the Federal government pushed Western "to take the lead in conservation implementation."[1]

In 1978, Gary Frey came from Reclamation to Western as the agency's first Director of Environmental Affairs. Almost immediately, Frey realized how environmental issues would influence the new PMA's mission: "The environmental office had to be familiar with various elements of the agency. The office impacted nearly every element of the agency and its functions."[2]

In late 1979, the General Accounting Office stated that Congress should "relieve WAPA of its charter responsibility to encourage widest possible use of electricity at the lowest possible cost and direct it to undertake programs to examine the most appropriate structure of its rates to encourage conservation."[3] Young enough not to carry any baggage, yet wise enough to take a hint, Western set about creating a conservation program amenable to both customers and Congress.

Protecting rural economies and ensuring the stability of the transmission grid placed Western center stage in an environmental juggling act between customer demands and resource management. This act played differently on the region's many stages—ranging from the strict environmental statutes in California to Upper Great Plains customers wanting to get the most of their substantial coal reserves.[4]

Environmentalists and public power customers have always viewed each other with suspicion, as each side peppered its materials with sneering stereotypes like "tree huggers" or "slash-and-burn developers." In his position as Director of Environmental Affairs, Frey attempted to build bridges between the groups on a foundation of compromise. He followed a maxim when dealing with parties divided by transmission lines and dam flows: "Success is finding the least most objectionable solution to a majority of the people."[5]

Frey, and all of Western, stepped gingerly on that middle ground throughout the 1970s and 1980s, as a number of high-profile environmental issues threatened to radically change how Western managed the Federal transmission system. Some questions—the impact of hydropower on birds, fish and flows and the volatile controversy related to electric and magnetic fields around high-voltage transmission lines—forced the PMA to solve problems Reclamation never faced.

Despite the prolonged agony of the first energy crisis and the uncertainty of the next one, conservation remained anathema to most Americans. Between crises, in the late 1980s to the mid-1990s, Susan DeBelle, then an energy services specialist, discovered that energy efficiency wore two faces depending on where you were in the service territory. "There was a very wide difference between customers in the Upper Great Plains region and California. California customers were up-to-date and current and ready to try new things and knew what was out there." According to DeBelle, small communities in the Upper Great Plains Region took the long way with innovation: "In those smaller areas, they still depend on us more. In a couple towns I visited that still operated little coal-burning plants where the guy chucked coal that served tiny towns—200 or 300 people. There they were willing to take your power, but by God, don't talk to them about new-fangled things, like saving energy."[6]

At the start of 21st century, the issues of energy and the environment caused conflict between desires for a cleaner world and the need to fuel our technology-dependent lifestyles. With rolling blackouts threatening to inundate the nation, pollsters found what Americans say and how they act were at odds. Gas-guzzling sport utility vehicles on the highways and more

Susan DeBelle and Clarence Council show off a new photovoltaic educational kit for Western's customers in 1991.

electrical gadgets at home pushed up demand, contradicting research data showing most citizens believed protecting the environment was the nation's No. 1 problem.

Western's senior managers realized they must "strike a balance" when stringing a tightrope "between proactively demonstrating support of non-hydro renewable resource activities and maintaining their responsibility to: 1) keep rates stable; and 2) not increase customer supplemental power supplier surplus capacity."[7]

Laws of Nature

Numerous regulations guide Western's environmental procedures—notably the National Historic Preservation Act, the Endangered Species Act, the Toxic Substances Control Act, the Resource Conservation and Recovery Act and the Clean Water Act, but none has all-persuasive, all-enduring consequences like the first of the line—the National Environmental Protection Act.

Signed into law by Richard Nixon in 1969, eight years before Western's birth, NEPA remains the environmental policy template for the Federal government. Guided by NEPA, Western encourages public participation as an important element of its environmental planning program. The element of NEPA that changed the way Western and other Federal agencies interacted with customers is the Environmental Impact Statement. The EIS opened Federal resource management planning to the public. Participation in these decision-making processes could make or break an agency's plans to license and fund construction projects.[8]

Western veteran Frey said that when NEPA was the "new thing" in the early 1970s, he was working as an environmental specialist for Reclamation. From the late 1960s to the early 1980s, Frey recalled an advancing mountain of environmental compliance paperwork transforming the culture of Federal works projects: "NEPA documentation changed over the years. I remember writing one of the earliest programs on one page." With a touch of understatement, he added, "It's grown considerably since then."[9] Many Environmental Impact Statements now run to several hundred pages.

The National Historic Preservation Act protects sites with historical significance.

Western can point to instances where NEPA made a project better. In the mid-1980s, Western participated in building the Hayden-Blue River 230/345-kV transmission line in the Colorado Rocky Mountains. Originally proposed by the Rural Electrification Administration, the line drew protests from environmentalists who delayed routing the lines along the peaks of Grand and Summit counties. After consulting NEPA guidelines, Western reanalyzed the transmission line route using a supplemental environmental impact statement and held public meetings between local and Federal authorities and citizens. After listening to everyone's concerns, Western won support from both counties and the U.S. Forest Service for a line alignment that economically met both environmental and engineering criteria.[10]

NEPA was on the books for eight years before the next milestone arrived wrapped in a blanket of environmental directives.

Western's Conservation and Renewable Energy program held workshops and loaned equipment to help customers use infrared cameras to reveal energy leaks in structures and equipment.

Cheaper to Save a Kilowatt than to Produce One

When President Jimmy Carter signed the Department of Energy Organization Act on Aug. 4, 1977, it launched the "Western Era" of customer partnerships tied to energy management. The Act reflected America's panic in the early 1970s over where the next drop of gasoline or kilowatthour of electricity was coming from. The crisis cooled by the late 1970s as the nation lost patience with a seemingly never-ending energy crisis.

However, in the halls of power, energy remained the Carter Administration's top priority and drove the agenda in Congress. After passage of the DOE Act, the Carter Administration sent the National Energy Plan to Capitol Hill. After a year-and-a-half of debate on the floors of the House and Senate, the president signed the National Energy Act on November 9, 1978. The nine-inch-thick legislative package consisted of five major pieces of legislation. The NEP sought to establish greater Federal control over the nation's energy supply, but also allowed increased customer involvement toward developing long-term energy management plans.

Western quickly realized that establishing a conservation and renewable resources program might be a ray of light through the gloom of the energy crisis. In 1980, one the agency's earliest briefing papers regarding alternate sources of energy beamed with optimism: "The variety of solutions is limited only by the number of authors who have addressed this subject."[11]

Before a joint session of Congress in July 1979, Jimmy Carter directed the nation to meet 20 percent of its energy needs with solar power by the end of the century. To reach this goal, Carter directed the PMAs to "develop and implement formal energy conservation and renewable resources programs in concert with other Federal agencies and utility entities." The President's pronouncement was a curious one for Western and the other PMAs, as more than 90 percent of the agency's marketed resource came from renewable hydropower—well exceeding the president's 20-percent benchmark. Nevertheless, to obey Carter's directive, Western added its conservation and renewable energy activities.[12]

In November 1979, DOE's Office of Power Marketing Coordination asked Western to submit a formal Conservation and Renewable Energy Program proposal to the Department's Assistant Secretary for Resources Applications by Sept. 20, 1980. To reach Carter's standard of 20 percent or more of projected energy sales through conservation and renewable resources, Western set three steps: first, direct energy savings through conservation activities; second, count on savings resulting from energy produced by renewable resources, and finally, calculate additional savings from conservation-related activities such as the existing Oil Conservation Program started by the Department of the Interior in 1972.[13] Western estimated the impact of its C&RE plan alone could save the nation more than 100,000 barrels of oil per day. An internal review of the president's plan, and Western's response, remarked that the program was "extremely ambitious, but achievable."[14]

Western's C&RE program encouraged irrigation pump testing by customers such as the Laramie County Conservation District to save both water and energy. (Photo courtesy of the U.S. Soil Conservation Service)

New Administration, new approach

In 1981, Ronald Reagan replaced Jimmy Carter in the White House. Following the wishes of the new administration, in November 1981, Western expanded its original C&RE plan to encompass all its customers. The agency decreed that each customer receiving a long-term allocation of Federal power must develop its own C&RE program. The primary guidelines of the C&RE program stressed increased energy production from renewable resources, reduced dependence on imported energy and greater efficiency. Western's managers predicted that over time an ancillary benefit would develop through "integral working relationships with its customers." Time placed strings on this friendship, as Western wanted customers to submit their plans within a year of signing a firm power contract.[15]

Speaking before a meeting of the American Public Power Association in Scottsdale, Ariz., in October 1981, Western Administrator Robert McPhail explained why the C&RE program was one of the first significant turning points for his agency:

Municipal utilities like Palo Alto, Calif., offered energy-saving options like water heater blankets to customers. The city's Energy Savings program also provided employment for students.

In July of this year, the Reagan Administration submitted the National Energy Policy Plan (NEP-3) to the Congress. It reflected a sharp break in format and philosophy from previous energy plans. This new plan seeks an objective of energy self-sufficiency as determined by individual choice and market competition . . .The overriding concern of the Federal Government is to establish sound policies that will encourage both the private and public sectors to produce and use energy resources wisely and efficiently. It is also apparent that one of the answers to this concern is a realistic Conservation and Renewable Energy Program. I would hasten to add that no one, including Western, is suggesting that conservation and renewable energy activities can solve all our problems. But to suggest that they will not significantly contribute to the solution is indeed folly.[16]

By the close of Fiscal Year 1981, fewer than 350 Western customers and associated members held firm electric service contracts containing C&RE requirements. Collectively those plans contained about a thousand C&RE activities. By the following year, 1982, more than 250 additional customers signed new power contracts. A decade later, in 1992, Western had almost a 100-percent participation among its 615 customers and their members. In an average year, customers took part in between 2,400 to 3,200 required C&RE activities.

Between Western and its customers, there was a broad interpretation of what constituted a "C&RE activity." During the 1980s, agency staffers loaned out wind measuring devices known as anemometers, issued irrigation pump test equipment and pointed infrared heat detection units at houses leaking thermal energy undetectable to the naked eye. Western also conducted residential and renewable energy workshops and assessed solar, wind, cogeneration and conservation resources across its service territory.

The Hoover Power Plant Act of 1984 (P.L. 98-381) formally required customer participation in Western's C&RE program. The Act's Title II required that all long-term, firm electric service customers develop and implement individual C&RE programs as a condition of receiving Federal power.[18] Any entity holding a long-term contract with Western for firm electrical power had to establish a C&RE program that included conservation, energy management, cogeneration, wind, solar, biomass, small-scale hydropower or geothermal technology programs.

During the first half of the 1980s, Western promoted the C&RE program to its customers as economical first and good for the environment second. At mid-decade, Western received and approved more than 450 customer or member organization programs. Western's 1985 Annual Report reviewed the C&RE program after its first half decade and declared it customer friendly: "Western has structured its C&RE Program to allow individual customers the flexibility to choose C&RE activities best suited to their own situation. Properly applied, many of the conservation technologies are good business for the struggling utility. In most cases, it is less expensive to save a kilowatt than it is to produce a new one."[20]

Money Is Also Green

In the structure of Western's policy making, the Endangered Species Act is secondary to NEPA, but ESA holds a special place for customers who believe it symbolizes Federal meddling in local affairs.

Over the first half of Western's history, it seemed that every corner of its service area had some environmental battle brewing or in full pitch. These fights ranged from the full court legal press over flows at Glen Canyon Dam to the ruckus over Western's participation in building the Colorado-Ute 345-kV transmission lines in southwestern Colorado to navigational, recreational, environmental and power impacts on the Missouri River. Each case was different, and Western's participation in these matters ranged from innocent bystander to being right in the bullseye.

