

**A HISTORY OF
MOON LAKE ELECTRIC ASSOCIATION, INC.
1938—2013**

**A REMARKABLE PAST
AND A BRIGHT FUTURE**



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**Written by
John D. Barton**


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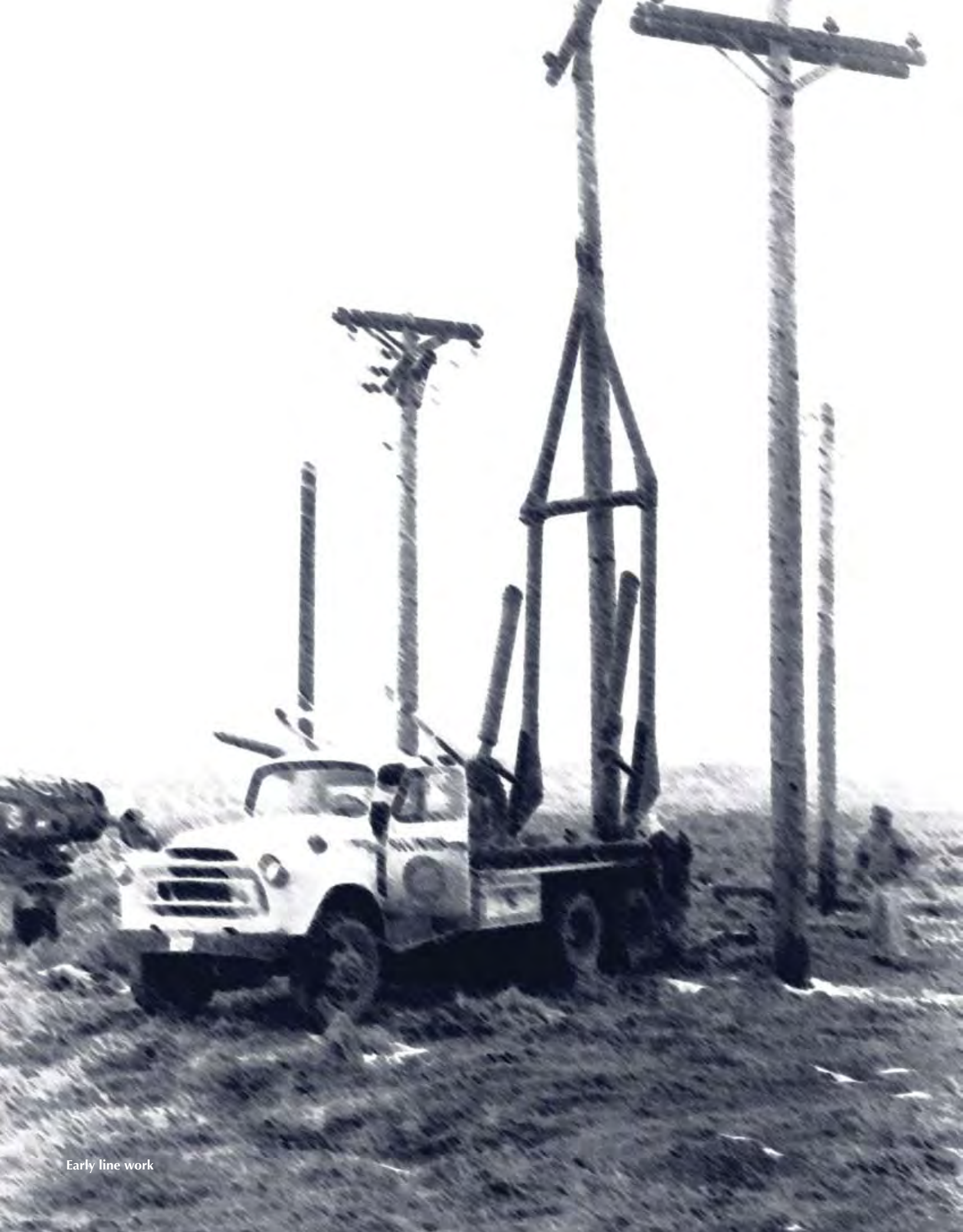
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Early line work

AUTHOR'S NOTE

The genesis for my authoring this brief history of Moon Lake Electric Association began in the mid-1990s. At that time I was researching and writing *A History of Duchesne County* as part of the State of Utah's Centennial County History Series. Having grown up in Altamont/Altonah in the 1960s and '70s, I saw what life was like before everyone had the luxuries and conveniences of today. Though most homes and farms had electricity when I was young, I have seen farmers put their milk in cans and cool in the irrigation ditch. I remember sitting on the broad back of my grandfather's workhorse, holding onto the silver knobs at the top of the hames, while he reshod Blackie so he could return to his work in the fields. I have taken baths in a number 3 washtub and lived in a home that relied on an outhouse.

When I researched and wrote the few pages covering Moon Lake Electric Association's influence on Duchesne County's history, I recognized the profound impact electricity brought to the lives, homes, farms, and industries within the Uinta Basin. It was a story I wanted to explore and tell. Some may find it unexpected that I, as one who has only the barest grasp of how electricity works, one who would struggle to explain the difference between alternating and direct current, or what a kilowatt is, have written a history about an electric cooperative. However, I can recognize a good story when I come across it—and the story of Moon Lake Electric and the Rural Electric Association's effect upon the Uinta Basin is a remarkable tale of vision, dedication, hard work, and sacrifice; and in its own way, it is even heroic. Grant Earl, general manager of Moon Lake Electric and a good friend, and I discussed this book project several times over the past few years. He, even more than I, loves the story of Moon Lake's modest beginnings and growth into the large company it presently is.

We owe much to our forebears—most of which goes unnoticed, unremembered, and unsung. I hope to provide readers of this book at least a glimpse of the past and how electricity's coming to the rural portions of the Uinta Basin positively changed how its residents live and do business.

I am grateful to work with Moon Lake Electric's remarkable personnel to preserve and present this wonderful story. I wish to express a special thanks to Grant Earl, for his foresight, wisdom, friendship, and support in this project; to Diana Rasmussen, for working with the publishing details and for the selection of the photos and writing captions; to Ken Winder, Moon Lake's notable professional engineer, for helping me with the complicated topics of supply, infrastructure, and details for the oil industry. Without his assistance I would have been impossibly lost. To the Board of Directors who supported this project as a key feature in celebrating Moon Lake Electric Association's seventy-fifth anniversary, I offer my sincere thanks.

John D. Barton

DIRECTORS, MANAGERS, AND CURRENT EMPLOYEES

DIRECTORS / 1938–2013



Board of Directors, 2013. Front (left to right): Tamara Vincent and Yordis Nielsen. Back (left to right): Joe Fieldsted, Stewart Olsen, Brad Casto, Tommy Thacker, and Jeff Henderson.

Daniels, S. K.	1938-1945	Hansen, Lindon	1949-1951	McKee, Arthur	1975-1981
Watterson, F. C.	1938-1939	Larsen, William O.	1949-1950	Long, E. W.	1977-1986
Wathen, Henry A.	1938-1948	Hacking, J. C.	1949-1950	Vincent, Lewis	1981-1993
Hartman, Chester H.	1938-1949	Mohlman, Glen E.	1949-1953	Peacock, Lillian	1986-1998
Thorsen, John	1938-1939	Roberts, Clifford	1949-1955	Bond, Bill	1988-1988
Conklin, Ed	1938-1939	Neumyer, Fred	1950-1956	Moon, Alton	1988-2000
Shiner, Delbert	1938-1947	Ross, E. Floyd	1951-1953	McKee, Rondal	1988-1991
Caldwell, Lawrence E.	1939-1948	Lambert, Parley	1953-1954	Peatross, Ron	1989-1998
Defa, Frank	1939-1941	Miles, Rue	1954-1956	Nielsen, Larry	1989-2001 & 2004-2010
Larson, Elray D.	1939-1947	Lambert, Clyde	1954-1956	Thacker, Tommy	1990-1999 & 2011-Present
Payne, Harry B.	1941-1941	Chew, Ralph	1954-1955 & 1956-1963	Olsen, A. Kent	1991-2003 & 2006-2012
Johnson, J. LaMar	1941-1943	Wagstaff, Claude	1955-1956	Vincent, Randy L.	1993-2005
Moon, Robert H.	1943-1947	Cramer, Ira W.	1955-1976	Lollar, Patsy L.	1998-2010
Collett, Byron	1946-1948	Taylor, Ralph H.	1956-1970	Ross, Richard W.	1998-2010
Dudley, A. DeMarr	1946-1948	Urquhart, Elvin E.	1956-1970	Holgate, J. Douglas	1999-2011
Fieldsted, William	1946-1947 & 1948-1966	Ross, Marion	1956-1965	Tanner, Paul L.	2000-2006
Gilbert, Thomas M.	1947-1949 & 1950-1954	Dudley, C. D.	1963-1973	Rawlings, Shirl J.	2001-2004
Brady, Elden	1947-1948	Abegglen, Clark B.	1965-1972	McKee, Rondal R.	2003-2006
Morrill, Frank	1947-1948	Fieldsted, Harry W.	1966-1990	Vincent, Tamara	2005-Present
Halverson, Elroy	1948-1949	Rooks, Donald O.	1970-1988	Nielsen, Yordis	2006-Present
Carter, Elwood B.	1948-1949	Wall, Willard O.	1971-1988	Fieldsted, Joe	2010-Present
Slaugh, Hyrum	1948-1949	Nelson, Lloyd C.	1972-1989	Henderson, Jeffory B.	2010-Present
Brown, Ray	1948-1950 & 1954-1972	Peterson, Ferron J.	1972-1988	Casto, Brad J.	2010-Present
Soderquist, Arthur	1949-1954	Jensen, Lee	1972-1990	Olsen, Stewart E.	2012-Present
McKee, Newell	1949-1950	Monks, Calvin J.	1972-1989		
		Karren, William	1973-1974		
		Karren, Leo	1974-1975		

MANAGERS / 1938–2013

J. Edgar Holder	Project Manager	1938-1939
Ed Conklin	Project Superintendent	1939-1945
Harold J. Fowler	Temporary Supervisor	1945
Dean Cox	Manager	1945-1947
LeRoy M. Strand	Manager	1947-1948
Harold J. Fowler	Manager	1948
Elwood B. Carter	Manager	1948
Zella Rust	Temporary Manager	1948
Glen R. Sawyer (REA)	Acting Manager	1948-1949
Louis Reese	Manager	1949-1954
Ron E. Harrison	Manager	1954-1959
Ernest J. Ballard Jr.	Manager	1959-1969
Robert W. Johnston	Acting Manager	1969-1970
Merrill J. Millett	Manager	1970-1980
Steve Glaim	Manager	1980-1983
Grant J. Earl	Manager	1983-Present

CURRENT EMPLOYEES / MARCH 2013

Cody Aland	Steven Clayburn	Dennis Hoopes	Shane Mecham	Kendall Scholes
Vern Allred	Michael Davenport	Quinn Horrocks	Brett Miles	John Slim
Kevin Angus	Wayne Davies	George Jackson	Curtis Miles	Clint Stevenson
Neil Bartlett	Tony Deets	Michael Janowicz	Rick Miles	Mary Stewart
Robin Bastian	Matt Draper	Ilene Johnson	Jason Mitchell	Chad Tegan
KayCee Bennett	Grant Earl	Yankton Johnson	Kerri Mortensen	Tony Thompson
Brent Benson	Darrin Fieldsted	Rusty Keel	Kim Mullins	Robert Uresk
Paul Betts	Chandler Fisher	Cody Killian	Ray Natani	Aaron Weight
Bobby Bird	Allan Frandsen	Bob Kissling	Gary Nelson	Drew Wilkerson
Shawni Bowen	James Gilbert	Diana Knight	Trent Nelson	Russell Williamsen
Brady Brotherson	Nathan Goodrich	Garret Lamb	Paden Pratt	Brian Winder
Doug Brotherson	Martin Hacker	Tyler Lisonbee	Diana Rasmussen	Ken Winder
Richelle Brotherson	Randy Hanberg	Becky Lloyd	Lynn Rasmussen	Ed Winn
Diane Brough	Gene Harvey	Todd Low	Tyler Reinhardt	Ralph Wright
Nicholas Brown	Alan Haslem	Jacob Luthge	Greg Remington	Myra Young
Sandra Bywater	Bruce Hendricks	Wayne Malnar	Leslie Rice	
Weston Casper	Derek Herrera	Bob Mathews	Terry Richards	
Kathy Chapman	Marty Herrera	Gary Mathews	Robert Richens	
David Chapoose	JoLynn Hill	Cathy McDonald	Jared Riser	
Savannah Christensen	Guy Hollenbeck	Steven McKinnon	Brandon Scholes	

CURRENT EMPLOYEES / MARCH 2013



Management Staff Members, 2013. Front (left to right): Paul Betts, Diana Rasmussen, and Grant J. Earl. Back (left to right): Alan Haslem, Ken Winder, Bob Kissling.



Engineering Department, March 2013. Front row (left to right): Mary Stewart, Kathy Chapman, Shawni Bowen, Ken Winder, George Jackson, and Randy Thompson. Middle row (left to right): Kendall Scholes, Rick Miles, Nathan Goodrich, Brent Benson, Garret Lamb, Gene Harvey, and Terry Richards. Back row (left to right): Brady Brotherson, Bob Mathews, Chandler Fisher, Aaron Weight, Vern Allred, Cody Aland, Russ Williamsen, and Bruce Hendricks. Absent: Drew Wilkerson.

Finance Department, March 2013. Front row (left to right): Richelle Brotherson, Myra Young, Diane Brough, Ilene Johnson, JoLynn Hill, Savannah Christensen, and Cathy McDonald. Back row (left to right): Ed Winn, KayCee Bennett, Ray Natani, Becky Lloyd, Alan Haslem, Yankton Johnson, Wes Casper, and Allan Frandsen. Absent: Dave Chapoose.



Operations Department, March 2013. Front row (left to right): Quinn Horrocks, Lynn Rasmussen, Clint Stevenson, Doug Brotherson, Mike Davenport, Robin Bastian, Brett Miles, Tony Thompson, Steve Clayburn, Curtis Miles, Paul Betts, Neil Bartlett, Dennis Hoopes, Guy Hollenbeck, Kevin Angus, Gary Nelson, John Slim, Trent Nelson, and Cody Killian. Middle row (left to right): Wayne Malnar, Steve McKinnon, Darrin Fieldsted, Ralph Wright, Rusty Keel, Paden Pratt, and Robert Uresk. Top row (left to right): Tyler Lisonbee, Tyler Reinhardt, and Robert Richens.



Altamont employees, March 2013. Left to right, Martin Hacker, Jason Mitchell, Greg Remington, Derek Herrera, Matt Draper, Gary Mathews, and Diana Knight.



Personnel and Member Relations Department, March 2013. Left to right, Sandy Bywater and Diana Rasmussen.



