'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 nonnavigable 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 nonutility 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 nonprofit 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 sur-

plus 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]

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]

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

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]

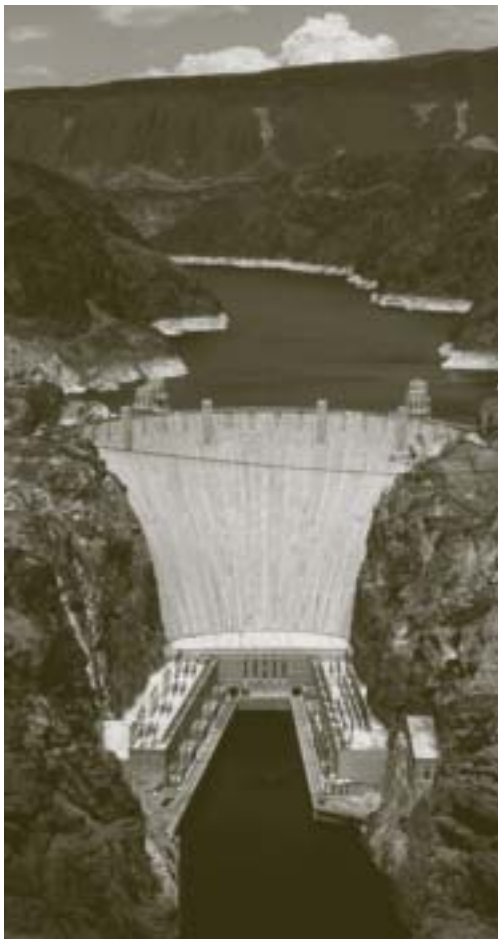
From the start of the 20th century to the mid-1930s, Reclamation's Power Marketing Division drew up about 110 power sale contracts. The rates in each contract considered the cost of construction and operation, maintenance and depreciation of the power system, the influence of available power to local 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.

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]



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

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 manager 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. ▼