Western's Energy Services program has promoted energy- and water-saving techniques like low energy precision application, or LEPA, which allows irrigators to place water where it's needed. The technique reduces evaporation, thereby reducing water and energy consumption. This field is in eastern Colorado.

One environmental dispute that lasted nearly two decades surrounds water releases from the Glen Canyon Dam in Arizona. In the 1980s, protests from the environmental community over releases from Glen Canyon Dam almost brought water and power operations to a halt. The Glen Canyon situation underscored how Reclamation's and Western's responsibilities changed during the 1970s and 1980s from irrigation development and power generation to operations planning and environmental management.

The agencies worked together on an EIS exploring the effects of dam operations on natural resources in Glen Canyon National Recreation Area and Grand Canyon National Park. The background work was divided into two parts. Phase 1 of the Glen Canyon Environmental Studies sought to determine if dam operations affected downstream natural resources and if modifications would diminish adverse impacts. The second phase further examined the effects of various flows on the downstream environment and offered a number of economic options.[21]

Concerns about protecting the Grand Canyon's ecosystem led to flow restrictions at Glen Canyon Dam.

In the upper Colorado basin, Western participated in the Recovery Implementation Program. The program sought protection for endangered species like the Colorado squawfish (now known as the Colorado pike minnow), the humpback chub, bonytail chub and razorback sucker. After Reclamation built Hoover Dam during the 1930s,

Federal and State authorities introduced new kinds of fish in the Colorado River—specifically rainbow trout, bass and catfish—for sport. In addition to Hoover, subsequent construction of Glen Canyon and Flaming Gorge dams reduced the flow of the river; turning the warm, swift, turbid waters of the Colorado cold and clear. This change in conditions benefited the predatory newcomers, as they fed on the eggs and larvae of native fish, furthering their decline.[22]

The RIP is a cooperative effort among Western, Reclamation, the U.S. Fish and Wildlife Service; the states of Utah, Wyoming and Colorado; environmental groups and water users and developers. Participating agencies contributed to raising endangered fish in hatcheries and stocking them in the wild; building passageways around certain dams to allow fish to migrate up and down the river; removing non-native fish from areas where endangered fish still exist and releasing water from Federal reservoirs that mimic flow pattern in effect before dam construction. Biologists predicted that these actions would restore the fish populations.[23]

The bonytail chub is one of four endangered species in the Colorado River.

Salt Lake City Area/ Integrated Projects customers supported and funded Western's environmental goals in the Upper Colorado River Basin. Approximately 8 to 10 percent of SLCA/IP rates fund environmental programs like the Upper Basin Recovery Implementation Plan and the Glen Canyon Monitoring and Research Center. During the 1990s, CRSP customers funded more than $160 million in environmentally related costs, including purchased power required by changes in flows. In 1994, Western announced plans to amend power sales contracts to let SLCA/IP customers choose where to get their supplemental power to bridge the gap caused by curtailed generation.[24]

Western and its SLCA/IP customers entered into this amendment on April Fools' Day 1997, and exactly a year later, Western began a program that gave customers a choice: to either have Western purchase the necessary supplemental power and a pass-through the cost, or to provide the power themselves from either their own generation or purchases. In 1998, Western estimated that the cost to replace lost electrical power to maintain downstream natural resources totaled $44 million each year.

Fish in the Upper Colorado River Basin were not the only creatures Western monitored. During the mid-1990s, Western participated as one of nine agencies from state, Federal and tribal authorities in implementing the 1992 Central Valley Project Improvement Act. The CVPIA established fish and wildlife functions as "a beneficial purpose" along with irrigation and power on California's Central Valley Project. The primary provision of the CVPIA designated 800,000 acre-feet per year of water for fish, wildlife and habitat restoration. Western evaluated the impact to power generation and collected customer revenues to pay for CVPIA. As part of the project, Western customers funded a temperature control device that restored 200 GWh of energy that would have been foregone to protect downstream fish reproduction.[25]

An Electrifying Issue

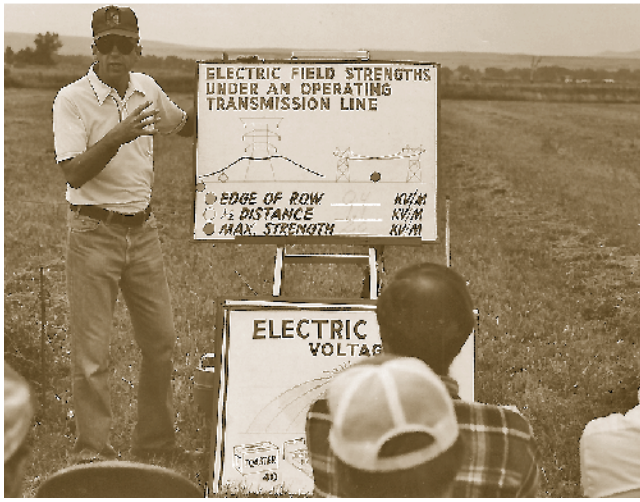
Threat or figment? That is the lingering debate around the issue of electromagnetic fields, or EMF, emanating from high-voltage transmission lines. Between 1979 and 1993, 14

different studies, from the United States to Finland, examined the possible association between proximity to power lines and various types of childhood cancer. Out of the 14 studies, four showed any statistically significant association between EMF and leukemia. Of eight additional studies seeking a connection for cancer in adults living near power lines, two reported a connection.[26]

In 1984, Western participated in a study led by Bonneville Power Administration examining the effects of high-voltage DC lines and towers on cattle and crops. In 1993, Western spent nearly $300,000 toward another Bonneville research study regarding melatonin and other immune system responses to EMF exposure.[27] In addition, Western supported EMF research through its membership in the Electric Power Research Power Institute.[28] In 1992 alone, EPRI spent $15 million on EMF research.[29]

The most recent research on EMF continues to raise questions without providing positive answers. In 1999, the National Institute of Environmental Health Sciences concluded, "the probability that EMF exposure is truly a health hazard is currently small."[30]

Two years later, an EPRI report presented a new theory: that contact current exposure was the cause of the weak association between certain types of cancer and EMF fields. Contact current exposure occurs when a person touches two conductive surfaces with different electrical potential at the same time. The studies continue.[31]



Western sponsored educational sessions on electric and magnetic fields, like this one conducted in Harlem, Mont., by J.T. Franklin, an education consultant for the Mid-Continent Area Power Pool. The session was in conjunction with the reconstruction of the Fort Peck-Havre transmission line.

Changing Roles

Guided by the sun, or cast on the wind, perhaps the most unexpected story in Western's green history is its participation in developing sources of energy other than hydropower. Rooted in tradition and Federal regulation, Western's primary power generation comes from the rivers of the West. However, there are areas of this region synonymous with blazing sunshine and blowing wind. Over the past 25 years, Western has experimented with different forms of technology to harness these elements of nature.

Stronger than the Sun

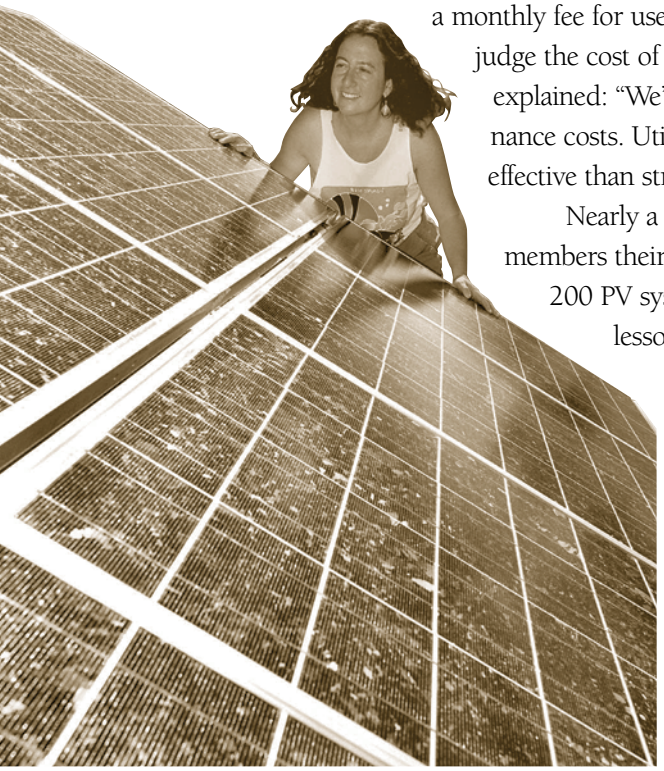
Western looked carefully at the sun before considering solar power. Urged on by President Carter's National Energy Policy, in 1978, the PMA joined the Federal Photovoltaic Utilization Program. A 20-amp battery charger at a radio repeater site in Cunningham Mountain, Ariz., was the agency's first venture into photovoltaic power.[32] From this first step, Western has explored the possibilities of PV in commercial applications through alliances with a wide array of groups.

One bright spot of Western's PV partnerships was helping to bring electricity to one of the most remote locations in North America—the Navajo Nation of northern Arizona. In 1992, the Salt Lake City Area Office, DOE, Navajo Tribal Utility Authority and Sandia National Laboratories designed and installed small PV systems for Navajo homes scattered across the desert reservation. These organizations banded together after the previous NTUA systems failed from lack of maintenance. Under a $300,000 DOE grant, NTUA installed and

operated 75 four-panel alternating current systems. The tribal utility charged 72 homeowners a monthly fee for use and upkeep. For Western, the project provided an opportunity to judge the cost of PV. Brian Parry, a public utilities specialist in Salt Lake City, explained: "We're also gathering accurate cost figures on installation and maintenance costs. Utilities need to know these things to determine if PV is more cost-effective than stringing a line."[33]

Nearly a decade later, at the start of a new century, NTUA gave some tribal members their first taste of electricity. In late 2000, the utility spent $2 million for 200 PV systems to install at private homes. Some parties involved recalled the lessons learned from the 1992 installations:

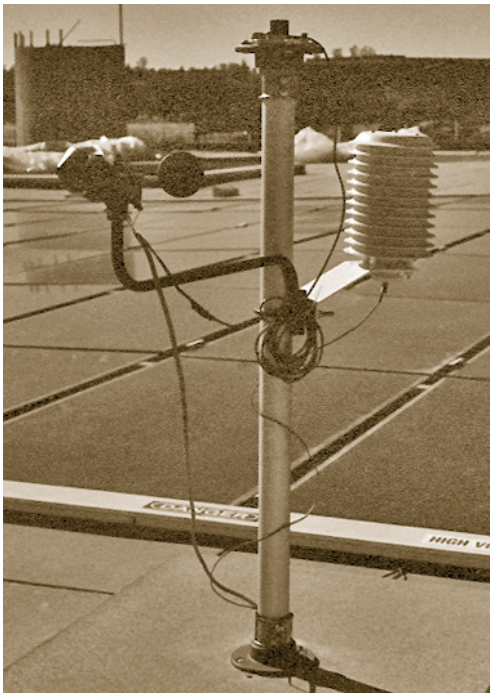
"Based on results of that effort, the new systems are somewhat bigger with about 600 watts of photovoltaic collectors," said Roger Hill of Sandia Laboratories Renewable Energy Department. "They will be able to convert about 3 kilowatthours per day on average in the winter. That's enough electricity to power a single household for a day, if the family members are conservative in their use of electricity." Between the utility and each individual is a lease-purchase agreement placing maintenance responsibilities on NTUA. After 15 years, the customer assumes ownership and responsibility for maintaining the system.[34]



Sandia National Laboratories Engineer Marlene Brown checks out a photovoltaic unit used by Navajo families. This project in 2000 built on knowledge gained from an early 1990s effort in which Western was involved. (Photo by Sandia National Laboratory)

Western is also a member of the Utility Photovoltaic Group, and for many years, an agency senior manager sat on the UPVG board of directors. UPVG is a consortium of utilities promoting the use of PV technology for utility applications. Western climbed on the Million Solar Roofs Initiative, launched by President Bill Clinton on Dec.12, 1997.[35] The Initiative's goal is putting a million solar energy systems on the nation's roofs by 2010. By 2002, Western practiced what it preached. In three regions and the CRSP Management Center, Western facilities gather the sun's rays through PV, with a combined capacity of 142 kW.[36]

Western's longest-lasting PV partnership started up on a roof in Folsom, Calif. Western and the Sacramento Municipal Utility District have an enduring arrangement to demonstrate commercial applications for PV panels. The two organizations first installed a 3-kW experimental building-integrated PV system on Western's new Folsom Operations Center in 1995. Within a half decade, the Sierra Nevada Region's non-hydro renewable energy program included a 50-kilowatt PV Technology Demonstration Project at Folsom, a 78-kW PV Project at



Rooftop photovoltaic installations like this one at the Elverta Operations Center demonstrate Western's interest in renewable energy technologies.