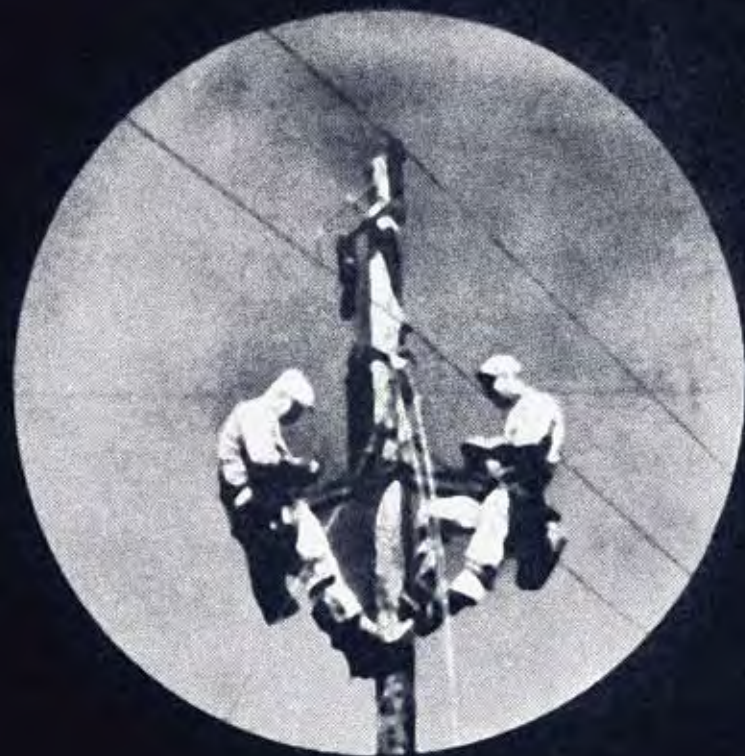
Duchesne employees, March 2013. Left to right, Kerri Mortensen, Chad Tegan, Kim Mullins, Randy Hanberg, Bobby Bird, and Wayne Davies. Absent: Marty Herrera.



Rangely employees, March 2013. Front row (left to right): Heidi Lucero, Leslie Rice, and Bob Kissling. Back row (left to right): Brian Winder, Jim Gilbert, Todd Low, Shane Mecham, and Jacob Luthge.



Vernal employees, March 2013. Left to right, Nick Brown, Tony Deets, and Mike Janowicz.



IT'S COMING—
ELECTRICITY
FOR YOU

CHAPTER 1

Electricity, Depression, and the REA

Moon Lake Electric Association began with a single handwritten letter from Shirley K. Daniels to the Rural Electrification Administration.

...

The story of bringing electrification to rural America in the 1930s and '40s began in darkness and was brought into the glowing light of optimism and promise found in the genius of man inspired by the Almighty coupled with the honest sweat of industry. It is a story of how hope and dreams were transformed into dynamic and spirited achievement as an extraordinary collaboration was put into place between the federal government and rural America in an unwavering labor to electrify all Americans' homes and farms. Only some fifty years earlier Thomas Edison made a startling announcement when he claimed that illumination by gaslight would soon be obsolete. He and financier J. P. Morgan created a vast new industry to provide electric power that would light up America, and in so doing, they revolutionized the world. When the first electric lights cast their warm golden glow over Menlo Park, New Jersey, on New Year's Eve 1880, a crowd of 3,000 people gathered with their faces rapt in awe at the seeming miracle of electric light driving back the dark without the flame of fire. As a worker of wonders, Edison had triumphed. The marvel of electricity quickly spread from New York and the east coast westward from city to city. Shortly after the start of the new century, most cities and larger towns in the United States shared in the new luxury. But rural America was decades behind. The dream of sharing in the wonders of modern technology, long denied rural Americans, came about through vision, hard work, and technical and financial assistance from a federal agency called *The REA*. This inspiring story of how untrained farmers successfully formed a cooperative institution to bring light and power to remote farms is a grand and victorious story of overcoming staggering odds and emerging triumphant. The National Academy of Engineering named Electrification of America as "the greatest engineering achievement of the 20th Century."¹

How the rural areas were electrified is one of the greatest achievements of cooperative and economic democracy this nation has ever known. In the late 1930s and early 1940s farm men and women all over America went up and down the country roads—petitioning, organizing, electing—for power. They met. They planned. They built. The entire process of securing signatures, the "sign-ups," the pledge of land for the lines, was a test of rural citizens and their leaders, of their collective resolve to attain the long-denied power. Most met that test and more. They would learn about the mysteries of electricity later. Now it was their cooperative savvy and skills, their great desire, that made the difference.²

As rural communities and farmers' homes across the Basin got electricity, their lifestyles soon reflected the modern conveniences and amenities city-dwellers had enjoyed for a generation and more. As those Herculean labors and accomplishments of rural electrification's pioneers are told and celebrated in this, the seventy-fifth year since Moon Lake Electric Association's founding, most electric users know but little of the foresight and struggles that now provides their ease and luxury. During our great-grandparents' days of the 1930s, some 90 percent of rural Americans lived and labored without the benefits

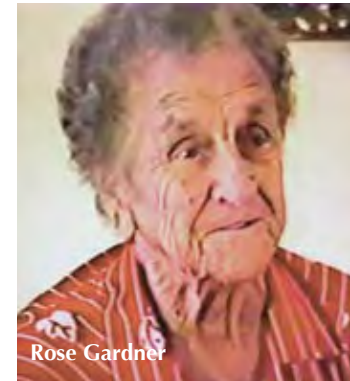


of electricity; fewer than 750,000 of the seven million farms had power. Life for most farmers and ranchers prior to the 1930s was an invariable grind of privation and drudgery.

This is the story of how Moon Lake Electric Association brought electricity to the small towns, rural farms, isolated homes, and the newly emerging industries scattered throughout the Uinta Basin. Since its founding, Moon Lake Electric Association has done more to develop infrastructure, promote and attract new industry, boost the economy, bring comfort and luxury into homes, and generally bring positive change to the Uinta Basin than any other single effort or entity.³

HOMESTEADING THE UINTA BASIN

Much of the poverty and lack of developed infrastructure within the Uinta Basin was a result of its late settlement date. The western portions of the Uinta Basin had been within the boundaries of the Uintah Ute Reservation set aside by President Abraham Lincoln in 1863. In 1905 the Ute Reservation underwent allotment, and the lands not parceled out to Native families were thrown open to homesteading. From 1905 through 1915, thousands of homesteaders made their way into the Basin, claimed their quarter-section of land, and tried to make productive farms in the cold and arid region. Initially they built rude homes of log and sod, and improved them by framing the home and adding on as they had time and resources. With shovels, axes, and teams of horses, they cleared fields and dug irrigation canals and ditches. Many failed and left the region; others hung on by the thinnest of margins. Most farmers in the area during the 1930s were pioneer homesteaders or the children of such. When the Depression hit, most of the farmers within the Uinta Basin hardly recognized the difference from the hardship and poverty they had been living under for the past two decades. A joke was told throughout Utah in the Depression era that describes the hardship of Basin life: "Guys, marry a girl from the Basin—no matter how bad it gets, she's seen worse!"



Rose Gardner



While locked in both a severe depression and the worst drought in over a century, their lives were little different than that of the pioneers in the rest of the state from generations earlier: Few of the rural homes of the region had even the minimum of modern conveniences. They lit their homes with candles and coal-oil or kerosene lanterns. Housewives cooked their families' meals on a wood-burning stove, and pickled and preserved most of their fruits and vegetables, and stored the rest in hand-dug root cellars. Meat was preserved by bottling, smoking, or drying. They sewed their clothes at home by hand or on a pedal-driven Singer sewing machine. Mother washed the family's clothing on a scrub-board and dried them on clotheslines, with some families so lacking that they had to wait in the bedroom for the clothes to dry, for they only had one shirt or skirt. Rose Gardner of Neola details:

Monday mornings was my wash-day and I put my water in a tub outside in the summer to heat it. But in the winter you'd heat it on the stove in the house. Then I'd rub on the board [wash board] and I'd notice my knuckles a rubbin' on the board they'd kinda get skinned up and take all the hide off a lot of 'em, but by the next Monday they were healed up so I could go at it again [sic].⁴

Farmers milked their cows by hand, usually in the hour before sunrise and after sunset in a small pool of flickering light made by a distinctive-smelling coal-oil lantern. Floors were swept not vacuumed. Wood and rock was worked with hand-tools powered by strong arms. Hand-pumped bellows blew forge-fires to sizzling heat to weld steel by hammering the red-hot metal on an anvil for repairs to farm implements.

They made their own music without electricity for their dances—usually only a piano and fiddle; and even the organ at church was pumped by the feet of the player. The average farming family spent ten hours a week simply hauling water from wells and springs. A windless crank, usually turned by the small arms of children or tired farmwives, was used to haul water from their wells to the surface. Elbert Smith of Neola explains:

We drawed water out of the well for our cows. It had an old pulley that we drawed it up to get water for the cows. Of course when I was gone that was quite a chore for the wife [sic].⁵

Baths were rather infrequent when water had to be heated one bucket at a time on the wood-burning stove. Several buckets of warm water would fill the large washtub placed on the kitchen floor. Father or mother would be first, followed by the children in order of age.



Elbert Smith



By the time the last baths were finished, the water was often so dirty the saying of “don’t throw the baby out with the bath water” made sense.

Basin residents who lived prior to electricity coming into their homes illustrate. Rue Miles of Mt. Home tells: “Them good times, I don’t want to go back to it, and our kids—they don’t believe ya [sic].”⁶ Marion Ross of Roosevelt adds:

*[F]or our lights we had coal-oil lamps. When we run out of coal oil, my mother used to save all the bacon grease, and we’d put bacon grease and then take a rag and twist it up and put one end in the bacon grease and light the other end. That’s what we had for lights when we run out of coal oil.*⁷



Rue Miles

The Uinta Basin was extremely isolated with no easy route into the region. Some had automobiles in the 1930s, but many, especially in the rural regions, still rode horses or arrived in wagons and buggies to school and church.

Crossing the mountain passes that rim the Basin on unimproved roads was a constant challenge,

especially in the winter. Most farmers still relied on teams of horses to work their lands for clearing, plowing, planting, and harvesting, although with the drought of the time, little harvesting was being done.

During the economic boom of the 1920s, while much of the nation was engaged in stock speculation and enjoying the luxury of wringer washers, radios, vacuum cleaners, and other electrical items, most Basin farmers lived an austere life. By the 1930s the United States lagged significantly behind Europe in providing electricity to rural areas due to the unwillingness of power companies to serve farmsteads. In 1934, only some 10 percent of U.S. farms had electricity. In Germany and France that same year, nearly 90 percent of farms had electricity.⁸

Basin farmers had long anticipated that the privately owned power companies who served the larger communities of the region would extend service to the small communities and rural farms. But it was not to be. Private utility companies argued that it was too expensive to string power lines to isolated rural farmsteads. They further argued that most farmers were too poor to afford electricity; however, it was a common practice for private power companies to set rural rates four times as high as city rates. Morris L. Cooke, the first head of REA, explains: “In addition to paying for the energy he used, the farmer was expected to advance to the power company most or all of the costs of construction . . . Such costs were prohibitive for most farmers.”⁹ Disincentives for private power companies to spend their investment capital to fund infrastructure in the rural parts of America created an ever-growing difference in the standard of living between urban and rural citizens. Electricity’s huge productive efficiency, largely unavailable to the agriculture industry, left it lagging behind other sectors of the economy in the 1880 to 1930 period.



Marion Ross



*Rural demands for the newest manufactured items found in urban American homes—telephones, radios, refrigerators, washing machines, hot water heaters, and household appliances—were latent. Given the widening disparities between rural and urban settings, it was not surprising that rural Americans reverted to the cooperative lifestyles of the nineteenth century as the urban markets for their agricultural products collapsed in the Great Depression.*¹⁰

The Roosevelt Administration believed that if private enterprise could not supply electric power to the people, then it was the duty of the government to do so.

While urban households and businesses gained electricity in large numbers after 1910, the more sparsely populated rural regions of the United States were generally without electricity and were denied the commercial progress it brought. Electrical service providers ignored the rural market due to its high network construction costs and

*the prospect of meager immediate profits. From the supplier standpoint, rural homes, farms and businesses were stretched too far apart and offered too little demand relative to the cost of investment . . .*¹¹

THE DEPRESSION

When the stock market crashed on October 29, 1929, it signaled the beginning of this nation’s worst financial depression. With the homesteading era shortly behind them, Uinta Basin residents struggled to make a living. Financial difficulties deepened with the Depression and drought of the 1930s. As farm prices fell because of the nationwide overproduction of farm produce, prices dropped to new lows, and farmers, the backbone of the region’s economy, had less and less cash to spend.

By the summer of 1933, following the election of Franklin D. Roosevelt, some of his New Deal programs were being implemented. Over the next years, some 40 percent of rural Uinta Basin residents were receiving public assistance, making them the highest assisted group per capita in the state. As the various New Deal programs went into effect, the economy had marginally improved, and the number of people dependent upon the government dropped significantly by December 1938.¹² Under these crushing conditions, the Rural Electrification Administration (REA) was born. Of the several New Deal programs put into action within the Uinta Basin, none had a greater impact or a longer lasting effect than the REA. Created in 1935, the REA used Work Projects Administration labor and Reconstruction Finance Corporation loans and grants to rural cooperatives to extend electricity into areas of rural America that were too small and widely scattered for profitable service by private companies. After a failed



attempt by private corporations to limit the growth of REA projects in 1936, the Administration was made permanent under the Department of Agriculture in 1939. The REA proved to be effective in providing inexpensive electricity to the isolated farms starting in the upper country around Altamont and rapidly spreading to other portions of rural Uinta Basin. Today the most remote farmstead in the region has electricity.

THE ORIGINS OF THE NEW DEAL RURAL ELECTRIFICATION INITIATIVE

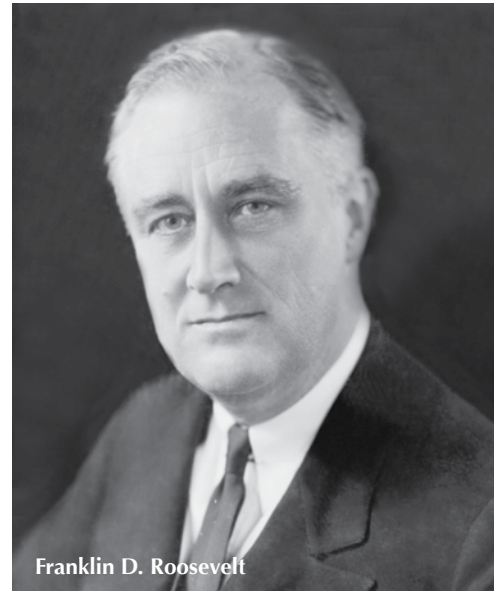
The failure of the private electric companies to deliver affordable electricity to rural locales led to more than thirty state rural power initiatives during the 1920s and early 1930s. President Herbert Hoover argued that responsibility for rural electrification rested with state government.¹³ Franklin Delano Roosevelt, then governor of New York, aggressively promoted rural electrification, and the New York Power Authority was created in 1931 to develop a substantial new source of inexpensive hydroelectric generating capacity along the St. Lawrence River.¹⁴ But the Depression led to the collapse of many state power authorities and further raised the bar in discouraging private investment in rural electrical infrastructure. When Roosevelt assumed the presidency on March 4, 1933, the market for new rural electrification investment no longer existed because of the Depression.