Elverta and a 2-kW PV project at Redding. These systems incorporate PV panels into each roof and provide both weather protection and power generation. These programs intended to accelerate cost-reductions to deliver low-cost PV power in the competitive utility market.[37]

Cast Your Fate to the Wind

Western has supported a number of wind energy projects.

Experts and novices in trying to describe the massive potential of the wind blowing across the Upper Great Plains eventually dubbed the Dakotas and Montana the "Saudi Arabia of Wind." Across its service area, Western established and participated in many different programs encouraging customers to use wind to power their homes and businesses.

Windmills signaled pioneers' presence on the prairie during the last half of the 19th century. Used for pumping water during the first half of the 20th century, many windmills produced only a single kilowatt to generate power at remote sites. After the arrival of the Rural Electrification Administration in 1935, gas-fired and hydropower plants blew wind generation off the map, as detractors stated wind generating units were too expensive for daily use. By the 1970s, rising energy prices and the search of clean renewable energy led back to a modernized version of the windmill.[38]

As early as 1978, Western raised its administrative finger in the air and judged that wind was worth exploring. That year, Western joined with Reclamation to install a prototype wind generator near Medicine Bow, Wyo., connecting the output of the wind generator to the high-voltage transmission system and integrating wind power with hydroelectric. Western's 1979 Annual Report predicted: "Although these small wind machines will not contribute significantly to reducing oil consumption, they will give Western an opportunity to assess technical wind characteristics which, if favorable, could lead to large installations."[39]

By 2001, wind was the fastest-growing energy source in the world, and 18 of the 50 states boasted wind farms. Western attempted to get a handle on wind again at the turn of the century. In 1999, Western's Upper Great Plains Office, in cooperation with the National Renewable Energy Lab in Golden, launched a comprehensive, wind development program focusing on 12 sites across North and South Dakota. The following year, Western introduced, "Wind Energy Workshop in a Box," a how-to kit for customers that promoted the benefits of wind power in non-technical language Western distributed the information kit to schools, municipalities and community groups.[40] In spring 2001, former senior manager Ken Maxey predicted Western's efforts in this area would remain understated: "The customer demand has to be there before Western can proceed any further with renewables."

At certain points in its history, Western displayed bouts of interest regarding two lesser-known renewables: biomass and geothermal. Biomass is the most democratic of alternate resources as it takes all forms of organic material and turns it into energy. No matter if it came from a cornfield, or at the bottom of a lagoon, biomass technology welcomes them all.

DOE Biomass Program Moves In with Western

Less glamorous than solar or wind power, biomass energy processes turns trash, manure, crop residue, wood and other organic matter into fuel. But biomass energy offers an advantage that other renewable technologies lack. It uses waste products, so it reduces the amount of trash and other wastes that could otherwise cause environmental headaches. Such a solution to disposal problems could reduce recent concern about the wastes and odors of large livestock operations.

This biodiesel-powered bus in Sioux Falls, S.D., sports a WRBEP logo (top right, back of bus). This demonstration projects was partially financed with a grant from WRBEP. Biodiesel fuel is made from vegetable oil.

For more than 10 years, Western managed the Western Regional Biomass Energy Program for DOE. One of five regional programs, WRBEP aimed to increase the production, use and commercial adoption of biomass energy resources. The program focused on assessing biomass resources and uses throughout WRBEP's 13-state region; working with states, other regional programs and industry groups to promote biomass use and technology; and awarded matching grants to research and development projects.

The program began in 1987. It was born as a provision in the Energy and Water Development Appropriations bill that directed DOE to carry out a biomass program in the central and southwestern areas of the country.[44] WRBEP's service territory included Arizona, California, Colorado, Kansas, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, Utah and Wyoming. Since Western also served most of these states, DOE asked Western to take on management responsibilities for the new biomass program.

Under Western, the program manager handled WRBEP's day-to-day operation. The program's goals, objectives, policies and priorities were shaped by a 13-member Ad Hoc Committee representing each state in WRBEP's service area. Committee members were appointed by the governor of each state and included academic and government officials. A Resource Committee of technical experts served as advisors.

Projects funded by the program ranged from gasifying cotton gin trash in Oklahoma to converting cotton stalks and pecan shells to briquettes in Arizona to using buffalo gourds as a fuel in Navajo fireplaces in New Mexico. Other projects encouraged development of biodiesel, a clean-burning alternative to diesel fuel; extracting natural gas from manure; and assessing the impacts to topsoil of harvesting agricultural residue from fields following harvest. Western's involvement ended Oct. 1, 1996, a result of the Transformation process. Day-to-day program management passed to the Nebraska Energy Office.

Earth's Energy

Geothermal energy is as old as the Earth itself, but years away from daily commercial and residential use. As of 2001, Western's non-hydro program started to examine the possibilities of tapping the hot water under the Earth's surface and drawing out that energy through ground-source heat pumps. This alternate form of hydropower will remain under development for the near future.[46]

The Green '90s

The Western Regional Biomass Energy Program encouraged the use of technologies such as anaerobic digestion, which breaks down animal wastes to produce biogas. The biogas powers a generator to produce electricity. A cover on a manure lagoon traps the biogas.

Victoria Ponce came to Western's Headquarters as the deputy assistant in the Office of Conservation, Environment and Safety in the early 1990s. Ponce arrived at Headquarters from Western's Loveland office just as the agency prepared to tackle a messy job. In 1991, DOE ordered Western to begin an environmental protection compliance program. The PMA had to comply with Federal, state and local requirements, as well as DOE directives regarding exposure to, and protection from, hazardous material and waste. The initial step toward compliance required evaluating 132 of Western facilities to determine possible past releases of regulated pollutants. Eventually, DOE's directive launched a five-year audit for hazardous materials at more than 1,200 facilities including substations, warehouses and communication and metering sites.[47] Western staff overcame the audit's initial unpopularity and Ponce remembered the experience as an attitude adjustment for the agency:

> *The environmental program in the early days was pretty nominal in that it consisted of [preparing] Environmental Impact Statements for a particular construction project. But, the environmental emphasis in the Department (of Energy) and in Congress as they kept passing more laws was that not only do you have to do NEPA compliance in terms of your EISs, but you have this whole compliance area that has to do with your daily operations—much of it being clean-up from years of bad habits. When I came in, the environmental program wound up on the front burner. The Department came out and did an audit on us and found little compliance with a lot of the DOE rules and regulations. Before the DOE audit, the whole focus was building transmission lines and selling electricity. This required getting into a major clean-up program of all of our sites—potentially hundreds of sites. It meant a lot of financial ramifications for the agency.*[48]

The first fiscal year after the compliance audit—1991—Western spent $8 million for facility evaluations, polychlorinated biphenyl removals and cleanups. The largest portion of that amount, $3 million, went to clean Western's substation at Tracy, Calif.

Letters to Western

If the 1970s were the high summer of the environmental movement, those within Western remember the 1990s as blossom time for green awareness. For Western, the decade began with the launch of the Energy Planning and Management Program, better known as EPAMP. On April 19, 1991, Administrator William Clagett formally proposed changing the existing C&RE Program. EPAMP's objectives included promoting stable, efficient, and eco-

Western's customers encouraged energy savings through efficient lighting installations like this one at the Azusa Public Library in 1994.

nomical use of electrical generation and conservation resources by customers through the preparation of Integrated Resources Plans. The program asked Western's long-term firm power customers to consider cost-effective, demand-side management and supply-side alternatives including renewable resources as part of their long-term planning process. EPAMP also committed Western and its customers to sign long-term contracts for Federal power. Western believed that longer contracts would encourage greater customer investment in renewable resources and energy efficiency. These issues dominated the program of 38 public information meetings during June 1991.[49]

Western's brainchild EPAMP barely was out of the starting gate before a major piece of legislation fine-tuned some of its aims.

The Energy Policy Act of 1992

In October 1992, surrounded by a crew of hard-hatted oil rig workers at Maurice, La., President George Bush signed into law the Energy Policy Act of 1992, or EPAct. The omnibus Act numbered 30 titles and filled 443 pages of small print. The Senate and House versions, reconciled by a 135-member conference committee in a month of debate, each totaled a thousand pages. The EPAct received the credit, or the blame, for igniting the electricity deregulation debate of the 1990s. Congressional supporters presented the legislation as containing dual benefits—economic development and energy conservation. By 1994, David Penn, then director of policy analysis for the American Public Power Association, recognized that the Act was already "the watershed event in this decade of change. It is both part of and a product of the restructuring of the industry."[50]

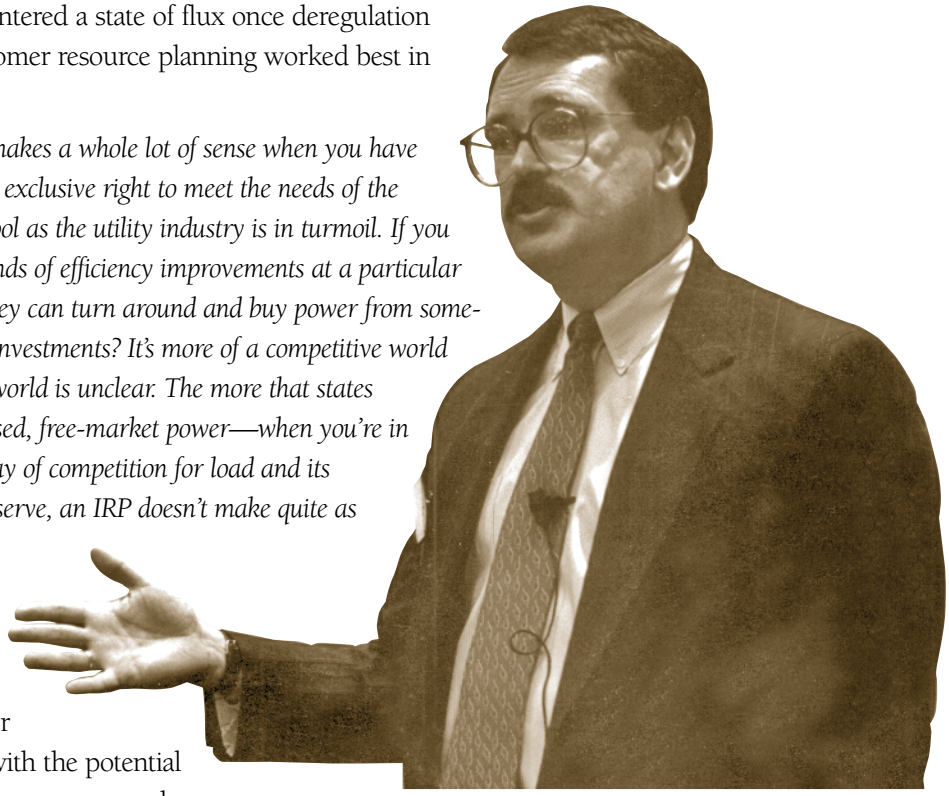
Once again, Congress grabbed a hold of a Western proposal, tweaked it and served it up to the customer who wanted to buy Western's product. From an environmental viewpoint, EPAct co-opted Western's planned EPAMP. Congress placed slightly heavier demands on the customer. The EPAct required all Western customers to submit IRPs every five years. Smaller entities with total energy usage or sales of less than 25 gigawatthours per year and non-members of joint action agencies or member-based associations had the option to submit a less complicated Small Customer Plan. Customers reacted with alarm, fearing increased Federal involvement in local utility planning.[51]

Robert Fullerton, Western's project manager for EPAMP from 1991 to 1995, remembered the program as an opportunity to adapt to changes in the market while bolstering the agency's conservation role:

> *It represented Bill Clagett's idea that it was going to be tough to market power as we had done in the past unless there was some sort of linkage between marketing power and something that highlighted the commitment of our customers to using their resources well. One of the criticisms the Federal power program received in the past is the power is priced low and therefore there is no incentive for people receiving that power to use it wisely. In other words, it could be wasted and might not be used in the best interests of the region. The idea of having Integrated Resource Planning was to make sure that the customers had a good sense of all the options existing on both demand side and supply side and to make choices that take into account environmental factors.*[52]

Fullerton noted that IRP benefits entered a state of flux once deregulation entered the scene. He believed that customer resource planning worked best in areas yet to fall to deregulation:

> *Integrated Resource Planning makes a whole lot of sense when you have a marketing area where you have the exclusive right to meet the needs of the customers. IRP is less valuable as a tool as the utility industry is in turmoil. If you enter an arrangement to put in all kinds of efficiency improvements at a particular industrial or commercial load, and they can turn around and buy power from somebody else—then where are you with investments? It's more of a competitive world and how IRP fits in that competitive world is unclear. The more that states aren't moving toward any market-based, free-market power—when you're in situations where there's a lot in the way of competition for load and its unclear who has the responsibility to serve, an IRP doesn't make quite as much sense.*[53]



EPAMP Project Manager Bob Fullerton helped to explain the program to Western customers.

The Customer Speaks

Through many public processes, customers carried Western toward further non-hydro resource development. One with the potential of the greatest long-term impact on the agency occurred during the summer of 1996. Western pledged to help identify customers wanting to use renewable resources—such as power generated by solar or wind— in their generation mix and provide them with the technical and marketing assistance to review their resource options.

Following a public process, Western launched its Non-Hydro Renewable Resources Program in January 1997 with Randy Manion as manager. Manion is a one-man band for non-hydro resources in an agency dominated by hydro tradition and policy. His role is to encourage Western's customers to use renewable resources and help them find resources and information to help in their efforts. Despite the unlimited potential of non-hydro renewables, Manion understands that non-traditional sources of energy still face an uphill fight for acceptance: "There have never been any major renewable energy projects in the United States because it was the right thing to do. They were all done from environmentally negotiated settlements"[54]

By 2000, it fell to Western to help organize the Public Power Renewable Energy Action Team, which was later renamed the Public Renewables Partnership. PRP's goal is to connect the nation's large co-ops and municipals through a national renewables program. In late 2000, the collaborative group first assisted California's public power utilities by increasing renewable energy use to stabilize energy costs. Manion noted that PRP can only help fuel the public's curiosity in cleaner sources of energy:

"There are plenty of renewables out there—wind, solar, geothermal, biomass and small-scale hydro—and they are cost-competitive in today's market." After years of pricing themselves out of the market, by the spring of 2001, prices for large-scale geothermal, wind and biomass energy production were as low as four to seven cents per kilowatthour.[55]

Photovoltaic installations often make financial sense at remote locations, such as this stock watering tank. Building a power line to serve an isolated load is not typically cost-effective.

The threat of an energy crisis in 2001 reawakened the national interest in solar and wind power. In the spring of that year, Manion found the fortunes of renewable energy lie between increasing grassroots interest and a different focus from the nation's leadership. Manion viewed this perception gap between the public and government working toward furthering the cause of alternate energy:

My purpose right now is to try to justify the use of renewable energy; that these resources are competitive; that they are reliable; that they are a good hedge against unknown natural gas costs. I'll make these arguments to our customers to get them to take a closer look on how they can benefit by employing renewable energy. Right now, I'm focusing my energies out in our customer service regions. That's where our greatest opportunity is right now . . . .[56]

Green Power

In spite of a 25-year relationship, Western and the environmental community have never been bosom buddies. However, Federal directive, legislation and Western's own survival instincts pushed the agency to see things from the other side. In 1985, Western's senior managers reflected on the avenues Western used to better understand the importance of green issues: "Environmental affairs have a large technological base, are highly visible, represent a complex constituency and require extensive technical expertise."[57]

In 1989, Bill Clagett spoke on that theme of how environmental questions shaped Western's character in its search to find answers:

> *We were born in politics to meet some very specific needs. Flood control, navigation, irrigation, and Reclamation of arid lands were the primary focus along with electric generation. No longer. We're now looking at meeting the changing needs of many interest groups. In addition to those early groups, others, including environmentalists, recreational users, Indian tribes and even individual states, are seeking some benefit from the Federal power program.*[58]

Clagett expanded on that perception more than a decade later. In a new century, the former administrator explained technology and the ecology will push Western into new venues:

> *In the early '90s, I was talking about photovoltaic shingles. Now available on the Web, they are priced, ready to ship and they look like regular shingles. If you put in photovoltaic shingles, you'll produce more electricity in that house that it can use in a year. In almost every part of [Western's] service area you can produce as much of those rooftops as people need. That's just the next generation, because you are still going to need existing resources. Because at night it doesn't work. Ten or 15 years from now, it may very well be that [Western] is running a nighttime system, instead of a daytime system.*[59]

No one can predict how Western will light the night sky in the years to come. Few would have guessed that when the agency was created in the late 1970s, employees would work to save endangered species and explore forms of generation other than hydropower. Western's role today as a steward of its environment illustrates that the only certainty is that pragmatism will again drive the agency and its customers down a number of unexpected roads. ▼

CONCLUSION

Part of the solution: Western's new life at 25

Since the agency's first days, events threatened its existence, but Western Area Power Administration always managed to survive. These milestones started with the uncertainty of establishing a new agency giving way to a period of construction, rate-setting and building. Almost at the moment Western completed its most noteworthy construction project—the California-Oregon Transmission Project—it spent most of the 1990s racked by external efforts to legislate the PMA out of existence. Internal downsizing, while necessary to keep Western's rates competitive, has had impacts that the agency will feel for years to come.

A year or so before its 25th birthday, chaos within the power industry gave Western an unexpected present. It was a gift of opportunity wrapped in the uncertainty of the modern power industry. The agency—from administrator to lineman—felt a twinge of déjà vu, as this opportunity had a similar feel to the circumstances that brought Western to life in the late 1970s. At this crossroads, Western now faces an opportunity to help determine which path the West—and ultimately the nation—will follow.

The Starting Point

In 1990, Western Administrator William Clagett addressed the chaotic nature of America's transmission system. Before an American Public Power Association conference, he traced the century-old story of America's century of power industry by identifying three milestones:

> *A hundred years ago, you had a few electric light bulbs around. And up until the '30s, you had little local utilities. And when I say local, I mean local: one or two or three city blocks sometimes, supplied by one diesel engine that was turned off at 10 o'clock. You got your electric light from that. Bit-by-bit, those little entities were merged and consolidated until finally, in the '30s, it became obvious that we needed something called the Holding Company Act, the Federal Power Act, the Federal Power Commission, and those things which established a new structure for the utility industry.*[1]

According to Clagett, it was around the time of Western's birth that the industry went through its next phase. "It was in the '70s that the utility industry got severely overbuilt with conventional generation. So the big challenge in the '70s was: How do you carry that kind of debt load, those kinds of surpluses, without going belly up? Now, as we enter the '90s, we see some pretty strong evidence that we have phase three right here in front of us. Phase three is when we are underbuilt in conventional generation, and we have to find other kinds of resources."[2]

Since Clagett's 1990 address, the market stunted the growth of the third phase in a quest to reorganize the power industry. Potential new technologies combining with the possibility of less regulation shook power to its foundations. However, some established ways of doing business held fast. In 1995, Department of Energy Deputy Secretary William H. White described Western as a link between decades of marketing stability and current uncertainty: "When Western was created in 1977, it took over the power marketing responsibilities and policies of the Bureau of Reclamation. These policies were born in a long time past. Western today is embarking on a maturation of its power marketing program. Today, Western must assume a leadership role in creating a bigger renewables and efficiency resource in the West."[3]

"Western today is embarking on a maturation of its power marketing program. Today, Western must assume a leadership role in creating a bigger renewables and efficiency resource in the West."

In the 1990s, as deregulation fever touched statehouses nationwide, Western answered a series of questions from Deputy Secretary of Energy Elizabeth Moler regarding the agency's place in a changing power industry. One pointed query probed: "Industry changes do not justify a more 'activist' role for the PMAs. Expanding Western's role to include direct retail sales, rate regulatory review of consumer-owned utilities and load profile analysis is unnecessary and inconsistent with the desired reduction in the role of the PMAs in a competitive marketplace."[4] Western shunned any willingness to expand on its current duties. "Although Western has broad statutory authority, there is no compelling policy rationale for Western to become more activist in its role."[5]

At 25, Western will hold on despite potential changes brought by deregulation. During the 1990s, the Energy Planning and Management Program brought the agency and its customers closer together. Robert Fullerton, senior power marketing advisor, pointed to the program as benefiting customers in the years to come:

> *We were able to extend a major percentage of the resources to existing customers. Given the existing political climate, it was gratifying and important for us and our customers. The power rates in their regional economies were very much impacted by the amount of power they received from us. It was also satisfying to show that we were an organization that was flexible and willing to change with the times and offer the benefits of cost-based Federal hydropower to entities that had not historically enjoyed them as much, notably the Native American tribes.*[6]

Change also brought back one of Western's favorite roles—as a transmission line builder. In May 2001, Secretary of Energy Spencer Abraham directed the agency to develop plans for

the construction of Path 15—an 84-mile, 500-kV transmission line between Los Banos and Gates substations in central California. The proposed line would be Western's first major construction project in the state since the California-Oregon Transmission Project went into service in 1993. Administrator Michael Hacskaylo remarked on Western's return to the construction business: "We bring technical expertise in planning, designing, building, operating and maintaining a large high-voltage transmission system. But we cannot complete this project on our own."[7] Hacskaylo and Western spent the summer of 2001 searching for public and private partners to complete the project.

At a quarter-century, Western's corporate character is well-adjusted enough to realize and live within its limitations. Western cannot build a major transmission system on its own; nor can the agency construct alternative sources of energy for delivery into the generation pool. Moreover, Western is loath to solicit attention during Capitol Hill budget battles and shuns political posturing.

Western's stature in the power industry is a mix of contradictions. It oversees more miles of transmission lines, more territory and is involved in more issues than any other PMA and many other Federal agencies. However, unless you are a participant in the power business, it is more than likely you have never heard of Western. Western's fourth Administrator, Michael Hacskaylo, recalled a story describing his agency's nature in the words of a popular writer and broadcaster. "The approach I take is of Garrison Keillor's shy Norwegian bachelor farmer. People who know us, know that we do really good. But, those who don't know us—that's OK."[8]

Senior managers present and past appreciate Western's place out of the spotlight. Victoria Ponce is one of a handful of people who worked for both Bonneville Power Administration and Western. After a decade as a senior administrator at Western's headquarters, Ponce found that the agency's big size and soft voice kept it out of a number of political fights:

> *Bonneville is a big fish in a little pond, and Western is a bunch of little fish in a bunch of little ponds. When Bonneville does something, it affects the economy of the whole Northwest. They are the primary provider of electricity in the Northwest. They are just a big gorilla up there for better or worse. I know a lot of the managers at Bonneville and they try to work with the Department as much as possible, but if fundamentally they basically disagree, they can pull out the political clout. Western doesn't have that political clout.*[9]

Western's political muscle did appear when the PMA needed it the most. During two proposed sales of the PMAs in 1985 and 1995, Western relied on support from a cadre of Upper Great Plains legislators. These senators' commitment reflects the continuing importance of the agency to their constituents.