While Roosevelt clearly understood the benefits electrification would bring to the rural American economy, it was Morris L. Cooke who provided vision and leadership to rural electrification efforts under the provisions of the New Deal. Cooke had led a Pennsylvania rural electrification program called Giant Power; and Roosevelt conscripted him to tackle the problem at the federal level. Using data supplied by the utility industry, electrical engineers, Giant Power, and the U.S. Census of 1930, Cooke authored a 1934 report of only eleven pages that became the impetus for the federal rural electrification program. In an appendix to that report, Cooke included detailed estimates of the cost per mile of high wire distribution lines and suitable construction materials and standards to use in rural regions. He wrote:

*This cost of the line with transformers and meters included for one to three customers will range from \$500 to \$800 the mile. To amortize this cost in twenty years at four percent involves a cost to each of the three customers on a mile of line of about one dollar a month.*¹⁵

Further studies commissioned by Cooke indicated that average household payments for electricity would be a “*minimum of one dollar per month for the first ten kilowatts of electricity, three cents per kilowatt for the next forty kilowatts, and two cents per kilowatt for the remaining balance.*”¹⁶

All told, the estimated cost of providing electricity to some half-million farms, at an average of three farms per mile of rural road, came to a total of \$112 million, or \$225 per farm. In a worst-case scenario, if new generating facilities were needed for all 500,000 farms, the 333 power plants that would have to be constructed would cost an additional \$87 million. Consequently, Cooke’s high-end estimate for the complete electrical infrastructure needed to bring electrical service to 500,000 rural American farms was \$200 million, or \$400 per farm. He concluded that a new rural electrification agency should build the necessary infrastructure since the market would not otherwise furnish electricity to sparsely populated localities.¹⁷



Franklin D. Roosevelt

THE RURAL ELECTRIFICATION ADMINISTRATION

The idea of providing federal assistance to bring electricity to rural America gained traction as President Franklin D. Roosevelt took office. Roosevelt realized that living standards in rural areas would continue to lag behind urban areas without electric service, and that it would take bold, decisive action to help rural Americans get it. Beginning in 1935, the hope for electricity in rural America became a reality. FDR and the New Deal Democrats formulated a plan to provide assistance to the people of rural America and help them bring the power into their lives. They could organize cooperatively and secure loans to electrify the rural areas. This message swept across America bringing hope and excitement. It was the beginning of the full-scale electrification of America, a partnership of the people with their government. People simply called it *The REA*. While most rural residents hoped for power, some viewed it with skepticism: Aaron Stevenson of Mt. Home said, “*I remember ol’ Franklin D. Roosevelt said every home in the United States would have electricity; I thought he was nuts.*”¹⁸ But Stevenson paid his five dollars to join the cooperative, and some months later electricity was brought to his home.

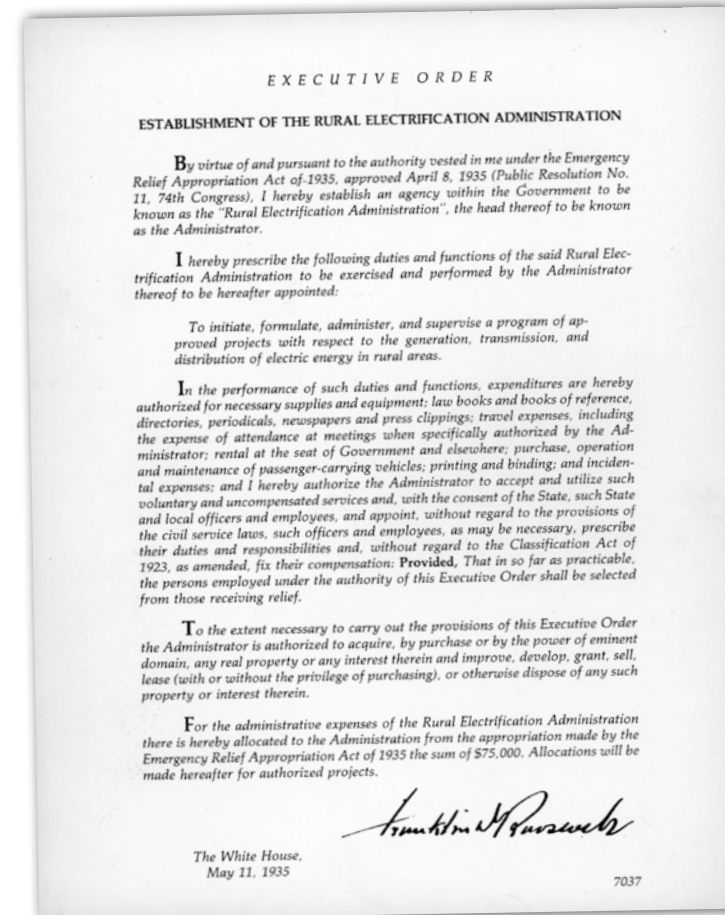


Aaron Stevenson

The REA was fundamentally a government financing agency that provided subsidized loans to private companies, public agencies, or cooperatives for the construction of electrical supply infrastructure in rural regions. The loans approved by the agency were underwritten by the federal government at an attractive interest rate and a liberal repayment schedule of twenty-five years. In the first years, the interest rate was set to match the rate of federal funds at the time the loan was executed, but after 1944 the rate was set at a fixed rate of 2 percent. REA loans provided incentive to form rural electric cooperatives and connect to the existing electrical network at rates comparable to the national average, and low-cost financing for construction of electrical supply infrastructure was the key provision of the program. As the program took off, the REA cooperatives quickly became one of the largest capital investment projects under the New Deal umbrella of programs.¹⁹

President Franklin D. Roosevelt signed an Executive Order in May 1935 creating the Rural Electrification Administration (REA) within the U.S. Department of Agriculture.

By virtue of and pursuant to the authority vested in me under the Emergency Relief Appropriation Act of 1935. . . . I hereby establish an agency within the government to be known as the Rural Electrification Administration . . . I hereby prescribe the following duties and functions . . . to be exercised and



*performed . . . to initiate, formulate, administer, and supervise a program of approved projects with respect to the generation, transmission, and distribution of electric energy in rural areas*²⁰

This action's underpinnings were the acknowledgement that if rural America was ever to become electrified, there was need for government involvement. But it was the involvement of the rural people themselves that became the true stimulus of the program's success. After it became apparent that private utilities were not going to construct electric lines with REA loan funds under the agency's plan for area-wide rural electrification, it was the farmer-owned cooperatives, many newly organized to

capitalize on the REA loans that were available, that came to the forefront. With passage of the Norris-Rayburn Act the following year, Congress authorized \$410 million in appropriations for a ten-year program to electrify American farms. Under this program congressional representatives would serve as administrative liaisons for the formation of cooperatives within their districts. Cooperatives were not-for-profit consumer-owned firms organized to provide electric service to member-customers. Each cooperative was typically governed by a board of directors elected from the ranks of its residential customers. The board would establish rates and policies for the cooperative and hire a general manager to conduct the day-to-day business of providing electricity to customers within the service region. There were two significant restrictions placed on the formation of the cooperatives: First, they could not compete directly with utility companies; and second, cooperative members could not live in areas served by utilities or within a municipality with a population of 1,500 or more.²¹

The REA helped rural Americans all across the nation form user-owned cooperatives and

provided them with loans needed to build a rural electric infrastructure. These co-ops, in partnership with USDA/REA, brought electric service to even the most remote corners of the nation. Their applications flooded the REA offices in Washington, DC. By 1936, the movement for cooperative rural electrification became a grassroots movement of popular support that swept the land. Congress passed legislation making REA permanent with provisions for cooperatives.

Electricity was the fuel for the economic engine that revolutionized rural life. Agriculture Secretary Dan Glickman said during an event in Washington, DC, marking the sixty-fifth anniversary of the creation of the REA:

In pre-electricity days, farm chores were often done by the dim light of kerosene or coal-oil lamps. Those flickering lights all too often illuminated faces of rural people crushed in their prime by the rigors of rural life.

Glickman recalled the daily struggles of rural people in those pre-electricity days by quoting Senator George Norris, one of the co-sponsors of the Rural Electrification Act:

*I had seen firsthand the grim drudgery and grind . . . I had seen the tallow candle in my own home, followed by the coal-oil lamp. I knew what it was like to take care of farm chores by the flickering, undependable light of the lantern in the mud and cold rains of the fall, and the snow and icy winds of winter. I recall the . . . scenes of harvest and the unending, punishing tasks performed by hundreds of thousands of women, growing old prematurely, dying before their time*²²

The successes and life-changing electric service brought to rural America by the REA did not get implemented without opposition. Several individuals and groups opposed the federal government's involvement in developing and distributing electric power. Leading the opposition were the utility companies, who argued that the government was unfairly competing with private enterprise. Private electric utilities argued that the government had no right to compete with or regulate private enterprise, despite many of these utilities having refused to extend their lines to rural areas, claiming lack of profitability.²³ Some members of Congress argued that government should not interfere with the economy. It was argued that the REA was a dangerous program that would bring the nation a step closer to socialism. Another opposition argument was that farmers simply did not have the skills needed to manage local electric companies.²⁴

In spite of the arguments against, the arguments in favor of rural cooperatives instead of waiting for privately owned power companies to electrify outlying farms vastly outweighed opposition arguments. Rural electrification was based on the belief that affordable electricity would improve the standard of living and the economic competitiveness of the family farm.²⁵ The need of bringing electricity to rural regions was a huge fiscal investment not merely convenience. In 1935, Morris Cooke reminded the nation:

Farms are factories as well as homes; therefore the electrification of rural America means more than comfort and convenience. It means profit to farmer, to utility, to appliance manufacturer.

The Rural Electrification Administration provided low-cost loans to cooperatives or groups of people. The people paid back the loans in their electric bills. A dramatic change accompanied this; electricity saved labor, increased production, and improved the quality of life. REA Historian Terry Kay comments:

*We see a dramatization of life before and after electricity. Although the REA provided loans and technical assistance, leaders of rural communities had the responsibility of organizing the cooperatives. They signed up prospective customers, collected the initial \$5 fee, demonstrated to the federal government that the cooperative was a responsible borrower, and obtained permission to string lines across a farmer's property. This organizing could take a lot of coaxing. Some farmers, accustomed to living without electricity, considered it a luxury. Others, still reeling from the Great Depression, found \$5 hard to come by.*²⁶



Uintah Power and Light Company Power Plant



Setting pole

CHAPTER 2

Early Electric Service in the Uinta Basin

They would put electricity around to the towns but not to the farms; that was unreasonable. We couldn't believe that would ever happen; it was just too good to be true. We used to go down to Duchesne, to go down to the shows, and that was one of the exciting things, to stop at the top of the hill



and look down and see the lights . . . One time I had a relative come out from Salt Lake and she said to me, "You mean you carry your water from out there in the ditch? She felt so sorry for me, and I thought how lucky I was to have a ditch right out in front of the house!"²⁷

—Anona Miles, Mt. Home

Anona Miles

...

There was, prior to the formation of the REA and Moon Lake Electric, electrical service delivered in some parts of the Uinta Basin. A small company, the Vernal Milling and Light Company, which was built in 1908, first brought power to Vernal City residents. This company supplied Vernal until 1925, when Utah Power and Light (UP&L) bought them out and extended service to the nearby communities of Davis, Maeser, and Naples. Utah Power and Light was organized in 1912 as a subsidiary of a large holding company, Electric Bond and Share Company (EBASCO) of New York. Within four years of its organization, UP&L had purchased twenty-seven other electric companies in the general Utah area, and over the next years eventually absorbed more than 130 utility companies including the Vernal Milling and Light Company.²⁸

The Uintah Power and Light Company (UPALCO) provided the first electric service in Duchesne County, supplying Roosevelt, Myton, Duchesne, and the few residents of Lake Fork. This small private company was founded in 1910, and a power plant was built on the Lake Fork River in the small community that was then called Lake Fork. After completion of the power plant, the area was renamed Upalco, the name it still bears, after the initials of the name of the company Uintah Power and Light Company.

Equipment for the UPALCO plant was purchased from the Vernal Milling and Light Company and consisted of two belt-driven 60 kW generators and two reaction waterwheels. Water to drive the wheels was obtained from the Lake Fork River, where it was diverted into a thirty-inch wooden stave pipeline. Power lines were brought from Upalco to Roosevelt and Myton, and were first connected on July 15,

1914, with forty consumers receiving service. Residents in those two towns were the only ones to receive electrical service in Duchesne County until 1922 when Uintah Power and Light expanded service to Duchesne City.²⁹

Between 1914 and 1917, the Upalco, or the Lake Fork Plant, was the Uintah Power and Light Company's sole supplier of power. But the wooden pipeline resulted in considerable trouble in the winter months from freezing. Sand carried in by the river water wore the wheels prematurely. Overloads were frequent and service was inconsistent. In 1917, during World War I, the company relocated its headquarters from Upalco to Roosevelt, and construction of a new power plant at the mouth of Uinta Canyon was rapidly progressing. They ordered a generator while construction was underway, but the government claimed the generator as soon as its building was completed to send it to France in the war effort, so the company had to order another, which set them back about a year. A power line also needed to be built from Uinta Canyon through Neola to Roosevelt. Also, a canal to bring water from Pole Creek to Uinta Canyon was dug. The last 4,280 feet of the canal was funneled into a thirty-two-inch wood stave pipeline. Victor Brown recalls:

The first time I saw the plant was in 1924 . . . The only water they had was from Pole Creek . . . Pole Creek produces a small amount of water especially in the later part of the summer . . . The pipe they used was made of wood and had metal bands that could be tightened to hold the wood in place but there would be places where it leaked, and in the winter when it sprayed out, large mounds of ice would form.³⁰



The Uintah Plant was put into operation in October 1920.³¹ Eleven years later, in 1931, the plant was expanded. The first thing needed to bring about the expansion was a larger, more stable water supply. To accomplish this, the Uintah Canal was constructed, bringing water from the Uinta River to the power plant. It was completed in 1932. With the completion of the Uintah Canal, the electrical service was much more consistent and power outages and failures were significantly reduced. In 1935 the wooden pipeline failed and was replaced by a twenty-four-inch steel line. That same year the Lake Fork Plant was abandoned and the equipment sold.

The REA was encouraging the expansion of service in the rural regions of the Basin, and UPALCO expanded to meet the anticipated power increase. Another steel pipeline was laid alongside the first to increase the water flow into the plant, and in 1940 a 900-horsepower impulse water turbine was added along with another 600 kW generator, which significantly increased the output.

THE ALTONAH-BLUEBELL-MT. EMMONS RURAL ELECTRIFICATION ASSOCIATION

In 1937 Shirley K. Daniels of Mt. Emmons was in Roosevelt working on a wind generator; and during a lunch break at a local café, he heard President Roosevelt's radio message about the government's appropriation of funds to construct power lines in rural areas. He wrote to the Rural Electrification Administration offices in Washington, DC, to find out how he and his neighbors could get power. Plunging ahead, Daniels, along with Chester Hartman, Edward Holder, and Edward Conklin, formulated a plan to organize a cooperative. They held their first meeting on January 11, 1938, and with the assistance of



George Stewart, a young attorney from Roosevelt, and Zella Rust (Bennion) as bookkeeper, and following Utah State Statutes, they formed the necessary nonprofit corporation. Formation of a nonprofit corporation was the necessary first step prior to forming an REA cooperative.

Throughout the summer they sold the idea of forming an electric cooperative to the farmers of the upper-country. On September 22, 1938, a mass meeting was held at Altamont High School, which was attended by about fifty people representing the rural communities of Mt. Emmons, Bluebell, and Altonah. It was proposed that they officially incorporate the Altonah-Bluebell-Mt. Emmons Rural Electrification Association. They also discussed the notion that funds were available from the REA to finance the construction of a distribution system. The official date of incorporation was a few weeks later on October 6, 1938. Within a short time, it was decided that the name, Altonah-Bluebell-Mt. Emmons Rural Electrification Association, was much too long, and it did not reflect the growing service area as other regions joined. Zella Bennion, likely tired from writing the Altonah-Bluebell-Mt. Emmons Rural Electrification Association, suggested the much shorter and appealing

name of Moon Lake Electric Association. That name was favorably adopted. The name Moon Lake was on most Basin residents' lips because of the Federal Reclamation Project that involved constructing a dam to enlarge the size of the natural lake in Lake Fork Canyon that would double the amount of irrigation water available to the farmers of that region.

The Moon Lake Electric Association (MLEA) was incorporated on October 6, 1938. The first Board of Directors elected upon the formation of the Corporation included S. K. Daniels of Mt. Emmons, Henry A. Wathen of Bluebell, Ed Conklin



This is believed to be Ed Conklin.

of Altonah, Chester Hartman of Mt. Emmons, F. C. Watterson of Altonah, John Thorsen of Bluebell, and Delbert Shiner of Altonah. For the first months, they received no compensation for their time or travel, and often used their own money to cover expenses. For example, Chester Hartman loaned Moon Lake operating money totaling one hundred dollars for ninety days in November 1938. The next year Board of Directors' fees were set at six dollars per meeting and five cents per mile traveled.³²

Author Terry Kay explains how these new co-ops sprang up across the nation:

A new cooperative enterprise soon appeared. The first offices of rural electric systems were most often humble, storefront affairs, but they were welcome additions to rural communities determined to pull themselves out of the throes of a Depression-ridden rural America. The cooperative, a unique new enterprise, soon found itself in the forefront of community affairs. The directors that the cooperative members had elected were their neighbors and friends, farmers and ranchers like themselves. These directors met monthly to set policy and give guidance to the cooperative manager. The entire co-op form of running the system was given full and democratic expression once a year at the annual membership meeting. Under one-member/one-vote bylaws, member control was assured.³³

Over the next months, these seven men, MLEA's first Board, held many meetings, sometimes several per week, in Altonah, Duchesne, and Mt. Emmons. A lot of time was taken in establishing the articles of incorporation and the bylaws under which the company would operate.

The first office for Moon Lake Electric Association was in a room in Ira B. Cannon's home of Mt. Emmons. Rent was ten dollars a month. In June 1939, Chester Hartman hired a Mr. Odekirk to construct an office building that would be rented as Moon Lake's offices. Materials cost \$372.01 and Odekirk's labor was \$75.00, bringing the estimated total to \$447.01.³⁴ As with many projects, it ran over budget with extras including an extra chimney, \$28.00; toilet, \$12.50; bathroom, an extra \$27.00; an extension of the sidewalk, \$12.50; and the extra plumbing added \$14.00. Hartman's building was completed and



Left to right, Ed Conklin, Lawrence Caldwell, Henry Wathen, S. K. Daniels, Delbert Shiner, and Mr. McWethey

used for an REA meeting for the first time on July 6, 1939. Rent was twenty-five dollars per month.

In November, for the initial project, Moon Lake borrowed \$74,000 at 2 percent interest from the REA to begin construction of a power system. J. Edgar Holder was appointed superintendent of the project. Their first task was to build fifty-two miles of distribution line to serve electric power to the areas of Mt. Emmons, Bluebell, and Altonah. On March 27, 1939, six different construction companies came through the snow and mud to bid on the construction of the power line. The line was started May 1, 1939, and the fifty-two miles of line

was completed September 1 of that year.³⁵

On September 1, 1939, Moon Lake Electric turned the power on for their first consumers around Altamont. Zella Bennion remembers:

*The power was turned on here on the first of September, and we had a big celebration. Oh, we'd been planning it for weeks. They had a band concert and a program, and everybody was thrilled. The power was turned on . . . and then they had electric appliance demonstrations, and a children's dance, a horse-pulling contest, just everything you could think of in the way of entertainment that we had in those days, and then that night was a big dance. But people were just thrilled—through and through.*³⁶

George Stewart of Roosevelt adds:

*We finally got it through, and I don't believe there was ever a time in my life that I was more satisfied than the night they turned on the power: It was like walking from dark into daylight . . . it lit up these valleys; it was a beautiful sight to see. Total darkness and ZING the lights came on ALL OVER! That was a sight.*³⁷



Early board members



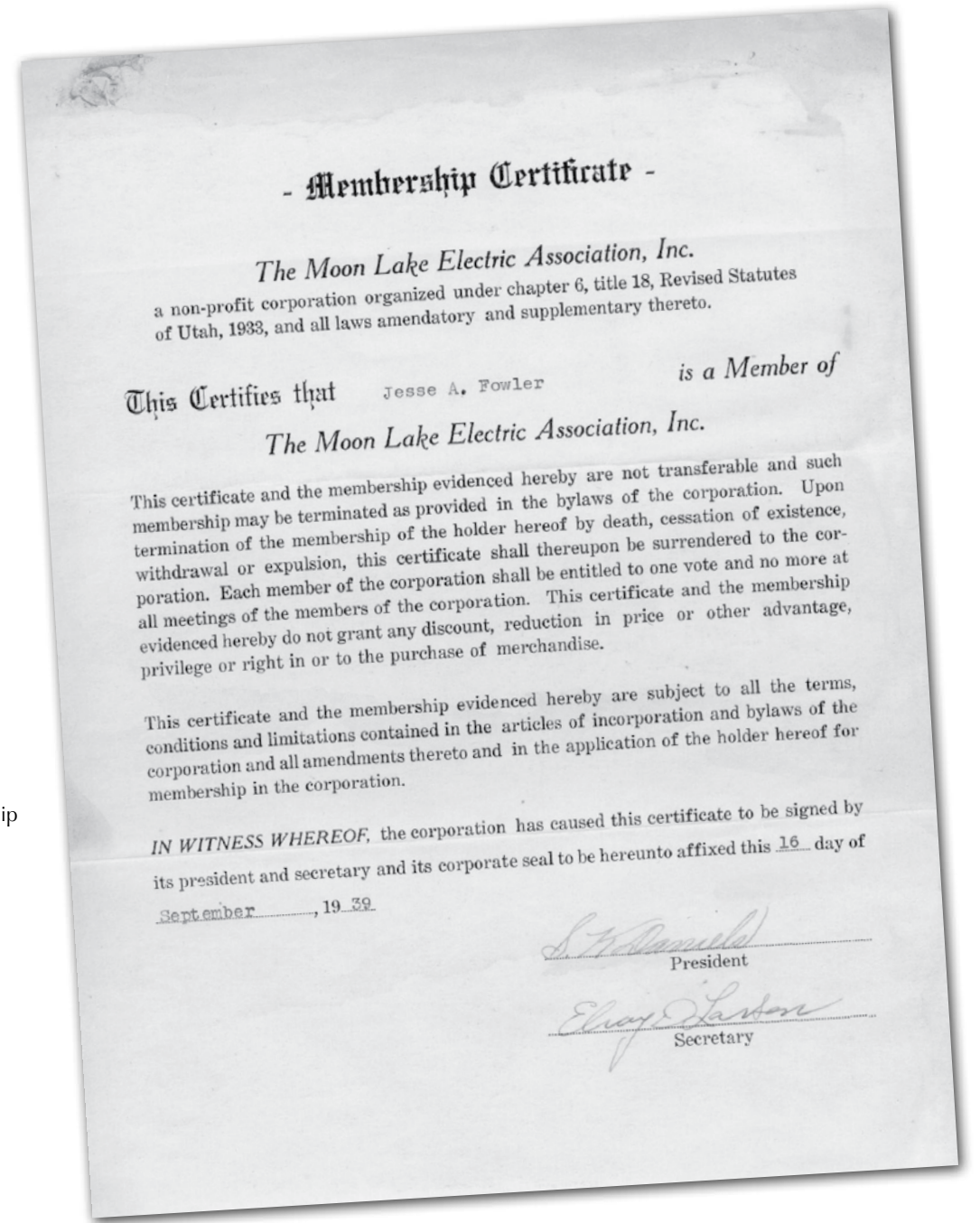
Zella Bennion



First office building (Altamont), 1939



George Stewart



1939 Membership Certificate

RURAL ELECTRIFICATION ASSOCIATION AND MOON LAKE ELECTRIC

Meanwhile, additional meetings were held. Fieldmen from the REA outlined procedures and principles to the rural leaders. Most of Moon Lake Electric's founders were farmers who had no formal training, college degrees, or practical experience with electricity, or with running a complex and rapidly growing business. They made up for their lack of training with enthusiasm, common sense, and hard work. But they had a vision in their minds that gave determination to overcome obstacles and objections. It was an enormous effort that took great patience and hard work. These committed men worked tirelessly as they went up and down dusty summer roads and icy winter ones, for there were no paved roads in the region at that time, ranging up and down the region, from farm to farm to get



Early Moon Lake Electric directors

First office building (Altamont), 1939

the needed signatures of new members and obtaining the hard-to-come-by \$5 sign-up fees to join the cooperative. As word spread, more and more people stopped by the new office in Altamont or mailed in their application and sign-up fee. DeMarr Dudley of Jensen tells:

I remember one particular woman at that time I went to see and she'd been very belligerent about it. She said, it ain't ever gonna come to pass, and I ain't gonna put five dollars into something that ain't ever gonna happen. And I said, well I'll tell you what I'm gonna do . . . I'll put in the five dollars now and when you realize that electricity is coming you can pay me back if you want to . . . and I signed her up and put in the five dollars for her. And when you see people stringing wires out here in front of your house then you can be quite sure it will be a reality . . . she paid her five dollars when she saw the wires being strung out in front of her house . . . [sic].³⁸

Many times those who gave the five dollars did so with money they could ill afford, but they knew the difference electricity would make in their lives. They were determined to get electricity into their homes and barns. Early management of Moon Lake Electric joked that if a farmer hesitated to pay the five dollars, all they had to do was let his wife know he was dragging his feet, and he would soon pay the fee rather than face the wrath of his wife. Five dollars to a Uinta Basin farmer in the 1930s would be the equivalent of several hundred dollars today. The following letter demonstrates how hard five dollars was for some to come by:



DeMarr Dudley

Dear Mr. Daniels, Here enclosed is the remaining 50 cents of my fee for R.E.A. We now have nearly reached our quota on the proposed line that would include 10 families in a little over three miles. We have been waiting for two years for the power and now we urge you to please use all possible speed on our project. We will try to have all families on the line signed up and their \$5.00 fee paid by the 15th of this month. May we hear from you concerning the probability of our line? I trust you will do all you can toward this goal, which will revolutionize our lives very much . . . Hopefully yours, Carl R. Carstrom.³⁹

Then began the long hours of mapping route selections for electric lines with the engineers, acquiring land easements for the lines from their neighbors, and finally, preparing the loan application to REA. A letter from Mrs. Florence Bates of Duchesne details:

Gentlemen: We are enclosing part of the Right of Way Easements. The balance of these Easements will follow as soon as they are properly signed. We are also enclosing three new applications.⁴⁰

In the earliest days, construction of power lines was sometimes a primitive affair; but by 1936, REA developed assembly line methods for line construction with uniform procedures and standardized types of electrical hardware. This resulted in lowered costs, which made electricity feasible for more and more rural people. All over the country, power poles began to dot the landscape, and overhead, newly installed power lines were bringing change to the lives of rural Basin residents. Line crews, often aided by eager co-op members themselves, cleared rights-of-way and dug six-foot holes for the forty-foot poles, while other crews came behind with the poles and hardware. Lastly, crews came to string the wire. Elbert Smith of Neola explains:



The men in the neighborhood got together—to get the electricity we'd do anything, so we went to work digging the holes. I don't know how many holes were dug, but it was a couple of miles of line, but we dug holes for it.⁴¹

A poignant letter addressed to Ed Conklin, manager of MLEA, from sixteen women from Dry Fork demonstrates this. Their husbands and sons were off fighting in World War II, leaving them to do the never-ending tasks of milking cows by hand, feeding cattle, raising and harvesting crops, and still

doing all their indoor tasks and responsibilities that kept their homes and families going.

Dear Sir: Because of the war work and the constantly increasing shortage of manpower on the farm, resulting in the overburdening of women with men's work, we the undersigned residents of Dry Fork submit this petition as an appeal to you to consider, at this critical

time, the fact that our need of electrical power is greater than ever before. Please make a definite effort to assist us in this problem as far as your power extends, including the sending of this petition on to higher authorities at Washington if necessary.⁴²

A follow-up letter adds:

Dear Mr. Conklin, This is to acknowledge the receipt of your recent letter and to tell you that the Dry Fork people are anxious to meet you near Aug. 1st and hope that something more than a meeting will be in the program. That is between the hay and grain (including silage) harvest and they hope to help in the constructing of the 8 miles of line as a manpower shortage will perhaps be a problem you will have. Please inform us promptly and definitely, so that we can plan and work along with you in the early completion of this unfinished job. Very truly, Mrs. Elmer Lind.⁴³

The harried yet hardworking women of Dry Fork were gladly willing to labor on installing the line to bring laborsaving power to their homes and farms.

Over the winter and early spring of 1938, the project for Altonah, Mt. Emmons, and Bluebell bringing power to 233 homes was underway. Lines were strung, rights-of-way obtained, homes wired, contracts signed, and a multitude of other tasks were needed to be completed for electric service to be possible. The following March, another \$10,000 was approved to wire homes for electricity. As the association was formed, the initial power lines strung, and the first homes brought on-line, lives started to change in the rural portions of the Uinta Basin. News spread rapidly and hopes rose. Within the files at Moon Lake Electric offices are hundreds of letters from individuals seeking, hoping, that their homes and farms would be electrified in the near future. Some of these are poignant:



Uintah Indian School, Whiterocks, Utah, October 9, 1941

Dear Sir, Reminding you of promise you have made about two year ago. When Frank Morrill was collecting amount of \$5.00 to have lights put in my house as I have waited two yrs I would like for you act once on this [sic]. Yours Truly, H.J. Wopsock

Ed Conklin's reply is interesting:

Dear Mr. Wopsock, Reference is made to your card of October 9, 1941. We have just recently received copper wire which we have had ordered for several months, so we will see you in the near future in regards to building the power line you mention. Very truly yours, Moon Lake Electric Association, Inc. Ed. Conklin, Superintendent.

Additional letters evidence the near-desperation of some farmers to get electricity.

Dear Sirs, In all probability you get tired of hearing from us prospective patrons, but we are getting desperate. As of Jan. 1, 47, the State Board of health says we can't milk cows if we don't have water and a cooling system. On a promise from your office we all



went ahead and got ready for power. It has been a year now since then and we know that some materials are available. Please aren't you going to do something for us? Mrs. F. E. Harmston and 9 miles of Bennett people.

There were many challenges to face, some large such as securing new loans from the federal government, others small and even laughable. From MLEA's *The REA Reporter* we read of some of these:

We are gradually changing from insulator shooting to throwing wires over the line, it's a simple trick which produces more excitement with lasting entertainment . . . There is real excitement in this new pleasure, just think of all the fun the linemen will have finding just one small chunk of wire in thirty or forty miles . . . Or think of old John Jones milking twenty head of cows by hand (boy that's a good one). Or old lady So and So over there with five or six hundred new chicks, just think of all the long hours you will save her, all those chicks she won't have to feed.