Will Only Make Me Stronger

Despite all the troubles brought by a barrage of changes, Western emerged from the 1990s with an optimistic outlook. Transformation, the threatened sale of the agency, uncertainties brought by deregulation and the launch of the RTOs put the PMA in a surprisingly stronger position, according to some. Robert Fullerton, a Western veteran of more than two decades, reflected that the agency came through these trials by fire all the better for it: "Compared to some points in the past, Western is stronger. You don't hear people wanting to get rid of Western. Instead, you have Western pointed to as the solution for Path 15 and bills being advanced by Republicans from Texas that would formally place us in that role. Now, no one is talking about selling us. People are pointing to us as being part of the solution."[10]

Where Do We Go From Here?

In the West of a hundred years ago, the Federal government's construction of dams gave homesteaders and town builders a chance at survival. Reclamation did not realize it at the time, but electricity would propel the West beyond survival toward prosperity. Despite internal and external controversies, Western continues that legacy of delivering power at the lowest cost. Western's core values and what defines it as an agency—the preference clause, hydropower as the primary source of generation and maintaining partnerships with customers and other power authorities—serve as the agency's foundation. These characteristics link the agency's aims to its original mission. To lead in a chaotic future threatened by dwindling resources, Western will apply the lessons of the past to achieve its vision of being a premier power marketing and transmission organization. ▼

Western 'Originals'

All employees on Western's payroll as of Sept. 30, 1978 were given the distinction of being named a "Western Original." This listing includes these employees by organization and their jobs at the time.

Headquarters

John Adams, engineering technician
Lee Allen personnel staffing and classification specialist
Robert Babson, attorney
Ronald Ball, hydrologist
William Barnes, engineering technician
Floyd Berg, electrical engineer
Debra Bertrand, secretary
Gerald Birney, Substation and Transmission division chief
Buster Boatman, labor relations specialist
Patricia Boldra, attorney
Maria Bondarenko, secretary
Charles Boyles, electronics engineer
Larry Bressler, Budget and Finance branch chief
Steven Brumley, attorney
Glenn Bullock, electrical engineer
Charles Cabral, Electrical Design branch chief
Ann Campisi, personnel staffing and classification specialist
Frank Carpenter, power operations specialist
Ramona Case, secretary
William Claggett, associate administrator
Patricia Coleman, secretary
Frederic Cook, electrical engineer
Dwight Conrad, supply management officer
Dwight Covington, Civil Design branch chief
Valerie Crummel, staffing assistant
Daniel Dillinger, System Studies, section I head
John Di Nucci, public utilities specialist
Ronald Dixon, attorney
Lanita Doering, secretary
Robert Donelson, Construction division chief
Roberta Dooms, secretary
MaryAnn Eichman, voucher examiner
Robert Elmgreen, electrical engineer
Brian Espinoza, architecture technician
George Flanagan, mail and file supervisor
Carlos Fox, electrical engineer
Gary Frey, environmental engineer
Ralph Fulks, labor relations specialist
Thomas Gai, attorney
Patricia Gausemeir, clerk typist
Louis Gilson, engineering technician
Donna Graige, travel assistant
Floyd Greenway, electronics engineer
Lloyd Greiner, Systems Engineering branch chief
Donald Groom, civil engineering technician
Jalene Gyllenborg, clerk typist
Bobby Hagler, structural engineer
James Hanson, Organization and Personnel Management division chief
Jerome Hanson, structural engineer
Larry Harvey, Program Budget section chief
Judith Helm, accounting technician
Thomas Hine, general counsel
Cheryl Hochburger, clerk typist
Gary Hoffman, electrical engineer
Harvey Hunkins, Engineering division deputy
Wilbert Jacoby, electrical engineer
John Johnson, power operations specialist
Robert Johnson, electrical engineer
Helen Johnson, secretary
Dwight Jones, civil engineer
Ruth Koenig, secretary
Peter Krause, electrical engineer
Leona Larson, secretary
Dennis Lenz, Operations section chief
Ervin Loder, architect
Betty London, law clerk
Bruce Lonnecker, electrical engineer
James Lowe, Cost and Reports unit chief
Thomas Lucas, electrical engineer
Anthony Lucero, engineering technician
Alexander Lunsford, electrical engineer
David Magaw, attorney
Ruth Maloney, supervisory personnel assistant
Josephine Marrufo, personnel staffing and classification specialist
Gordon McCone, System Studies, section II head
Dora McConnell, office assistant
Jacqueline McRee, engineering technician
Eugene Medina, engineering technician
Buddy Meyers, computer specialist

Brian Morris engineering technician
Robert Mulkey, Substation and System Control branch chief
Maxwell Morse, electrical engineer
Judy Moya, clerk typist
Philip Murphy, contract specialist
Carol Myron, personnel staffing and classification specialist
Janet Nelson, personnel clerk
Judith Nelson, program analyst
Clark Newby, payroll technician
Jerlyn Nix, clerk typist
James Nold, electrical engineer
Ken Ogilvie, electrical engineer
Judy Osborn, clerk typist
Vivian Osmon, staffing assistant
Norman Newman, property and warehouse section
Paulette Payne, architect
Alan Peschong , construction engineer
William Petterson, electrical engineer
Sandra Phipps, secretary
Frank Priest, electrical engineer
Clark Rose, general engineer
Theodore Rose, inventory management specialist
Homer Roth, Office Services section chief
William Russell, engineering technician
Marshall Schwartz, electrical engineer
John Sharp, structural engineer
Patricia Shepherd, secretary
Stephanie Sherberg, secretary
Don Shinkle, Management Services deputy division director
Austin Smith, engineering technician
Mose Smith, electrical engineer
Rolland Sohnholz, computer specialist
William Soper, civil engineering technician
Joanne Stephens, secretary
Joe Strong, computer systems officer
Duane Swigert, engineering student trainee
Mary Sylvester, supervisory clerk
Susane Tapia, personnel clerk
Wesley Taylor, Finance and Accounting section chief
Anthony Toliver, duplicating equipment operator
James Tomsic, electrical engineer
Kenneth Townsend, supervisory operating accountant
Jeanne Thomas, file clerk
Karen Vacca, personnel staffing and classification specialist
Larry Van Uden, electrical engineer
Carlos Villescas, equal opportunity officer
Donald Voelker, electrical engineer
Carla Wacker, secretary
Maura Wade, clerk typist
Edward Walsh, engineering technician
Donald Warner, Transmission Structures section chief
Thomas Weaver, Power Resources branch chief
Joanne Weber, engineering technician
Dora Wilson, Organization and Evaluation section chief
Dirk Woodard, electrical engineer
Keith Woods, electrical engineer
Bob Zeeck, public information officer

Billings Area Office

Leon Aasby, lineman
Theodore Abraham, dispatcher
Elmer Albrecht, electrical engineer
Joe Albrecht, lineman
Arthur Anderson, Communications and System Control branch chief
Don Anderson, construction inspector supervisor
Glen Anderson, electric equipment mechanic
Irving Anderson, line truck driver
Kim Anderson, lineman apprentice
Lelan Anderson, materials engineer technician
Richard Anderson, construction representative
Paul Aughenbaugh, electrician
Curtis Bader, dispatcher
Verne Baker, lineman
Michael Baldwin, electronic equipment mechanic
Martin Balmer, meter mechanic
James Bennett, electrician apprentice
Pamela Berg, clerk typist
Cheryl Besinque, electrical engineer technician
Nile Best, electrician
Bobby Bischoff, dispatcher
Jerald Bisterfeldt, electrical engineer
Pamela Blevins, clerk typist
Herbert Boehler, electrician
Francis Boelter, foreman II electrician
Burton Borgerson, electrician
Cyril Bosworth, groundman
Terry Bowersox, lineman
James Boxberger, Communications division chief
Roger Bradfield, Contract Administration branch chief
Donald Brandenburg, dispatcher
Clair Brich, Engineering Analysis division chief
Thomas Brown, supply clerk
Thomas Brauer, civil engineer

Andrew Bryce, Location and Survey section head
Kenneth Canon, electrician
Charles Carlson, Transmission Lines division chief
Hugh Carlson, surveying technician
Rickey Carson, lineman apprentice
Theresa Carson, general clerk
Ronald Carter, Fiscal Services branch chief
Jerome Casey, electrical engineer
Donald Charpentier, construction inspector
James Childres, line truck driver
Vicky Claassen, clerk typist
Larry Clark, meter and relay mechanic
Lloyd Clark, electrician
Sandra Cloud, public utilities specialist
Darrell Coffman, substation foreman II
Dennis Coleman, lineman
Donald Colis, lineman
Dale Corey, Load Studies and System Repair head
Richard Couvier, Electrical Engineer branch chief
David Crouch, lineman
James Davies, area office manager
Berwyn Davis, foreman II lineman
Donald Dehne, realty specialist
Margie Dessonville, power billing clerk
Archelaus Detienne, lineman
Rowlyn DeVries, lineman
Glen Divers, electrician
Richard Doherty, electrical engineer
Stanley Dolbinski,
Substation Maintenance branch chief
Russel Dramstad, electrician
Walter Dumke, line truck driver
Robert Duncan, dispatcher
Richard Dye, electrical engineer
Mikel Eckhardt, lineman apprentice
Leonard Eckland, line truck driver
John Edwards, dispatcher
Adeline Egersett, electrical engineering technician
Arnold Eide, electronic equipment mechanic
Loren Eikanas, electronic equipment mechanic
Thomas Eimers, substation operator
Hassan Elghandour, electrical engineer
Gail Ellison, electrical engineer
Dorothy Elvrum, finance technician
Carol Estebo, public utilities specialist
Douglas Erickson, surveying technician
Stephen Fausett, Power System
Planning section head
Vernon Fauss, System Dispatch
division assistant chief
Peter Feigum, dispatcher
Walter Fetterley, substation operator
Michael Fisher, foreman II lineman
Sandra Flom, clerk typist
Robert Fodness, Power division chief
Benjamin Folden, foreman II lineman
Twyla Folk, electrical engineer
William Folk, electrical engineer
Larry Foltz, lineman
Earl Foster, foreman II lineman
Steven Foster, dispatcher
Carl Gader, foreman II lineman
Deloris Gamber, supply clerk
Luverne Gamber, mechanic
William George, lineman
Arthur Gehnert, electronic equipment mechanic
Larry Gertz, electrician apprentice
Gary Giardini, electronic equipment mechanic
Charles Gilmore, helicopter pilot
Lloyd Gingery, resource development branch chief
Curtis Ginn, lineman
Omer Grafton, substation operator
Dennis Graves, lineman
William Grever, construction inspector
Marvin Grewatz, foreman II electrician
Myron Gunderson, electrician
Harvey Gusse, substation foreman II
Juanita Hagen, clerk typist
Richard Hammond, electrical engineer
Alger Hanson, groundman
Allyn Hanson, System Protection branch chief
Roger Hanson, electrical engineer
John Harrington, electrical engineer
Vernon Hartwick, electrical engineer
Evelyn Haun, clerk typist
Dennis Hawks, lineman
Eugene Haynes, supply clerk
William Hayter, dispatcher
James Healy, lineman
Boyd Heckel, electrical engineer
John Helgerson, Huron Construction branch chief
Douglas Hellekson, electrical engineer
Raynard Herr, foreman I electronic
equipment mechanic
Clyde Hicks, Jamestown Area Dispatch field chief
Steven Hiedeman, electrical engineer
Gertrude Hillestad, public utilities technician
Audrey Hinshaw, clerk typist
Leory Hirsch, electrician
Genevieve Hofer, clerk typist
Wayne Hoffman, electrician
Milford Holliday, electric equipment mechanic