Parents: Putting all joking aside, folks—someone is going to be electrocuted with such a pastime. It may be your son or daughter. Please caution them against such pastimes. Last spring we had a waiting list of nearly four hundred persons; today, not-with-standing we have done our darnest to catch up, we are still over five hundred behind. Last spring we placed orders for vast sums of line material and later for more. If it all had been shipped to us, paying for it would have bankrupted us and the Lord only knows where we could have stored it. From this multiplicity of orders we are receiving a mere trickle of material—only a fraction of our need. It seems there is, always, a shortage of one article or another. If it isn't transformers it is hardware; if it isn't hardware, it is poles, or line wire or motors or insulators or the Lord knows what, and above all, the constant menace of a breakdown in our power supply.

Even if we are so fortunate as to secure a sufficient supply of material, we would be unable to hook up prospective members as rapidly as we would like. We have only two gangs of men we can use for that purpose and their primary function is that of maintenance of our existing lines, and so much repair work is urgently needed that a large part of their time has to be devoted to that purpose. Additional gangs cannot be recruited at a moment's notice. Linemen, unlike poets, are made not just born; and it takes considerable time to train a man to handle a hot wire at the top of a forty-foot pole in such weather as we have been having at this time, without danger to himself and others.

Please do not have a fit if your neighbor's house is hooked up before yours. Even if



Early Moon Lake Electric truck



Early Moon Lake Electric truck

yours were inspected first [sic]. There may have been and doubtless are good and sufficient reasons for so doing. Of the thing you may be assured, the Directors will have shown no partiality. They have learned by bitter experience the truth of the old Roman adage: "He labors in vain who tries to please everyone." Don't complain if someone else is hooked up who was inspected after you were; instead, rejoice and be exceedingly glad, for it proves that your time is close at hand. Now for the sixty-four-dollar question: How long do I have to wait before I can receive current? Candidly, we do not know. Judging from our experience of the last six months, we are hoping to have all those we now have on our list connected before next Christmas. We are hoping and praying that a miracle will happen, and material may once again become plentiful; if so, we shall at once secure a contractor and connect all of you as soon as it can be done. Help us pray.⁴⁴

Even though at the date of this newsletter, 1947, World War II had been over for two years, materials were still hard to come by. Competition for materials was high. Many REA companies were expanding service across the nation. In addition to that, huge amounts of materials were being shipped overseas to assist in the rebuilding of war-torn Europe.

It was not only homes and farms that hoped for the laborsaving electricity. Private enterprises and government institutions alike hoped to get electricity. L. D. Barry, manager of Barber Asphalt Corporation in Bonanza, writes in a May 13, 1942, letter:



Moon Lake Electric trucks, 1945



Early service equipment

Dear Mr. Daniels, This company operates gilsonite mines 32 miles from Jensen, Utah. Plans are underway to use electric power for operating hoists, air compressors and other machinery necessary to the operation here. Consideration has been given to the possibility of the purchase of power from your company. The maximum load would be under 200 K.W. The type of load would be fluctuating due to the starting and stopping of hoists and the loading and unloading of air compressors. Information regarding the approximate cost per K.W. and a rough estimate of the cost of a power line from Jensen to the mines would be appreciated. Also, would your company have the available power?⁴⁵

In a response to Barry's request, Ed Conklin explained that running thirty-two miles of line at that time was impossible due to the war. In Conklin's words, it "is absolutely impossible for us to obtain permission to use even a small amount of material, so we are positive that it would be useless to ask the War Board for permission to use the amount that this line would require."⁴⁶

Jess H. Lombard, custodian at Dinosaur National Monument, writes:

Dear Sirs, There is a definite need for electric power at Dinosaur National Monument headquarters 7 miles north of Jensen, Utah, at the present time and indications point to increased activities with attendant increase in need for power. I would like very much to discuss with you the possibility of bringing REA power lines to serve our needs. Will it be possible for one of your representatives to come to see me or would you rather I come to Mt. Emmons?⁴⁷

E. C. Koziol, forest supervisor over the Wasatch National Forest, in 1948 wrote:

Dear Sir: As you will recall, the Forest Service has been awaiting anxiously the extension of your REA power line to the Stockmore Ranger Station near Hanna. On a number of occasions our ranger, Mr. Colton, has been promised by your association that the extension would be made within a



reasonable period of time. It seems, however, that various difficulties have arisen to assertively prevent this extension from going through as scheduled . . . Inasmuch as the extension involves such a small project, I understand only twelve poles are needed, we are wondering if anything could be done to expedite the completion of this line. Mr. Chiarelli and Mr. Colton have volunteered to set the poles if your association would deliver them on the ground. After that, the stringing of 3,000 or 4,000 feet of line would not seem to be such an expensive or time-consuming project.⁴⁸

And J. M. Evans, chief engineer for Salt Lake Pipe Line Company, a subsidiary company of Standard Oil Company of California, writes to Roy Strand, manager, MLEA, on April 7, 1948:

Dear Mr. Strand: Mr. Polhemus has told you that we plan to install a radio station on Mount Tabbie, and that we probably will want to obtain operatory power from your system . . . Will you kindly let us know if your organization would be willing to serve us and if so under what terms . . . We are attempting to establish communications by June 1, 1948, so we would need power as close to that time as it would be possible to provide it . . . Yours very truly, J. M. Evans.⁴⁹

While Moon Lake Electric could not meet everyone's requests immediately, they were off to a great start within just a few short years from their founding.





Moon Lake Electric Association MT. EMMONS, UTAH			ELECTRIC SERVICE BILL	
METER READING:		Date	Acct. No. 772	CASHIER'S STUB
	Kwh			Acct. No. 772
Present	815	FEB 20 1944	Electric Service \$ 2.70	Electric Service \$ 2.70
Previous	805		Arrears	Arrears
Used	10		Credit	Credit
			Credit Balance \$	Credit Balance \$
			Total Net Bill \$ 2.70	Total Net Bill \$ 2.70
			Penalty .27	Penalty .27
			Total Gross Bill \$ 2.97	Total Gross Bill \$ 2.97
Note: To avoid penalty bill must be paid on or before 15th of month FAILURE TO RECEIVE BILL Does Not Insure Discount If you wish a receipt please send entire card with remittance			Do Not Detach Stub.	

An electric service bill from 1944

CHAPTER 3

Impacts of Electricity to Rural Uinta Basin Homes and Farms



Grant J. Earl

Moon Lake has helped transform northeastern Utah and northwestern Colorado from small, sparsely populated farming communities into widely populated, industrialized and highly competitive agricultural areas.

—Grant Earl, Roosevelt

I think it did more for women than it did for men—it changed everything for a woman's work.

—Anona Miles, Mt. Home

...

When Moon Lake Electric began service, the minimum bill was \$3.25 a month for 40 kWh of power. This was thought to be sufficient for all the new modern conveniences of the day. As electricity became common throughout the rural population, there was an acceleration of life in the community. Schools, churches, and meeting places now had lights and other electric conveniences for the first time. Moon Lake Electric became a vital economic foundation for the entire Basin, and the newly acquired experience for the board of directors provided a rich store of new community and entrepreneurial leadership. As the rural regions and small communities obtained electricity by working together, it created a new sense of community that ensured survival, growth, and maturity for Moon Lake Electric Association as well as the communities themselves as they grew their population and businesses aided by electricity. For the next few years, while businesses were lagging behind the demand, Moon Lake Electric sold electrical appliances in a room adjacent to their offices.

After World War II ended in 1945, most Basin residents did not have a home freezer, so Moon Lake Electric planned on construction of a freezer locker plant. Membership fees were ten dollars. The first year's rental was fifteen dollars for a large locker and twelve dollars for a small one. However, the Board scrapped the project prior to its implementation, likely due to projected costs and returns.⁵⁰ All of the electric improvements created new economic activity along Main Street in Roosevelt, Myton, and Duchesne. Soon new businesses began to appear—electric wiring, light bulbs, plumbing and water heating supplies, and new electric appliances were found in the hardware stores.

As the lights came on throughout the rural portions of the Uinta Basin and all of America, the first magic glow of the naked bulb in the farm home was witnessed with a sense of awe. Many times each day, with the merest flick of a finger, one could tap into vast sources of energy—deep veins of coal and great reservoirs of oil, sweeping winds and rushing waters, the hidden power of the atom, and the radiance of the sun itself—all transformed into electricity, the workhorse of the modern world.⁵¹

Former Agriculture Secretary Bob Bergland recalls:

*The day the lights finally came on at our farm, I remember my mother cried. They were tears of joy . . . she finally saw a chance for our family to break the bonds of poverty. We lived in poverty, as did most of the other 6 million farms then operating in the United States. You struggled to stay alive.*⁵²

Bergland recalled the first three electric appliances his family bought: the first purchase was electric lights for the house, followed by a toaster and then a “98 cent hair curler my mother bought at J.C. Penney and kept all her life.”

Art Campbell, Deputy Under-Secretary for Policy and Planning at USDA Rural Development, said he too has vivid memories of the day his parents’ farm was wired for electricity.

I remember singing with robust glee in celebration as our little strip of houses along a dirt road was connected to electricity. We sang out with joy and no small amount of amazement: Oh the lights, the lights, Lottie Mae got light and we got lights! Oh the lights, the lights.

Campbell further explained, “*REA is government at its best: doing things critical for the common welfare that are beyond the ability of individuals to do for themselves.*” Glenn English, CEO of the National Rural Electric Cooperative Association (NRECA), described the REA as “*a partnership between government and ordinary people who have used cooperatives as a business device to own the utilities that mean so much to them.*” REA, English continued, enabled rural co-ops to build “*the finest electrical infrastructure in the nation, bar-none . . . REA is a great program that performed great deeds.*” he said, noting that it built half of the nation’s electric infrastructure.⁵³

Can a modern Basin resident, who has never lived without the convenience and luxury of electricity, whose only experience of facing the dark is in the rare blackout or camping experience, even begin to relate to life without power, without lights, television, indoor plumbing, heat and cooling, telephones, and computers? It begs contemplative pondering which, hopefully, leaves one slightly humbled and grateful for the vision and dedication of those whose sacrifice brought us the power we largely take for granted.

ELECTRICITY HELPING AGRICULTURE

Soon after light and power came to the rural Uinta Basin, farmers and ranchers began to appreciate the potential for electricity to lighten and speed their daily work. Electricity could auger grain into silos, grind feed, shell corn, pump water, saw wood, and lift hay into lofts. Soon electric milking machines were installed in barns, and with the efficiency and speed of the milking machines, more cows could be milked in less time, yielding both greater potential profits and better efficiency. At the heart of all these lightened labors and the increased productivity was the electric motor—the new farmhand. Farmers soon learned that electricity could outwork several men.



Electricity was crucial for the development of dairy and poultry farms, the two most successful agricultural enterprises in the Basin of the time. Prior to electricity, some dairymen milked up to twenty-five cows by hand both night and morning. To do this time-consuming chore, most dairymen had to rise at 3:30 or 4:00 a.m. Milking was done in the dim light of a coal-oil lantern. The ever-present fear of fire in the barn was a constant worry when using lanterns for light. A good farmer could milk twenty cows by hand in two hours. The farmer needed to be finished by daylight so he could begin his labor in the fields. Electricity let farmers milk two or even four cows at a time with machines rather than by hand. No longer was milk regularly spoiled as coolers kept it chilled until it could be trucked to the creamery. Most ranchers increased the number of cows they milked as electricity was brought into their barns. They had some expense to accommodate this growth—barns had to be wired, milking machines purchased, and a refrigerated milk tank had to be installed—but these costs were worth it with the increased production and sale of milk. The dairy business boomed in Altonah, Neola, and Tridell. Entrepreneurs soon opened new creameries in Mt. Emmons, Altonah, and Roosevelt that processed milk into cheese and butter. Electricity furnished bright lights in the barnyard, giving precious extra hours to do the chores and bring in the harvest. And the farmer could perform these tasks in the light of electricity rather than the dim glow of a lantern.

Poultry farmers and their families spent hours a day carrying water to chickens and turkeys. When they got electricity, a pump was installed in the well, and watering was now a task that took only minutes a day. Many expanded their enterprise as they added automatic feeders, chick incubators and brooders, and even heaters. Lights were installed in the coops to wake the hens to get them laying earlier, and egg production doubled. One of the largest poultry farmers of the region was DeMarr Dudley. By the 1960s he had more than 18,000 hens producing some 9,000 eggs daily.

Over the next years, homes and farms added more and more electric-driven implements and conveniences: water pumps, water heaters in their milk barns, electric milk separators, electric fences, grain elevators, grain grinders, seed cleaners and graders, milking machines and later pipeline milking machines, sheep shearers, tool grinders, welders, etc. As pumps were installed in the wells, flowing water and indoor plumbing was available. With increased production came increased profits, and soon tractor and other farm implement sales rose sharply.



ELECTRICITY LIGHTENED WOMEN'S WORK

With electricity available in the late 1930s and 1940s, rural homemakers' lives were rescued from a world of drudgery. Household tasks were revolutionized and made easier in a hundred ways, for the housewife perhaps leading in assistance was light as easy as switching it on. Irons and radios were often the first household appliances purchased; with refrigerators, washing machines, electric ranges, and vacuum cleaners added as budgets allowed.



No more fummy, dirty lanterns to wash and fill. No longer would children have to do their homework from the light of a kerosene lamp. Water was pumped into the house, and soon indoor plumbing followed. Elbert Smith of Neola relates, *"I went and bought a little electric pump and set it in the corner of the basement and dug the trenches around, and we thought we were really uptown, we had running water."*⁵⁴ Running water made indoor bathrooms possible and slowly eliminated outhouses. The weekly bath in a galvanized washtub on Saturday evening before going to church was replaced with indoor plumbing for a bathtub. Ringer washers now made laundry a fraction of the chore it had been previously. With an electric water heater installed, the turn of a faucet handle brought

hot water for a bath or to do the dishes. A vacuum cleaned the floor; refrigerators replaced iceboxes, and electric fans cooled the home in the summer. Without refrigerators, rural people had to invent ways to keep food fresh. Some put butter in a bucket in the summertime and suspended it down in the well, not quite to the water. Margaret Reay of Altonah explains:

*We had no way to keep our food. We had to put it in a shady place and put a lump of ice in a tub and put our milk around it. Dean used to say they put it down in the well or in the canal or ditch or something to keep your milk cool . . . when our twins were born in 1942. We bought us a fridge, and it was at war-time, and that was the last fridge that come out of Montgomery Ward, and that's the nicest thing I ever had, that refrigerator. I couldn't believe it. I just loved that refrigerator . . . I always felt so sorry for the women who had to stand and have a roaring hot fire to iron their clothes to heat their irons on the stove. That was a terrible thing too.*⁵⁵

Soon even the trusted wood-burning kitchen stove was replaced with an electric one. No longer was the kitchen so hot in the summer.

Electricity radically changed the lives of its farmers and their families. Children could study by electric light rather than coal-oil lanterns. With running water and indoor plumbing, soon water heaters and bathtubs made bathing a convenience rather than a chore. Electric wringer washers replaced scrub



Margaret Reay



boards. Every morning, whether temperatures were hot or cold, wood-burning cook stoves had to be stoked. *"It was fine in the wintertime,"* remarked one woman, *"but in the summertime it would burn you up. The kitchen would be like an oven. The sweat would pour off of you."* Electric fans cooled hot kitchens during the late summer canning season. Refrigeration and heating was much improved. *"The electric service will be the predominate factor in building up this country,"* proclaimed F. J. Faherty, a county resident excited over the possibilities electricity made possible.⁵⁶

Because of the different ripening times of vegetables and fruit, canning would go on from mid-summer through early fall—the hottest time of the year. It required constant attendance to the stove since boiling water was essential to canning. The fire in the kitchen stove had to remain at a roaring temperature, and logs or coal had to be constantly stoked into the firebox. Canning was an all-day effort when harvest was on. Prior to electric stoves, refrigeration, and electric fans, women had no respite from the blazing heat at canning time.

Betty Holgate Evans of Arcadia remembers the changes electricity brought to their home in Arcadia:



Betty Holgate Evans

What was it like before electricity? In the evening after the supper dishes were done, I recall sitting at the kitchen table covered with the oilcloth (tablecloth) and the flickering of the coal-oil lamp, where I learned to read my first reader of Dick and Jane. The coal-oil lamp made all kinds of funny shadows on the nearby walls. It was quite spooky sometimes. The rooms of the farmhouse were fair sized; yet it was hard to see beyond the light range of the lamp. Then in 1939 . . . electricity poles and lines were brought to our area and our homes were wired for electricity. It was December, almost Christmas, and the electric crew finished turning on the electricity at Uncle Frank's home and they said that was the last home they would connect with electricity until after Christmas and the first of the year, but Uncle Frank said, "Couldn't you please just do one more—my brother Hale just up the road would sure like the electricity turned on in their home."

It was after dark, when the men came to our home, climbed the pole where the transformer had been installed, and all of a sudden, our home was full of light. I remember what Mother and I were doing at that moment—we were standing by the kitchen wood range heating the water to fill the round, metal #3 bathtub with warm water so I could take a bath. The coal-oil lamp was lit and on the kitchen table and then, ohhhh, what a surprise and joy as all that beautiful light filled our home for the first time. Our Christmas tree was decorated with electric Christmas lights and Santa brought us our first electronic appliance—an electric iron. No more heating the flat irons on the stove to do the ironing . . . I do have sweet memories and my heart is always touched as I recall that wonderful occasion, when electricity was supplied to our home. That blessing will always be my favorite Christmas gift. Thank you REA and Moon Lake Electric.⁵⁷

Perhaps not the most practical but the most cherished as rural homes got electricity was the radio. George Stewart remembers: “As soon as we got power, I don’t know how we got the money, but we bought a radio . . . it tickled those kids pert-near to death.” Radios brought the news of the world and entertainment into rural homes. Dramatized radio programs such as the *Lone Ranger*, *The Shadow Knows*, *Dick Tracy*, and soap operas kept families spellbound in the living room. They listened to *The Spoken Word* and the Tabernacle Choir on Sunday mornings. News and music came into the home on a nightly basis. They eagerly listened to news of the war, especially as family members shipped out to fight overseas. They listened as President Roosevelt delivered his fireside chats and cheered their favorite baseball team. Clint, Texas, broadcast western music that came clearly into the Uinta Basin.

Jack Barton was born in Altonah during the Depression and grew up in the south part of Boneta. Power came to most of Boneta a few years earlier, but the Bartons received electricity to their isolated ranch at the far south edge of Boneta in 1944. He remembers his Uncle Farrell Mower riding his horse from Talmage to their home to listen to the radio to get news of the war, hoping to learn anything of the welfare of his brothers who were serving in the Pacific. Barton goes on:



Jack Barton

Before the REA brought electricity to our home, we had hot and cold running water. In the summer’s heat Mother would tell me to go get a bucket of water from the well, and I would run out and get one. When it was winter and cold outside, she would again tell me to run out and get a bucket of water. The well was in front of the house, and the outhouse was about seventy-five feet behind the house. You make some interesting decisions about priorities in life when it’s thirty below zero at three in the morning and nature calls.

I kept an old gallon can under my bed for emergency nighttime use. Then I heard about rich kids in the city that had a canopy over their beds. It took me years to figure that one out. I did my studies by coal-oil lantern until I was in the fifth grade. The first year we had electric Christmas lights was really something.⁵⁸

Electricity brought about more and faster changes than any other single development factor in rural America and within the Uinta Basin. It impacted the lives of people on farms, but also brought growth to industry and infrastructure, not only of the power grid but also telephone communications, pumping water into city systems, running the treatment plants for sewer. It did more to bring economic growth and stability to the Uinta Basin residents and businesses than any other solitary facet of



infrastructure: roads, water development, sewer systems, buildings, etc. Evidence for this point is easily determined by the overriding question: How many of the significant inventions and engineering achievements does an average person use in a single day? The greatest engineering achievements of the twentieth century include in order:

. . . electrification, automobile, airplane, water supply and distribution, electronics, radio and television, agricultural mechanization, computers, telephone, air-conditioning and refrigeration, highways, spacecraft, internet, imaging, household appliances, health technologies, petroleum technologies, laser and fiber optics, nuclear technologies, high-performance materials.⁵⁹

Most of these depend on electricity. When considering the overall impact on the lives of Americans, from the power to run supercomputers to curling irons, making electricity available to all of America has brought about more positive impact than anything else. And while a couple of these are not readily available in the Uinta Basin, most are presently.

Early Line Department. Front, left to right: Henry Tidwell, Don Killian, Don Wade, George Wedig, Russ Cramer, and George Berrett. Back, left to right: Fred McDonald, Grant Monson, Glendon Hanberg, Owen "Puffer" Wall, Bud Best, George Long, and Max Wooley.



Setting pole



George Wedig at the controls during some early line work

CHAPTER 4

MLEA: Growth and Progress

Moon Lake doesn't pay dividends to faraway stockholders; our customers are our owners.

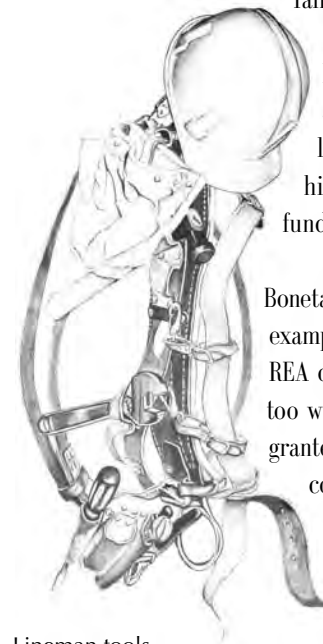
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The rapid growth of Moon Lake Electric Association started in Altonah, Bluebell, and Mt. Emmons during 1938. As Moon Lake Electric was being formed, two other regions of the Uinta Basin had also applied for REA grants and were trying to incorporate: The Tabby Mountain Association at Tabiona and the Western Uintah Electric Cooperative at Lapoint. As they applied for recognition and grants, the REA recommended that these two organizations consolidate with Moon Lake, believing that it would be more efficient and prudent to have one electric association in the region rather than three. They were consolidated on April 6, 1939, and it was agreed to add a director from Tabiona and one from Lapoint. Frank DeFa of Tabiona and Lawrence Caldwell of Lapoint, along with Elray Larsen of Talmage, were named to the Board of Directors in 1939.⁶⁰

Dru Allred was hired as Moon Lake's first electrical inspector. By August 1939 Allred had inspected and approved 400 homes for power to be turned on. The residents had paid \$5 for their membership in the cooperative, so they were entitled to have power. The first lineman for Moon Lake was D. A. Rowland at a salary of \$125 per month. Initially, he used his own car to provide service to the rapidly growing membership because MLEA did not have funds to purchase a line truck.

The cooperative was granted a loan by REA to extend service to the residents of Mt. Home, Boneta, Tabiona, Ioka, Hancock Cove, Cedarview, Montwell, Neola, and Lapoint. Following the example of Altonah, Bluebell, and Mt. Emmons, these small communities had applied to the REA offices asking permission to form a similar cooperative electrical association. Instead they too were asked by the REA to merge with Moon Lake Electric Association, and \$285,000 was granted to the Moon Lake Association to expand its services. These various interests were all consolidated on April 6, 1939.

During the summer of 1940, under the direction of the REA, a survey was made for the potential extension of service to include the areas around Arcadia, Myton, and Duchesne River, as well as some of the regions outside of Vernal and as far east as Jensen. The survey determined that the residents of these regions could feasibly be served. An additional 152 miles of line was completed by the spring of 1941. In less than three years after Daniels had written REA, Moon Lake had grown from a hope to a small co-op projected to only serve the Altamont region, to providing service from Tabiona and Hanna on the west end of the Uinta Basin to Jensen in the east. It had completed 450 miles of distribution lines that served 1,100 rural consumers!⁶¹



Lineman tools

All this construction was funded with money borrowed by Moon Lake Electric from the Reconstruction Finance Corporation, the finance arm of the REA. The federal government had a mortgage on all the association's property with payments to be paid monthly for twenty-five years. Moon Lake Electric was never late on a payment and even paid an advance of \$27,000 as a cushion in the event hard times or an unforeseen hardship might cause difficulties in meeting the payment.⁶²

Shortly after Moon Lake Electric Association was formed, World War II broke out in Europe. On December 7, 1941, Pearl Harbor, Hawaii, was bombed. The next day the United States declared war on Japan followed by Germany and Italy. America was at war and continued in the fight until August 1945. Most people think of war and envision tanks, warships, guns, and soldiers. What few understand is that the same materials needed to expand electric service—steel, copper for wire, diesel generators, etc.—to rural regions of the United States were being commandeered by the government. A letter dated August 17, 1944, from G. A. Lewis, Acting Regional Head Applications and Loans Division, United States Department of Agriculture, REA Division to Ed Conklin, Manager MLEA, details:

*There are certain regulations of the War Production Board which must be complied with before the construction of electrical lines can be made at this time . . . I refer you to your War Regulations Manual.*⁶³

In spite of these restrictions, Moon Lake Electric worked diligently to meet the requests and occasionally the demands of its rapidly growing number of customers. In 1939 Neola and the residents who lived north of Roosevelt asked to be included. By 1940 the cooperative had swelled to 420 members as Jensen, Maeser, and Dry Fork requested inclusion. Five years later Montez Creek, Montwell, Strawberry Valley, and the town of Myton all asked for line extensions. In 1946 membership reached 1250. In 1948 ten miles of line was extended to Bennett, Leota Bottoms, Whiterocks, and Farm Creek.⁶⁴

The rate of "wired" farms continued to climb with each passing year. However, the more rural the farm, the slower it was to get electricity. Isolated farmsteads were still some years waiting for poles and lines to be installed bringing the life-changing conveniences to their home and farm. A heated exchange of letters between Marvin Shields of Arcadia, Moon Lake Electric, and the REA offices demonstrate this. Shields became so frustrated and desperate awaiting power that he wrote to US President Franklin D. Roosevelt:

July 10, 1944. Dear President: For the past two years I have wanted to write you with regards to having the electricity put in my home. But hesitated because of the great responsibility you have in this terrible conflict we are in [W.W. II]. I am a resident of Arcadia, Duchesne County, Utah. Better than two years ago there was an Electrical Association organized in our County. I was one of the first to sign up and pay my \$5.00 entrance fee, which they still have. We live in the center of a farming community of about 60 families and we're the only family left out . . . We are pioneers of this new country and are trying to produce all we can on the home front. My wife and I are 62 years old and are trying to run a 130-acre ranch, 60 head of range cattle and 15 milk cows. My wife is crippled and I have an artificial leg. I am producing between 3 and 4 thousand pounds of milk a month and about 4000 pounds of pork, and 2000 pounds of beef per year. Our

	1st Year	2nd Year	3rd Year	4th Year	5th Year
Lineman (Journeyman)	\$150.00	\$155.00	\$165.00	\$170.00	\$179.50
" Apprentis	127.00	133.00	138.00		
Groundman (Foreman)	75¢ per hr.				
" (Laborer)	60¢ per hr.				
Office					
Senior Bookkeeper	\$ 145.00	\$ 150.00	\$155.00	\$ 160.00	\$ 165.00
Bookkeeper	135.00	140.00	145.00	150.00	155.00
Office Attendant	85.00	90.00	100.00	115.00	120.00

March 1, 1945,
Monthly Wage Scale

only son who helped on the farm, enlisted in the service 2½ years ago, and we are trying to keep things going until he comes back. I believe that you are a fair-minded man and believe in every citizen having fair treatment. I would appreciate very much your support in helping us get the electricity extended to our ranch. Wishing you success always. Sincerely yours, Marvin G. Shields.

The tasks required of running a ranch, milking fifteen cows morning and night by hand, living with a crippled wife, and doing all this work with an artificial leg is beyond the ability of most modern readers to comprehend. The transformations electricity brought to farmers' lives is nothing less than life-changing. Mr. Shields' letter received a response two weeks later from Arthur W. Gerth, Chief Applications and Loans Division of the United States Department of Agriculture, Rural Electrification Administration, St. Louis, Missouri. Mr. Gerth requested that Moon Lake follow up on Mr. Shields' request. Moon Lake manager Ed Conklin responded and explained that getting electricity to the Shields ranch was problematic for two reasons: first that the initial maps of the area had the Shields ranch at a different location than it was, and secondly, running power to them would take some 5,000 feet of line, and he was the only one to be served on that line. Starting in 1945, during the war, because of scarcity of materials, the Board passed a resolution that no extensions were to be constructed to serve one consumer that was in excess of 2,000 feet or at least two hook-ups per mile of line. Eventually, the Shields ranch received power, but the conflict and letters poignantly show the family's desperate need and demonstrate the anxiousness of people to get electricity into their homes and barns.⁶⁵ One farmer was told his home was too far from the electric line. A few days later he returned, waving his five dollars, saying in triumph: "I moved my house!"⁶⁶

After his years of service as manager, in 1945 Ed Conklin resigned and Harold Fowler was named temporary supervisor. A couple of months later, Dean Cox was selected as manager. Later that year a resolution was passed to pay a journeyman lineman seven dollars a day while climbing poles, and laborer's wages of seventy-five cents an hour on days not climbing. In 1946, due to the unavailability of good poles, the cooperative secured a timber permit from the Forest, and started harvesting and treating its own poles.

Even after the war ended in 1945, the next decade saw billions of dollars in monies and materials go from America to Europe and Japan to rebuild those war-torn countries under the Marshall Plan. With the rapid growth, the number of lines that could be constructed and homes wired and brought on line was not rapid enough to keep all happy. A letter dated September 15, 1948, from Mrs. Clyde Rice of Duchesne adamantly states:

Mr. Carter: This makes the third time I have written to you on our lights. I have phoned you once and you have promised to come two weeks ago this last Monday, but husband missed a days [sic] work to be here on that Monday you were to be here. You didn't show up. We are tired of waiting on you. If you don't show up within the next few days, we are going to see what can be done by going over this office to the main office in Washington on this matter . . . We want something done about this right away.