James Holman, electrical engineer
Terry Hopkins, electronic equipment mechanic
Searles Hornstein, power division chief
Russell Hotchkiss, engineering draftsman
Donald Huber, lineman
Raymond Huntley, dispatcher
Brian Hystad, electrician
Clayton Isaacson, electronic equipment mechanic
Richard Imker, automotive equipment repair inspector
Ronald Iverson, meter relay mechanic apprentice
Richard Jacobs, foreman II lineman
Otis Jeffers, dispatcher
Arthur Jelsma, electrical engineer
Robert Jensen, meter relay mechanic
Gary Jernigan, lineman
Arthur Jessen, general supply specialist
Gary Johnson, engineering student trainee
Jerome Johnson, foreman II lineman
Joy Johnson, general clerk typist
Ronald Johnson, lineman apprentice
Wallace Johnson, lineman
Warren Johnson, lineman
Floyd Johnston, Safety manager
Gary Jones, Civil Engineering section head
William Jones, Reports and Specifications head
Derrel Jorgenson, lineman
Donald Jorgenson, foreman II lineman
Jerome Juba, Power System Operations officer
Lynn Kentfield, appraiser
Alvin Klaus, foreman II lineman
Dale Kludt, electrical engineering technician
Debora Kludt, realty clerk
Marlin Klug, electrician
James Koehn, electrician
Cecilia Koskey, accounting technician
Dale Kruckenberg, lineman
Raymond Kub, electrical engineer
Russell Kunz, lineman apprentice
Betty Lafee, mail clerk
Ray Lankford, Watertown Area Dispatching chief
Leif Larson, meter relay mechanic
Orval Larson, construction representative
George Laughlin, electrician
John Leif, mechanic helper
Charles Legerski, electric engineer
Joan Lehman, voucher examiner
Theresa Leiby, accounting technician
Vernon Leisinger, substation operator
Robert Lipscomb, substation operator
Janice Loendorf, clerk typist
Gary Loers, electrician
Wilbur Long, lineman
Harold Lynde, electronic equipment mechanic
James McCullough, lineman
Jeffery McDonell, surveying aid
Robert Madsen, electric equipment mechanic
Daniel Magstadt, civil engineering technician
Marland Mahlum, construction representative
Muriel Malcom, title procurement clerk
Malkuch, line truck driver
Gordon Markley, electrical engineer
Jewel Martin, public utilities specialist
Larry Mass, operating accountant
Kathleen Masters, secretary
Debra Matthews, clerk typist
Janice Maxwell, accounting technician
Lawrence Mediger, line truck driver
Mary Beth Mediger, clerk typist
Alan Meguire, dispatcher
Dallas Meidinger, line truck driver
Herbert Meyer, lineman
Mark Meyer, electrical engineer
Karen Meyers, clerk typist
Ronald Miglia, electrician
Daniel Mikelson, electrical engineer
Bobby Miller, electrician
Ronald Miller, electrical engineer
Billy Minson, System Dispatching division chief
Hans Moen, meter mechanic
Margaret Monteith, electrical engineering technician
Irvel Morford, substation operator
Lois Morton, clerk typist
Robert Morton, dispatcher
Albert Mulkuch, line truck driver
Paul Murphy, dispatcher
Jake Nathan, electrician
Henry Newgard, meter relay mechanic
Virginia Newman, clerk typist
John North, electrician
Harold Odegaard, electrician
Patrick O'Hare, electrical engineering technician
Donald Olivier, electrician
Marvin Olivier, foreman II lineman
Daniel Olson, Communications System Control branch chief
Benjamin Ottmar, meter relay mechanic
Gottlieb Ottmar, electrician
John Palmer, position classification specialist
Kenneth Parker, line truck driver
Donald Parpart, meter relay mechanic

Helen Patterson, public utilities technician
Daniel Paul, Civil Engineering technician supervisor
Duane Peach, electrical engineer
Ralph Pearl, electrician
Donald Peck, line truck driver
Harvey Pedersen, Line Maintenance branch chief
Donald Peters, substation operator
Maynard Petersen, substation operator
Ernest Peterson, foreman II lineman
Norman Peterson, substation operator
William Peyton, dispatcher
Melvin Pfeifer, substation operator
Alice Phillips, telephone operator
Eugene Poelstra, lineman
Thomas Price, electrical engineer
Joseph Pronovost, Contract Specialist head
Phyllis Ptak, public utility specialist supervisor
Wesley Pulst, line truck driver
Elwood, Rabenberg, lineman
T.L. Ramsbacher, project support
Samuel Rapos, Substation division chief
James Rauch, electrician
Roger Remmick, lineman
Harry Renschler, electrician
Verdell Rice, Substation Maintenance branch chief
Charles Richey, electrician
Robert Riehl, public utilities specialist
Delbert Rinehart, electronic equipment mechanic
Eugene Rolle, meter mechanic
Dennis Rubbelke, electrical engineer
Eugene Saarie, procurement agent
James Sattler, foreman I electronic equipment mechanic
Glen Schafer, foreman I electrician
Kenneth Schafer, foreman II lineman
Robert Schafer, supply technician
Christopher Schatz, electrical engineer
David Schilder, electronic engineer
Donald Schmidt, Electrical Engineering section head
Alvin Schnathorst, line truck driver
Ernest Schrader, dispatcher
Allen Schrimsher, dispatcher
Marvin Schroeder, foreman I meter relay mechanic
Bernard Schoenfelder, foreman II electrician
Dale Schott, cost accountant
Donald Schulz, lineman
Steven Schweitzer, electrical engineer
James Scott, dispatcher
Deanna Seaman, engineering technician
Albert Seaton, Data Processing Support chief
Harriet Seim, general clerk typist
Donald Severtson, Assistant Power System Operations officer
Dale Sievert, line truck driver
Richard Sievert, electrical engineer
Neale Sikveland, lineman
Rose Simon, public utilities technician
Franklin Smith, Watertown Area Dispatch field chief
Ernest Smith, Geology Materials section head
Maxie Smith, construction inspector
Robert Smith, electric equipment mechanic
Rudolph Soeffing, Operations and Line Maintenance branch chief
Edwin Speare, Power Marketing and Sales chief
Phillip Spilde, electric equipment mechanic
Harold Squires, dispatcher
Jeanine Stahl, secretary
Leslie Staufer, electrician
Robert Stears, Power Supply and Statistic chief
Renae Steinmetz, clerk typist
Francis Stiever, System Protection branch chief
Leon Stingley, dispatcher
Killian Stricherz, electrician
Delvin Sutheimer, electrician apprentice
Clarence Swanson, construction inspector
Lyle Swanson, meter relay mechanic
Tomas Swanson, electrical engineer
Harold Sweet, dispatcher
Terry Texley, electrical engineer
Lois Thacker, public utilities technician
Melvin Therkildsen, foreman II electrician
Lyle Thurn, electrical engineer
Marlene Thurn, clerk typist
Kayleen Timmreck, laborer
Clarence Trushenski, electrical engineer
Mearl Tschetter, engineer draftsman
Floyd Tubandt, foreman II electrician
Charles Valberg, computer specialist
Angel Valenzuela, electronic equipment mechanic
Kaehl Volesky, foreman I electronic equipment mechanic
James Waddell, electrician
Wade Walters, electrician
Eugene Walton, lineman
Leo Wandler, lineman
Willis Warner, electrician
Charles Warren, general clerk
Donald Warren, groundman
Jerry Weigum, meter relay mechanic
Roger Weimann, electronic equipment mechanic

Melvin Weldner, construction inspector
Paul Wermerson, lineman apprentice
Virginia West, clerk
Wallace West, dispatcher
Dallas Westby, surveying technician
Junior White, construction inspector
Dorothy Wiederich, secretary
Lyon William, survey technician supervisor
James Williams, public utilities specialist
Warren Williams, lineman
Gerald Wisnieski, materials engineer technician
Connie Wittman, accounting technician
Gerald Zaug, electrician
Henry Ziegler, electrician
Thomas Zender, electrical engineer
Kelly Zinnecker, mail clerk
Harold Zook, electrical engineer

Boulder City Area Office

Vincente Abeyta, electrician
Edward Allgood, power system dispatcher
William Alsabrook, lineman
William Amador, groundman
Arthur Anderson, procurement officer
Alfred Anderson, warehouseman
Glen Anderson supervisory computer system analyst
Elizabeth Anderson, personnel assistant
Gerald Attebery, engineering technician
Robert Bass, engineering technician
Willie Bingochea, utilityman
Stephen Bird, Protection branch chief
James Becker, electrician
Earl Bell, painter
Roger Bentley, lineman
Lillie Bermudez, purchasing agent
C R Blackford, lineman
Earl Bonneau, electrical engineer
Eugene Bopp, electrician
David Bothwell, lineman foreman II
Jacob Boucher, electrician
Harvey Boyce, public utilities specialist
Donald Brandt, substation operator
Ernest Brown, power system dispatcher
Harold Bryant, electronics engineer
George Bryner, power system dispatcher
Lavon Bullock, lineman
Joseph Butkiewicz, painter
Jess Cantley, engineering technician
Gloria Castro, power control scheduling clerk
William Champion, electrician
Billy Chapman, lineman
Byron Chapman, Substations branch chief
Claud Clark, program analyst
Hilda Clint, operating accountant
Gary Cook, lineman
Gayle Cook, secretary
Clifford Cooper, lineman
Brooke Cowan, clerk typist
Robert Cunio, electrician
Andy Damon, engineering technician
Elvira Davis, clerk typist
John Davis, utilityman
Bernice Delabarre, accounting technician
Robert Desmarias, meter relay foreman II
James Dobson, electrical equipment mechanic
Edward Drapela, office services supervisor
Grover Edmonson, electronic equipment mechanic
Donald Egenberger, utilityman
Marilyn Eiler, public utilities specialist
Rufus Ellis, engineering technician
George England, warehouseman
Lynn Erling, substation foreman III
Donald Esgar, electrical engineer
Frank Esquerra, lineman
Barbara Faulkner, secretary
Neil Flanagan, substation operator
Brooke Ferber, clerk typist
Robert Fisher, lineman
Edward Flittner, power system dispatcher
John Forman, supervisory electrical engineer
Elmer Fowler, electrical engineer
Thomas Fritts, electrical engineer
Howard Glasser, meter relay mechanic
Christine Goeser, electrical engineer
Mary Goudy, public utilities specialist
Vincent Gotte, electrical engineer
Martin Greschke, electrician
James Griffin, electronic equipment mechanic
Lyle Haggert, clerk typist
Bob Hanks, electrical engineer
Horace Hansen, lead power system dispatcher
Artis Hart, supply clerk
Robert Hart, engineering technician
Albert Hauger, power system dispatcher
William Hayes, heavy duty mechanic
Helen Hill, engineering draftsman
James Hilliard, switching program coordinator
Freddy Hoggatt, meter relay mechanic
Terry Holden, power system dispatcher
Charles Holland, lineman foreman II
C F Hollar, meter relay mechanic

Victoria Horan, data transcriber
Jack Hoskins, power system dispatcher
Robinett Hourie, clerk typist
Mildred Hoy, supply clerk
R E Hunniford, Transportation and Shop chief
Armin Ills, property management officer
Dale Imlay, supervisory accountant
Donald Jensen, grader operator
William Jocewicz, foreman I
Robert Johnson, electrical engineer
George Jones, engineering technician
Keal Jones, electrical equipment mechanic
Keith Jones, meter relay mechanic
Samuel Jones, electrician
Arthur Kangas, electrician
Maria Karr, clerk typist
Dennis Keegan, electrician
Vernon Keim, electrical equipment mechanic
Jim Keselburg, electronic technician
Ronald Ketchum, electrical engineer
Charles King, power control billing clerk
Carl Knickerbocker, electrician foreman III
Terry Krussell, apprentice lineman
William Lawellin, accountant
Julius Lamar, file clerk
Arthur Lange, electrical engineer
Sarah Lange, mail file clerk
Charles Lewis, engineering technician
Maybelle Logan, accounting technician
Robert Lortz, meter relay foreman II
Lewis Lowe, Transmission Lines branch chief
James Luna, lineman
Patrick Lynch, electronics foreman II
Stanley MacDougal, electrical equipment mechanic
Jack Mallernee, electronics foreman II
Charles Marksbury, utilityman
Marvin Martens, meter relay mechanic
Donald Martin, electrical engineer
Donald Martin, electrician
Donald McCullough, substation operator
Bobby McCray, electrical engineer
Wilbur McCurdy, public utilities specialist
Joseph McDermitt, electrician
William McFarland, general clerk
Steve Mendoza, electrical engineer
Leo Menlove, safety manager
Marlene Moody, marketing and sales branch chief
Sophus Morck, electrician
Alvin Morley, accounting assistant
Robert Morris, substation foreman III
Boyd Mowrey, power system dispatcher
George Murry, electrician
Leroy Nelson, power system dispatch branch chief
Janet Nissen, clerk typist
William North, lineman
James Nowabbi, meter relay mechanic
Martin O'Leary, power system dispatcher
Robert Olson, area office manager
Jim Ong, power control branch chief
Carmeline Ong, safety clerk
Adolfo Padilla, building repairman
Merle Panzer, helicopter pilot
Royal Parkinson, apprentice electrician
Aubrey Pearson, Maintenance branch chief
Jerome Pederson, power system operations specialist
Jess Perkins, heavy duty welder mechanic
Elmer Petersen, procurement assistant
Jack Pong, supervisory systems accountant
Michael Popelier, apprentice lineman
Jewell Porter, administrative assistant
Virgie Posegate, secretary
Claude Propeck, Communications and Control branch chief
Joe Puzz, meter relay mechanic
Gerald Ransom, electrical engineer
Harley Realsen, engineering technician
Robert Rhodes, lineman foreman II
Jerry Riggs, meter relay mechanic
Charles Risher, electronic equipment mechanic
Robert Rogers, computer programmer
Carolyn Rosario, supervisory clerk typist
William Rozum, supervisory engineering technician
Clifford Sailor, foreman II
Raymond Salazar, substation operator
Gerald Sandvig, electrician
Paul Sant, heavy duty mechanic foreman II
George Schlucter, meter relay mechanic
Ruth Schmidt, clerk typist
Noah Scott, electrical equipment mechanic
Ted Shima, electrical equipment mechanic
Albert Skinner, substation foreman III
William Simpson, electrician
Lois Slayton, computer operator
John Smith, lineman foreman III
John Somplasky, electrician
Jesus Sonoqui, truck driver
Lloyd Sprenkel, substation foreman II
Elizabeth Stamper, clerk typist
Milton Steel, crane operator

John Sundberg, electrical engineer
Vernon Sutton, supply management specialist
James Swapp, grader operator
Lewis Taylor, meter relay mechanic
Michael Testa, civil engineer
Robert Thenhaus, public utilities specialist
Elvere Thompson, meter relay mechanic
John Thomas, meter relay mechanic
Shirley Tinstman, budget analyst
Aloysius Tram, substation operator
Guillermo Trejo, utilityman
Jerry Truax, personnel officer
Maria Ung, data transcriber
Edward Valentine, power system dispatcher
Roger Van, lineman
Alfonzo Velasquez, electrical engineer
David Villegas, electrical engineer
Leonard Ward, lineman foreman II
Louis Wassmer, meter relay mechanic
Sheila Watkins, computer programmer
May Webb, computer operator
John Welton, power system dispatcher
Thomas Whitaker, electrical engineer
Brian Whitney, electronic equipment mechanic
Robert Williams, electrical equipment mechanic
Michael Wilson, electrical engineer
Merrill Zimmerman, power system dispatcher

Denver Area Office

Andrew Anderson, power accounts specialist
Floyd Anderson, electrician
Helen Alexander, clerk typist
James Aspinal, lineman
Joan Atchison, administrative aide
Frank Ayer, construction inspector
Dainel Baldauf, Engineering division chief
Bryce Beemer, lineman
Paul Belleau, materials engineering technician
Robert Bircher, clerk typist
Elvin Bixler, transmission lines and subs (east)
Jose Blanco, Transmission Lines and Subs division chief
John Boese, lineman
Allen Bogart, Power Operations and Reports branch chief
Rank Bradley, civil engineer
Ronald Brault. Lineman
George Britt, lineman
Spencer Brosious, lineman foreman II
Susan Brotherton, clerk typist
Larry Brown, electrical engineer
Jimmy Buzard, electrician
Ralph Cameron, general operator
Dorothy Carstens, purchasing agent
David Cervene, public utilities specialist
Jack Chatwell, lineman foreman II
James Chynoweth, power system dispatcher
Clifford Closson, lineman
Robert Comstock, electrician
Duane Cornella, lineman
Julio Dallabetta, electrical engineer
Daniel Dean, lineman
Glenn DePriest, substation operator
Fred Devereaux, electrical engineer
David Diebold, lineman
Ronald Dockins, lineman
Marvin Dolph, lineman
Robert Donaldson, engineering technician
William Downey, electronics technician
Forrest Doyle, construction inspector
Donald English, lineman foreman III
James Farmer, power system dispatcher
Raymond Forbes, lineman
Jack Foster, lineman
Milton Garbers, substation operator
Fred Gebers, clerk typist
Kenneth Gilmore, lineman
Stanley Grella, supervisory construction representative
Lester Hanmpton, electronics technician
Leonard Hansen, facility manager
Ernest Harbaugh, senior power system dispatcher
Arthur Harding, civil engineering technician
Robert Harshman, supervisory electrical engineer
James Hartzell, electrical engineer
Clarence Haughey, lineman
William Haun, electrician
Robert Hays, electrical engineer
Howard Hert, construction inspector
Gary Himmelberg, lineman
Calvin Hitchens, lineman
Dalvin Holter, lineman
William Horn, power system dispatcher
Fred Hosen, public utilities specialist
Charles Huckfeldt, lineman
S D Huggenberger, meter relay mechanic
George Jackson, power operations specialist
Duane Johnson, lineman
Loris Jones, lineman
K K Karpoff, construction inspector
Donald Kelly, electrician
Howard Kissel, lineman foreman III

Elaine Komrs, clerk stenographer
Carrol Koster, lineman
William Kramp, electrician
Steven Kniss, materials engineering technician
Frank Knutson, district manager
Kenneth Knutson, meter relay mechanic
Toby Krug, construction inspector
John Larramendy, warehouseman
John Larsen, supply supervisor
Larry Larson, lineman
William Larson, substation foreman II
Norman Laudon, substation foreman II
Walter Lawler, substation operator
John Lawyer, electrician
Robert Lenhardt, lineman foreman II
Edward Lewis, plant mechanic
Lyle Lockwood, substation foreman III
Ocsar Long, electronics technician
James Marlin, lineman
Grady Martin, senior power system dispatcher
Stanley Martin, Power Dispatching division chief
Dale Marts, senior power systems dispatcher
Donald McCall, electrician
Stewart McConnell, Field Engineering division chief
Ivor McCoy, electrical engineer
Leslie Mechem, senior power system dispatcher
Harold Miller, substation foreman II
Jeanne Mingus, secretary
Carl Moore, transmission lines and subs (north)
Arthur Moser, administrative officer
Thomas O'Brien, Power Studies branch chief
Richard Oberosler, lineman
Donald Oglesby, construction inspector
James Oldson, lineman foreman II
Phillip Parish, civil engineering technician
Darroll Parks, senior power system dispatcher
Caleb Payne, lineman
Smith Payton, senior power system dispatcher
Harold Perry, meter relay mechanic
Wayne Pickel, construction inspector
Gaylord Pinney, electrical engineer
John Plank, electronics technician
Charles Ritchie, electronics technician
James Rooks, supply management officer
John Ross, lineman
David Schmidt, materials engineering technician
Albert Schneider, lineman
Melvin Schutt, lineman foreman III
Richard Selleck, senior power system dispatcher
Marshall Sherman, lineman foreman II
Leo Shockey, substation foreman II
Harold Sorensen, substation operator
James Spence, civil engineer
Conrad Springwater, power system dispatcher
Lonnie Stark, substation operator
Harold Steele, construction inspector
Joni Stephens, clerk stenographer
Terrence Stetson, accountant
Ronald Studer, supervisory materials engineering technician
Thomas Sturgeon, purchasing agent
Walter Terry, construction engineer
Floyd Tiffany, groundman
Claude Thompson, lineman
Darwin Thompson, lineman
John Trabing, Transmission Lines and Subs division chief
Noble Troxell, lineman
Karon Todorovich, public utilities specialist
Dickerson Tremmel, public utilities specialist
Merle Tucker, electronics mechanic
Arthur Updike, lineman
Loyd Vanderheiden, lineman
Terry Waggoner, public utilities specialist
Ronald Wagstaff, power system dispatcher
Burton Wantlin, lineman
Louis Wascher, substation foreman III
Ronald Weese, lineman
Kris Wernstedt, laborer
Dell Wolfe, electronics mechanic
William Woods, electrical engineer
R R Zimmerschied, meter relay mechanic

Sacramento Area Office

John Anderson, supervisory electrical engineer
James Bauman, public utility specialist
Genevie Beighle, power billing clerk
Cecil Busby, lineman foreman III
David Canchola, lineman
Harold Davis, electrical engineer
Kenneth Fawley, groundman
Arthur Forrester, lineman
Jimmy Goff, lineman
Willian Goodnough, groundman
Lewis Grimes, supervisory public utility specialist
Loretta Hertzig, secretary
Scott Hicks, lineman
Randy Horn, groundman
Phil House, general engineer
Ronald Howay, electrical engineer
Mary Knoble, engineering technician

Orlan Lightly, supervisory electrical engineer
Larry McAllister, lineman
Ross McFate, lineman
William McKown, lineman
Dennis Miller, lineman
William Miller, lineman foreman III
Kathy Newsom, power contracts clerk
Richard Perry, lineman
Joanne Risse, power resources clerk
Richard Ritter, apprentice lineman
Donald Saunders, supervisory electrical engineer
Ralph Schultz, public utilities specialist
James Shelly, lineman
Patsy Shipley, public utilities specialist
Forrest Smith, electrical engineer
Arthur Takao, control operator
Donald Tribble, electrical engineer
Clifford Waggoner, electrician
Daniel Wood, electrical engineer