Elwood Carter, Moon Lake Electric's manager at that time, patiently explains the delay:

Dear Madam: In answer to your letter received September 15, 1948. I have not seen any of the letters which you say you have written us. But I did receive your telephone call some two or three weeks ago. We are very happy for you to write to Washington if

it would help you in any way to obtain a power line on a shorter notice than we have already been trying to give you. Incidentally [sic] Washington office is only a borrowing agency and they have nothing to do with the construction of power lines. We have \$43,000 in past construction funds which are waiting on Washington for approval so we will have money to build power lines to those who are wanting this service and who are members of our Cooperative. We are as anxious to serve you power as you are to have it, but it is impossible for us to do so until we have approval from Washington on the Construction Funds. We are also trying to satisfy over 200 new customers on the "R" Section of our Cooperative. At the present time, therefore, it has been impossible to take our engineer from this job to come down and stake your present line. We intend to make no promises as to any day that we will be there, but hope that we can arrange for our engineer to stake your line in the very near future.⁶⁷

In the summer of 1949, after considerable discussion, the Board of Directors decided to go into the rapidly growing oil fields and pick up service loads there. This eventually became, and continues to be, one of the best business decisions made. The service load for the burgeoning oil field in the successive decades has been a great economic boon to the cooperative and its customers. In December of that year, the Board applied for a loan to serve an additional 242 consumers from existing lines, add 78.5 miles of 44 kV transmission line to reach 10,000 irrigated acres with some potential 500 new consumers, and to service three developing oil fields with a potential of 270 pumps.⁶⁸ This rapid growth demonstrates the determination of individuals and companies alike to gain the labor-enhancing power of electricity, and of Moon Lake Electric's willingness to accommodate those requests. It shows the wisdom and farsightedness of the Board in extending service to industrial consumers. Sales to these industries were much larger and thus more profitable than isolated farms that required many miles of line that used little power and thus took years to see profit sufficient to offset the cost of installation to isolated farms and ranches.

During the next few years, Moon Lake Electric extended service east to Jensen and Red Wash oil field as well as the Gilsonite industry all near the border of Colorado. At this time the Board of Directors and Manager Louis Reese learned that the Rangely Power and Light Company was up for sale. The Rangely Company was sourced by two 1,000 kWh steam turbines fueled by natural gas. These had been brought to Colorado in 1946 after their purchase from Jewell Ridge Coal Company back east. The growth of electric use had also grown in Colorado making the steam plant inadequate for their needs, so they had installed diesel units to the Colorado plant. On March 17, 1951, the Board

agreed to purchase the struggling company for \$735,000. Over the next year, the generating plant was renovated and updated, being converted to operate on both natural gas and oil. New metal buildings were constructed during 1953-54, and Units One and Two came back on line. A. C. Kirkwood and Associates of Kansas City, Missouri, were retained to design a final expansion of the plant in 1958. New buildings and additional units were installed by 1959.

Since the 1951 purchase and merger of Rangely Power and Light into the Moon Lake



Electric Association, a small company, the Artesia Power and Light Company, had been purchasing its power from Moon Lake. The company's owner/manager was I. W. Cox. He and two employees operated out of a small office in Artesia. The company serviced the small town of some 300 residents of Artesia. After several attempts by Moon Lake Electric to purchase the company, Cox finally agreed and on July 7, 1958, the Public Utilities Commission of Colorado agreed to the sale. Moon Lake Electric paid Cox \$51,000 for the company. This purchase was made without REA's approval, so the government agency refused to finance the rehabilitation of the outdated system. When Moon Lake Electric brought the town's service up

to modern standards, Artesia's users saw a 25 percent reduction of power costs. MLEA received a Certificate of Convenience and Necessity from the Colorado Public Utilities Commission for the Rangely area in April 1952 and for Artesia in March 1959. This gave MLEA the right to serve those areas. With those purchases, Moon Lake Electric also picked up their customers. The next year service was extended to Fruitland. In 1952 a delegation from Blue Mountain asked for service, and by 1955 the co-op had grown to 2,400 members.

Moon Lake's first fatality on the job occurred when lineman William Young was killed in 1947. Later that year Dean Cox resigned and Leroy M. Strand was hired as manager of Moon Lake Electric. He did not work out well, and in March 1948 the Board asked for his resignation. Harold Fowler was hired as the new manager. In August Fowler withdrew as manager. Elwood Carter was hired, and in October he resigned. Zella Rust was appointed temporary manager, and in the interim Glen R. Sawyer of the REA served as acting manager until March 1949 when Louis Reese was named the new manager.

ELECTRIC USE SOARS

When Moon Lake Electric was first organized, the directors and managers wondered how they and their neighbors were going to use all the electricity the lines were built to carry. Forty kilowatt-hours (kWh) a month seemed an impossible amount of usage. Initially, most could only envision a single light bulb hanging from an electric wire in the kitchen and another in the parlor. These apprehensions were short-lived. The national rural electric growth rates by 1948, ten years after the program started, had tripled to an average of more than 120 kWh for on-farm consumption. This remarkable growth in electric consumption in rural areas continued for the next several decades. The rapid rise in the number of farms that were being electrified for the first time, coupled with accelerating consumption, made rural electrification the most significant growth industry in agricultural areas for many years.



Board of Directors, 1961. Left to right, Ray Brown, Ira Cramer, William Fieldsted, Elvin Urquhart, Marion Ross, Ralph Chew, Ralph Taylor, and George Stewart (attorney).

During the first twenty-five years of rural electric power, consumer use doubled every six years.⁶⁹

In 1938, when 40 kWh use per month seemed entirely unrealistic, the typical rural electric system was expected to operate on 250 miles of line with \$230,000 borrowed from the Rural Electrification Administration. The fledgling electric utility had about 800 consumer-members who had elected directors to govern the affairs of the organization. The staff consisted of a manager, a bookkeeper, a line foreman, and a crew. When Moon Lake Electric started, this was the expectation for the young cooperative. By the time the United States entered World War II in 1941, there were nearly 775 rural electric systems in operation or under development across rural America. The war effort slowed the advance of rural electrification, but at the war's close, new legislation was enacted by Congress to complete the job. This legislation liberalized interest rates and payback periods for REA loans, making rural electrification possible for even the most remote regions.

In 1947, there were still 2.5 million farm families without light and power, but the period of rural electrification's greatest growth was about to begin. Exceptional growth followed for electric co-ops all across the nation. By 1948, more than 40,000 consumers a month were being connected to co-op lines. In 1949 alone, 184,000 miles of electric line, more than 700 miles a working day, were energized. By 1953, close to five million farms, or 88 percent, had been electrified, and there were 1.2 million miles of electric lines singing along America's rural roads and highways.⁷⁰

Jumping forward, in 1960 electrical use among Moon Lake consumers increased 47 percent and 35 percent more the following year. With the increase of use, Moon Lake was able to continue to lower rates. The average cost of a kWh in 1939 was 8.6 cents, by 1945 it was 5.1, in 1955 it was 2.7, and by 1961 it was at a low of 1.6 cents. The number of consumers was at some 3,000 by the early 1960s. The growth in total kilowatt sales also illuminates this: in 1940 sales totaled \$303,282; by 1950 sales went over \$3.5 million; by 1960 they were in excess of \$62 million; and by 1970 they topped \$182 million!⁷¹ To further help keep costs down, customers read their own meters and mailed in their payments based on the simple formula until the early 1970s.

By the twenty-fifth year of Moon Lake Electric's service, they had expanded from service in Duchesne and Uintah Counties to the completed substations connecting Flaming Gorge, Vernal, and Rangely. The substation transformer capacity in total was in excess of 70,000 kW. MLEA was serving Rio Blanco and Moffat Counties in Colorado, and picked up service in Daggett and Wasatch County.⁷²

In 1980, Moon Lake Electric had to hike rates to reflect the rapidly rising costs. The average customer's bill increased a sharp 40 percent. And the next couple of years saw rates increase approximately 10 percent per year. At this time there was a national rate of inflation, and the cost of purchasing power had risen sharply. Within the last few years, gasoline prices had risen from twenty-five cents to eighty cents per gallon. And all energy sales, including electricity, reflected



Board of Directors, 1963. Left to right, Ralph Taylor, Marion Ross, George Stewart (attorney), C. D. Dudley, Ira Cramer, William Fieldsted, and Ray Brown.

this intense inflation. By this time the two hydro-generation plants, Yellowstone and Uinta Canyon, contributed less than 1 percent of the total load. Formerly, approximately half of

Board of Directors, 1968. Left to right, Ray Brown, Ira Cramer, Ralph Taylor, Mont Larsen (staff), Ernie Ballard (manager), Elvin Urquhart, George Stewart (attorney), Harry Fieldsted, C. D. Dudley, and Clark Abegglen.



Early annual meeting of members

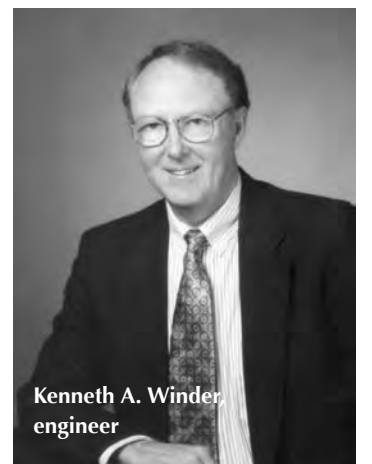
Moon Lake's power was being purchased from Utah Power and Light, but starting in 1979, the Utah Public Service Commission no longer allowed that to continue, arguing that UP&L's wholesale power sales were creating more and more need to expand generation and build new plants, all at increasing costs to the UP&L consumers. But with Deseret Generation and Transmission coming on line in 1985 and the Hunter II plant in operation, from which Moon Lake was purchasing power, the overages in these plants' construction was now being brought into power sales wholesale prices. There were many user complaints, as was expected, and

General Manager Steve Glaim reminded members that they, as the members, owned the company and that rates were based on costs, not profit-generation for shareholders as was the case with non-cooperative companies.⁷³ The Board of Directors, along with MLEA's management, all concluded that this rough patch would pass, and eventually with dependable and sustainable power supply from these plants, costs would level out to the advantage of the users.

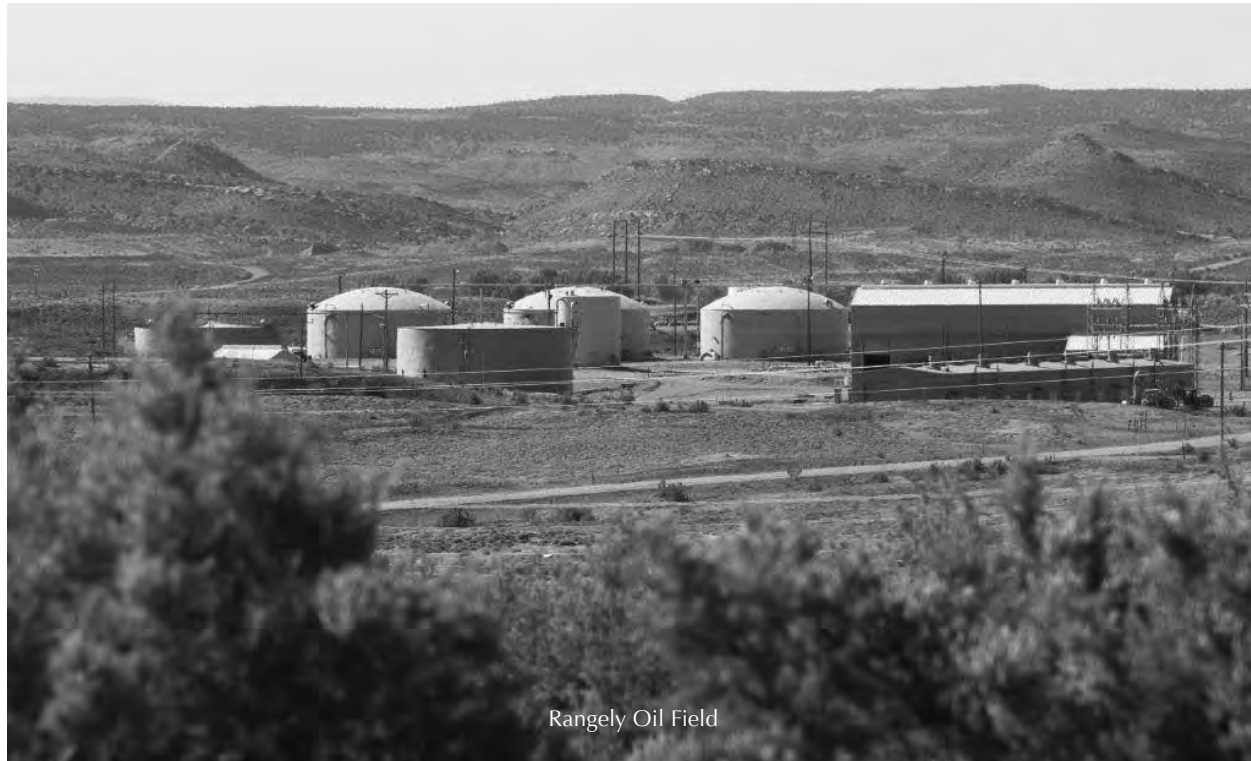
In 1985, MLEA filed for and gained approval from the Utah Public Service Commission to implement a new flat rate for all kWh's users. This new policy included the provision that no kWh were allowed for a customer charge. This was a revolutionary move at the time, and Moon Lake Electric was the first electric utility in Utah to adopt this concept. This simplified billing and eliminated the constant angst between the utility company and the customers because of the kWh charge allowed previously to create a minimum billing. Under this new billing system, there was a minimum service charge, and then the balance of the bill was based upon the kWhs used. In conjunction with this change, Moon Lake modified its line extension policy to require the member that requested a new line extension to pay up-front for the cost of the extension. These policy changes have had more influence in Moon Lake's equity and cash position than any other single decision.⁷⁴ These changes also made revenue projections for budgets and forecasts for expansion needs much more accurate.

ENGINEERS

For the first several years, Moon Lake relied on professional engineers supplied by the REA. Moon Lake Electric's first staff engineer was Jack Colvin. He was hired in 1956 and remained until 1958. In 1959, Ernie J. Ballard was hired as the staff engineer and in October of that same year became the general manager. Mr. Ballard hired Mike J. Hilton as the staff engineer in May 1960. Hilton left in 1968 to become the manager of Southeast Cooperative in LaJunta, Colorado. Ballard was replaced as general manager in 1969. James M. Lee was hired as staff engineer in 1969. Lee was Moon Lake Electric's first registered professional engineer. In 1972, Lee hired Kenneth A. Winder. When Winder became a registered professional engineer in 1977, Lee was spending most of his time working on planning for power supply and transmission interconnections, and Winder and his staff took over most of the other engineering responsibilities. In 1981, Lee went to work for Deseret Generation and Transmission Cooperative, and Winder assumed responsibilities as manager-engineering. Under Winder's management, the transmission engineer was Randall Thompson and the substation engineer was Bruce Hunt.⁷⁵ Kenneth Winder has been the principal engineer for almost half of Moon Lake Electric's existence.⁷⁶



Kenneth A. Winder, engineer



Rangely Oil Field



Uintah Power & Light Stock Purchase. Front, left to right: Clair Ashton (Uintah Power & Light), Elvin Urquhart (Moon Lake director), W. Kenneth Howell (Nationwide Insurance counsel), E. J. Ballard (Moon Lake manager), and Elliott Pratt (Moon Lake attorney). Back, left to right: Ken Aycock (Uintah Power & Light), William Fieldsted (Moon Lake director), Marion Ross (Moon Lake director), Ray Brown (Moon Lake director), George Stewart (Moon Lake attorney), Clifton Mickelson (Uintah Power & Light), and N. J. Meagher Jr. (Bank of Vernal).