Salt Lake City Area Office

Duane Angerhofer, foreman III mechanic
Reed Ashton, resources and development branch chief
Lee Bailey, mechanic
Janet Balser, engineering draftsman
James Bandmann, lineman
Leon Barkdoll, electrical engineer
Elbert Bean, lineman foreman III
Thomas Beck, general operator
Marjorie Bell, personnel clerk
James Bernatis, computer specialist
Richard Berquist, power system dispatcher
Darius Brown, electrician
Donna Brown, clerk
Joseph Brown, electronic equipment mechanic
Robert Brown, electronic equipment mechanic
Keith Bunderson, painter
Lawrence Burke, power system dispatcher
Dale Bush, electrician
Bob Calderwood, aircraft pilot
Mike Candelaria, general heavy duty operator
Leslie Cannon, public utilities specialist
Fermin Chavez, lineman
Roger Christensen, electrician
George Clarke, public utilities specialist
John Copper, Transmission Line and Substation branch chief
Arthur Cunningham
Dean Davis, procurement agent
Leo Deguire, project power manager
Ralph Derrick, Marketing and Sales branch chief
Marjorie Doss, clerk
Harold Dudley, power system dispatcher
Donna Dunagan, general supply specialist
Kenneth Erickson, electronic equipment mechanic
Donald Funston, power system dispatcher
Albert Gabiola, area office manager
Lonnie Garrison, lineman
Frederick Goddard, electrician
Douglas Goodnow, lineman foreman III
Richard Gray, electronic engineer
Dewayne Green, civil engineering technician
Lewis Gregg, supervisory power system dispatcher
Gary Hammond, general supply specialist
John Hampton, electronic equipment mechanic
La Rue Hansen, secretary
Erma Hast, clerk
John Hobaugh, power system dispatcher
James Hubin, lineman
Paul Hughart, power system dispatcher
Daniel Isbell, electrical engineer
Norris Jackson, electrical engineering technician
Ronald James, Power Control branch chief
Durward Jardon, meter relay foreman III
Howard Jenkins, power supervisor
Melvin Jensen, electrician foreman III
Carl Johnson, public utilities specialist
George Jones, lineman
Marvin Kanallakan, laborer
Andrew Kitzke, heavy duty mechanic
Allen Klingenberg, electronic equipment mechanic
Jesse Knight, lineman
Nels Krogh, meter relay mechanic
Allen Kropp, meter relay mechanic
Richard Krueger, power system dispatcher
Raymond Kuebler, laborer
Morris Labertew, Communications and Protection branch chief
Debra Longwell, mail and file clerk
Richard Lucy, public utilities specialist
Donald Malone, power system dispatcher
Myra Mason, engineering draftsman
Timothy McCabe, electronic equipment mechanic
Thomas McCorkle, electronic equipment mechanic
Willard McFadden, power system dispatcher
Daryl McGirr, meter relay mechanic
Robert McIntyre, lineman
Irby Miller, electronic equipment mechanic
Wanda Miller, mail and file clerk
Floy Nelson, public utilities technician
Lloyd Nelson, Engineering branch chief

Thelma Newlin, secretary
Gerald Pariseau, foreman II mechanic
Charles Patterson, lineman foreman III
John Peach, meter relay mechanic
Donald Penman, engineering draftsman
Jerald Perotti, office machine operator
Raymond Peterson, Technical Analysis and Computer branch chief
David Pierce, electronic equipment mechanic
Sheri Ravenstein, supply clerk
Donald Rickert, personnel officer
Ramon Rivera, lineman
Mariano Romero, electrician
Larry Ruggles, electrical engineer
Patrick Sanderson, electrical engineer
Richard Schlosser, power system dispatcher officer
Robert Shamo, gardener
Raymond Smith, heavy duty mechanic
Raymond Sousie, general operator
Donald Stafford, power system dispatcher
Irene Stark, computer operator
Clinton Stratton, general operator
Robert Stucklen, electrical engineer
Donna Suppes, fiscal clerk
Roy Thalman, lineman
Melvin Topliss, electronic equipment mechanic
Charles Weaver, civil engineering technician
Perry White, electronic equipment mechanic
Robert White, meter relay mechanic
Clell, Whitener, laborer foreman I
Jean Willford, clerk
Norman Wood, electrician foreman II
Paul Yazzie, meter relay apprentice
R. Zwiefelhofer, lineman

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

SEP 30 1977

DETERMINATIONS WITH RESPECT TO CERTAIN MATTERS PURSUANT TO PUBLIC LAW 95-91
"The Department of Energy Organization Act"

Determination. Consistent with the transfer of functions provided by Section 302 of the "Department of Energy Organization Act" (P.L. 95-91; 91 Stat. 565), and pursuant to Sections 701 and 704 of that Act, Section 202 of the "Budget and Accounting Procedures Act of 1950," as amended (31 U.S.C. 581c), and Section 9(3) of Executive Order No. 11609 of July 22, 1971, it is hereby determined that the following funds, personnel and positions, property, and records are required to be transferred from the Department of the Interior (DOI) to the Department of Energy (DOE):

A. Appropriations and Funds

The appropriations and funds as provided for in Attachment A.

B. Personnel and positions

The personnel and positions as provided for in Attachment B.

C. Property

All contracts and any liabilities, rights or interests arising therefrom or related thereto, as evidenced in the transferred records provided for by this order, which pertain to the transfers provided for by this order or the Department of Energy Organization Act. All DOI Government-owned property held or used by any contractor under any contract referenced by the preceding sentence. The property as provided for in Attachment C.

D. Records

The records as provided for in Attachment D.

Effective Date

The transfers provided for by this Determination Order shall be effective upon the activation of the Department of Energy (October 1, 1977, the effective date of Public Law 95-91, as determined in accordance with Section 901 thereof by Executive Order No. 12009 of September 13, 1977.)

James T. McIntyre, Jr.

James T. McIntyre, Jr.
Acting Director

NOA 132 MASS TRANSFER

EFFECTIVE OCTOBER 1, 1977, THE EMPLOYEES LISTED HERE WERE CHANGED FROM THE DEPARTMENT OF THE INTERIOR, BUREAU OF RECLAMATION, ENGINEERING AND RESEARCH CENTER, IN07, TO THE DEPARTMENT OF ENERGY IN ACCORDANCE WITH THE DEPARTMENT OF ENERGY ORGANIZATION ACT (P.L. 95-91) AND EXECUTIVE ORDER 12009. TYPE OF APPOINTMENT, POSITION, GRADE, OCCUPATIONAL CODE, SALARY, AND LOCATION REMAIN UNCHANGED.

ADAMS JOHN S
BARNES WILLIAM L
BERG FLOYD G
BIRNEY GERALD D
BLACK SEWELL W III
BOYLES CHARLES B
BULLOCK GLENN D
CABRAL CHARLES A
CARPENTER FRANK E
COOK FREDERIC S
COVINGTON DWIGHT A
DILLINGER DANIEL F
ELMGREEN ROBERT A
ESPINOSA BRIAN L
FOX CARLOS A
GREENWAY JR FLOYD W
GROOM DONALD W
GUMM JOSEPH C
HAGLER BOBBY G
HANSON JEROME G
HARRIS KIAH E
HOFFMANN GARY G
HUNKINS HARVEY D
JACOBY WILBERT A
JOHNSON JOHN M
JOHNSON ROBERT K
JONES DWIGHT
KRAUSE PETER E
LEONARD FRANCES E
LINDHOLM JR ERNEST A
LODER ERVIN L
LONNECKER BRUCE R
LUCAS THOMAS A
LUCERO ANTHONY J
LUNSFORD ALEXANDER G
MCCONE GORDON T
MCCONNELL DORA MAY
MCREE JACQUELINE K
MEYERS BUDDY J
MORRIS BRIAN C
MORSE MAXWELL K
MULKEY ROBERT H
NEWBY JR CLARK A
NIX JERLYN K
NOLD JAMES M
OGILVIE KEN NMN
PAYNE PAULETTE M
PETTY JOHN H
RUSSELL WILLIAM L
SCHLOTTIG FEROL A
SCHWARTZ MARSHALL C
SHARP JOHN P
SMITH AUSTIN D
SMITH JR MOSE
SOPER WILLIAM L
THOMAS JEANNE M
TOLIVER ANTHONY NMN
TOMSIC JAMES E
VAN UDEN LARRY A
VOELKER DONALD J
WALSH JR EDWARD P
WARNER DONALD R
WEBER JOANNE M
WEST EVELYN J
WOODARD DIRK E
ZIEGLER STEVEN R

DN00

PERSONNEL OFFICER
SON 4225

NOTES

Introduction

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[2] U.S. General Accounting Office, *Federal Power: The Role of the Power Marketing Administrations in a Restructured Electricity Industry*, GAO-AIMD-97-110A, (Washington, D.C., June 24, 1999), 5.

[3] U.S. Department of Energy, Western Area Power Administration, *1982 Annual Report*, (1983), 3.

[4] U.S. Department of Energy. Energy Information Agency, "100 Largest Utilities—Net General," 1999.

[5] Consumer-owned utilities refer to state and Federal entities, Native American tribes, rural electric cooperatives and non-profits financed by the Rural Utilities Service.

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[8] Rudolph and Ridley, 27-28; Neil Baldwin, *Edison: Inventing the Century*, (Hyperion Books: New York, 1995), 138.

[9] Gus Norwood, *Gift of the Rivers: Power for the People of the Southeast, A History of the Southeastern Power Administration*, (U.S. Government Printing Office, Washington, D.C.: 1990), 10-16.

[10] Rudolph and Ridley, 60-72.

[11] U.S. Department of the Interior, Bureau of Reclamation, Record Group 115, *General Correspondence File*, 1930-1945, "Address by Harold L. Ickes, Secretary of the Interior Before the Chamber of Commerce at Spokane, Wash.," 1941.

[12] "Address by Harold L. Ickes, Secretary of the Interior Before the Chamber of Commerce at Spokane, Wash., 1941.

[13] Lee C. White, *The Public's First Right to Federally Generated Power: An Analysis of the Preference Clause*, (American Public Power Association, Washington, D.C.: July 1985), 9.

[14] In 1911, the authorizing language of New Mexico's Rio Grande Project amended the repayment period from 10 to 50 years for that project only.

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[19] Michael C. Robinson, *Water for the West: The Bureau of Reclamation*: 1902-1977, (Public Works Historical Society, Chicago: 1978), 27-30.

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[29] Interview with Peter Ungerman, Sept. 27, 2000. Conducted by Robert Autobee in Loveland, Colo., as part of Western's oral history program.

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Chapter 1

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[2] Steven K. Sklar, "Political Obstacles to Energy Self-Sufficiency: Facility Siting Procedures" in *The Maryland Law Forum*, (Vol. VI, No. 4, 1976), 455.

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[10] U.S. Senate, *Congressional Record - Senate*, May 18, 1977,
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[11] *Congressional Record - Senate*, May 18, 1977, p. 15312.

[12] U.S. Senate, *Legislative History of P.L. 95-91, Department of Energy Organization Act*, (U.S. Government Printing Office, Washington, D.C.: 1977), 854, 883. The last sentence of Section 302 (a) is also known as the McGovern Amendment. That sentence reads: "Neither the transfer of functions...nor changes in cost allocation or project evaluation standards...shall authorize the reallocation of joint costs... unless and to the extent that such change is hereafter approved by Congress."

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[30] "Operation and Maintenance Seminar: April 30- May 2, 1979," 141.

[31] U.S. House of Representatives, "Statement of Fred G, Simonton, Executive Director, Mid-West Electric Consumers Association, submitted to Subcommittee on Water and Power Resources, House Interior and Insular Affairs Committee," March 15, 1979.

[32] Ibid., 73.

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[34] U.S. Department of Energy, *Western Area Power Administration, File: Western Area Power Administration Task Force Study, 1977-1978*, Robert McPhail, Western Administrator to George McIsaac, Assistant Secretary, Resource Applications -DOE, February 3, 1978. Located in the Western Area Power Administration Archives, Lakewood, Colo.

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[37] *Closed Circuit*, June 1980, 2.

[38] Interview with R. Keith Higginson, October 10, 2000. Telephone interview conducted by Robert Autobee, as part of Western's oral history program.

39 U.S. Senate, Subcommittee on Energy Production and Supply Committee on Energy and Natural Resources, Statement of Fred G. Simonton, Executive Director, Mid-West Electric Consumers Association, April 14, 1978.

40 Interview with Lloyd Greiner, October 26, 2000. Interview conducted by Robert Autobee in Westminster, Colorado, as part of Western's oral history program.

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