CHAPTER 5

Supplying Electricity to the Oil and Mining Industries



Doug Holgate

My home district is known as the area which experienced rapid growth in the early '70s due to oil and gas exploration, with many of the nation's leading energy companies investing in the area. What was once a quiet farming and ranching area almost overnight developed into one of Utah's largest oil and gas fields.

—Doug Holgate, Altonah

...

The ability of electrical power, once harnessed, can outwork legions of men. Nowhere is this more manifest than industry. With the strength of titans, electric-powered drilling rigs sink gas and oil wells thousands of feet into the earth to tap resources far below the surface. Once found, electric pumps and controls bring oil to the surface and regulate the flow of oil and gas in the many tanks and pipelines. In the modern oil and gas industry, electricity is imperative. And in the Basin's coal and Gilsonite mines, electricity lights the dim and dark shafts, powers the huge fans that circulate fresh air into the mines, and the return air carries away coal dust and mine gases such as methane and carbon dioxide. In long-wall coal mining, such as the Deserado Mine, the huge shearer or power loader cuts the coal from the vein driven by powerful electric motors (typically up to 850 kW). The modern oil and mining industry are completely dependent upon electricity. And while many heavy industries have been denied the Uinta Basin, the oil and mining industries flourish, providing a vital portion of the region's economic growth and stability; and Moon Lake Electric's service to these industries has enabled them to operate and compete. Together they have added hundreds of millions of dollars to the economy and provided thousands of local jobs.

Moon Lake started service to the mining and oil industry as World War II was ending. In 1945, the Board approved a request from the Utah Oil and Chemical Company of Vernal for a three-phase line. This was one of the first significant commercial members to join the cooperative.

The oil and gas industry has always looked to electric energy to provide some of its energy needs in their production, transportation, and refining processes. Applications were received as oil exploration and production in the Uintah Basin increased in the 1940s and 1950s. For example, in 1945 MLEA Board discussed running a distribution line into Rangely Oil Field and opened discussion with Utah Oil and Chemical Company of Vernal for a refinery load near Jensen. In 1953, Gulf Oil applied for service to its Brennan Bottoms field east of Leota, and in 1955 Uintah Refining received service at their refinery in Rangely.

In 1955 a contract was signed between MLEA and the American Gilsonite Company to bring service to the mines in Bonanza, Utah. This became Moon Lake Electric's first large industrial customer. A 69 kV line was extended to serve this customer from the Rangely substation to the new Bonanza substation in 1956. That same year, service was extended to the Standard Gilsonite Company. During this same timeframe, Standard Oil Company requested service for the Red Wash Oil Field. In 1959, the Red Wash loop 69 kV line was constructed from the Vernal substation to the Red Wash substation (to provide service to the Red Wash oil field southeast of Vernal) and then on to the Bonanza substation to complete the loop between Vernal and Rangely.

In 1959, there was much excitement about a new mining venture north of Vernal in the Brush Creek area known as the San Francisco Chemical phosphate mine. This mine would require a significant amount of electrical energy in the prep plant and other operations. MLEA was interested in providing service to the new mine. It would only require a substation and a short tap of the MLEA 138 kV line between Vernal and Flaming Gorge. MLEA offered its Large Power Rate, but it was not competitive with UP&L's Industrial Rate Schedule 9. UP&L got heavily involved in negotiations. MLEA would need to compete with an interruptible rate, and that was not acceptable to the customer. In 1960 when UP&L started to plan and build a 138 kV line from Vernal, MLEA filed with the Utah Public Service Commission for an injunction against building the line and stealing the customer. It was to no avail, as the customer desired to be served by UP&L.

OIL BOOM

In the early 1970s, growth of MLEA's loads was unprecedented, and the physical plant to serve those loads was expanding rapidly. The Altamont-Bluebell oil field was discovered, and new wells were being drilled at a fast pace. In the meantime, the Rangely oil field was being electrified, and the secondary water-flood recovery technique required a tremendous amount of horsepower from electric motors. The rapid growth and expansion of electric service within the rural Uinta Basin was evident as the lines were largely completed, and nearly every home in the region had power. Many companies were calling upon Moon Lake for service, but in addition to that, the population of the Basin exploded to nearly double in just three years. Higher wages were paid oil workers than farming provided, and soon people had money to spend on new appliances and luxuries. Merrill Millett, Moon Lake general manager at the time, along with his entire staff, had to scramble to



An oil well site



Duchesne District Barbecue, 1999

meet an average of 30 percent growth per year for three years!⁷⁷

In 1971, MLEA was in need of additional transmission delivery capacity in its service area to meet the needs of expanding oil and gas industry in Duchesne County. Utah Power and Light had a 138 kV line that extended through the area that went from its Carbon Plant to Vernal. Negotiations were successful to interconnect with that UP&L facility and tap it to construct a substation. This became MLEA's Upalco transmission substation, and MLEA extended 69 kV lines from it to serve its consumers and to wheel power for UP&L to its Chevron pump station load at Hanna. UP&L also constructed a 69 kV line from

the Upalco substation to its Chevron Pipe Line load at Myton and eventually to wheel power to MLEA's Pleasant Valley substation. The major construction of the Upalco substation was completed in 1972.

The demands for power from the oil companies for exploration, drilling, and production soon swelled to 56 percent of Moon Lake's sales. During the first eight months of 1973, Moon Lake added 47 miles of distribution line, and made 800 new connections. Of the 7,500 consumer connections on Moon Lake's lines in 1974, only 350 of these, less than 4 percent, were oil exploration and production facility loads as the Altamont and Bluebell oil fields were initialized. However, in terms of consumption, these 350 connections drew 17 million kWh per year, or more than 55 percent of Moon Lake's total system load. Most of the power provided for the actual drilling is supplied by diesel-powered generators, but once production is under way, an average well requires three-phase service and draws about 300 kW.⁷⁸ To meet this swelling demand, construction and maintenance staff for Moon Lake increased by ten full-time positions to bring the total workforce to some one hundred positions. Additional work was subcontracted to local and regional construction firms.

OIL SHALE

Moon Lake Electric's service area in Utah and Colorado has world-class deposits of oil shale. The oil in this rock is not easily extracted and is not considered economical to recover unless the oil prices



Rangely District Barbecue, 2000

are very high, relatively. In the 1970s, oil prices increased to a value where oil extraction from shale became feasible. The federal government encouraged exploration and development by auctioning parcels of land with high quality oil shale reserves. The first auction was for an area called C-a in Rio Blanco County, Colorado, in the Piceance Creek Basin. That parcel was located within MLEA's service area.

The successful bidder on the C-a site was a group of oil companies under the name of the Rio Blanco Oil Shale Company. They paid MLEA to build a 138 kV line to their project in 1979. The new line tapped the Southwest Rangely-to-Meeker transmission line at a new switchyard called Calamity Ridge,

a line of twenty-two miles in length. The projected load for this project was 600 MW but only became a small percentage of the projected amount. The project was an in-situ recovery method. The Rio Blanco Oil Shale project was considered successful to a small degree, but it was not considered economical, and the project was eventually abandoned and the site returned back to its original condition.

The transmission line to the C-a site was not retired when the project was abandoned and is still in use by MLEA and its neighbor White River Electric. It now serves other experimental oil shale projects, oil and gas industry projects in the Piceance Basin, and other MLEA customers in that area.

Expansion of the loads in the 1950s and future load growth in the area served by MLEA required the construction of transmission lines

and substations. A major extension of 69 kV lines from the Yellowstone Hydro to new substations at Talmage, Ioka, Lapoint, Duchesne, Vernal, and Leota, with a transmission tie to Jensen that was already served from the Rangely generating plant, made a solid system when these facilities were constructed in 1961 through 1964. Also involved was a 69 kV tie to Roosevelt substation of Uintah Power and Light. That tie also connected the Uintah Power and Light generation at the Uintah Hydro plant and the Roosevelt diesel plant.

CHEVRON OIL FIELD

In the mid-1980s, Chevron proceeded with a tertiary recovery method in the Rangely oil field. This method was to inject carbon dioxide into the oil formation at the same time as the water injection to increase recovery of the oil. This tremendously increased the need for more horsepower, and MLEA was successful in negotiating contracts to power the huge 4,000 HP motors with electricity. This became and remains the single largest load on the MLEA system—44,000 HP combined plus the processing plant. New facilities were called for to satisfy the electrical requirements in the Rangely oil



An oilfield pump jack



Moon Lake transmission line

field, and in 1985 the construction of the California 138 kV line from Southwest Rangely substation, the CO₂ substation, and the California substation took place. Currently, Moon Lake Electric sells more power to Chevron than experienced by any other utility in the United States. Overall, service loads to the oil industry amount to some 73 percent of Moon Lake's total sales.

Most of the oil-related loads have a high load factor (more constant usage of electricity). For example, submersible pumping in Rangely has almost a continuous usage or 100 percent load factor. Pump jacks may

have a load factor of 80 percent. Residential loads have a load factor of about 20 percent. Moon Lake Electric has a system load factor that is about 90 percent, probably the highest of any utility. This high load factor helps to lower the wholesale cost of power, and that is passed on to the customers. It also results in facilities and retail service charges being lowered on a per kWh basis.



Bear on power pole

CHAPTER 6

Power Supply



Deseret Power Electric Train



Today we seem to think of the rural electric cooperative as just another electric utility. We flick a switch and the power is there when we need it, where we need it; but the power was not always there.

—Harry Fieldstead, Altamont

...

When most people turn on an electric appliance, little do they think of where that power came from, or how it arrived at their home or business. A switch is turned on, and the light or appliance comes to life. There are only two ways to obtain power to supply electric users—buy it or generate it. The lack of power supply to meet load requirements was, perhaps, the most challenging issue to solve throughout the history of Moon Lake Electric. As new generation resources were installed, the load requirements would be met temporarily, but load growth soon outpaced supply. This situation was finally solved in the mid-1980s, and that solution has its limitations into the future.

When Moon Lake Electric started in 1938, it did not have generating facilities of any kind. Starting on October 20, 1939, Moon Lake initially purchased power from Uintah Power and Light Company (UPALCO) of Roosevelt, which was then directed into Moon Lake's fifty-two miles of 7.2/12.5 kV newly installed distribution line.

Uintah Power and Light Company was a small, privately owned company (detailed in chapter 2). By the time it started power sales to Moon Lake Electric, it was operating with one 600 kW generator at the Uintah Hydro. The diesel plants at Roosevelt and Duchesne had neither sufficient supply nor the reliability of service to meet the high standards expected by the Moon Lake Board of Directors. With Moon Lake Electric's reliance for its power from UPALCO, they wanted input into that company's management and policies, so within a few years MLEA started buying stock in UPALCO. Over the next years and decades, the two companies had many integrated lines and shared power sources. Both companies were experiencing rapid growth. Studies between the companies were conducted, and it was determined that substantial savings could be secured by having one company, one administrative body, one headquarters. Negotiations went on for years, and finally in 1961, Moon Lake purchased 93 percent of the remaining stock of Uintah Power and Light Company. In 1971, the two companies were merged, and a substantial number of members were then added to the MLEA system. Moon Lake Electric then proceeded to replace and rebuild the Uintah Power and Light system in Roosevelt, Neola, Myton, Duchesne, and Fort Duchesne to meet its standards.

MLEA'S YELLOWSTONE HYDRO PLANT

When Moon Lake Electric's growth reached 700 consumers, the combined boards of UPALCO (prior to its merger with Moon Lake) and MLEA started looking for a place they could construct a hydro plant to augment their power supply. Under the right conditions, waterpower was reliable, demanded little attendance, and carried no fuel charge, and therefore it was much preferred technology for discrete community-sized generating plants. Local distribution systems generally operated at 2400 V, the same voltage as the most common hydro generation voltage output. In the early 1920s, after cases of hydroelectric trespass on the national forests (which were ruled upon by the US Supreme Court), the US Congress passed the "Federal Power Act," by which legislation the Federal Power Commission (FPC) attained regulatory control of hydroelectric plants on navigable waterways and federal lands. In the 1930s, under the Rural Electrification Administration, farms, towns, and villages were connected into regional grids with power transmission lines. In the Depression era, hydroelectric plants were constructed to provide inexpensive hydropower for regional economic development to the REAs.

Several hydroelectric sites in the Uinta Mountains were considered; in 1940, a place was chosen on the Yellowstone River in a canyon north of Altonah, and the Yellowstone Hydro Plant was proposed. Walter Flora was the electrical engineer, and W. W. Clyde Company was the contractor for the project. When the small timber-crib dam across the Yellowstone River was completed, it was called the REA Dam. REA approved \$200,000 for the construction of a power plant and 14,000 feet of steel flow line. The Yellowstone Hydro Plant initially had two 525 horsepower turbines driving electric generators, each rating at 300-kilowatt capacity, bringing the total output of the project to 600 kW. A third unit



Yellowstone generating units



Yellowstone hydro



was installed in 1945 for a total plant output of 900 kW to serve the increased number of consumers that had risen to 1,250 in 1946. The original line transporting power from the hydro was operated at 7.2/12.5 kV. It linked the Yellowstone Hydro to the Moon Lake Electric lines around Bonita, and that interconnection was completed in 1941. Moon Lake Electric still has the step-up transformers originally used to convert the output voltage of the Yellowstone hydro generation to the distribution



Yellowstone river sluicing with Russ Williamsen on the Cat, 2011

Top: Yellowstone reservoir

Right: Yellowstone spillway

voltage. These units were on display in front of the headquarters building at 188 West 200 North in Roosevelt until the office was relocated.

As the consumers rapidly joined the cooperative, the power output from the Yellowstone Project, while beneficial, was insufficient. By 1943 Board minutes show that the directors were concerned because the Yellowstone generators were overloaded at times.

In 1947, MLEA's management was trying to get dairymen to stagger their milking times to help reduce the peak demand, and at the same time Stanolind Oil Company applied for supply to a load of 750 hp. A diesel plant was justified and approved to be built in that year. Engineering and construction began, and in 1949, a 500 kW diesel

generating plant was built in Leeton (an area between Neola and Lapoint). That plant had been approved for 1,000 kW, but it was moved to Altamont in 1954 prior to expansion, and the diesel engine was eventually sold in 1977. Membership had swollen to 1,400 by 1950, and the cooperative was in desperate need of additional power supply. A study was performed for a fourth generator at the Yellowstone Hydro Plant, but it was not feasible. As the membership grew, members were also finding new uses for electricity every day. Even at that early date, the Board anticipated that the Basin would experience an oil boom. They were also concerned with carrying out the area coverage principle and carrying out the intent of the REA program, which was to take care of the power needs of their service area.



NORTHWESTERN COLORADO

As mentioned previously, prior to MLEA's 1951 purchase, Rangely City had its own power system including a natural gas-fired steam plant and two steam turbines driving generators rated at 1,000 kW each. These turbines were finally worn out and beyond repair by 1968. Following the purchase of Rangely Power, the Rangely steam plant generation needed expansion to meet the growing needs, so reciprocating internal combustion engines (RICE) with generators were added to the Rangely plant and then the original steam generation was retired. Two 1,000 kW units were purchased in 1952 with two more 1,350 kW units added in 1956. Moon Lake proposed the two new units to be 2,500 kW, but REA would only approve the 1,350 kW units. Three more 3,000 kW units were added in 1960-61. Moon Lake had wanted to add four of these units, but again REA would only allow two at that time. However, with the load growth projected in 1957 at Red Wash oil field and power to construct Flaming Gorge dam, REA eventually allowed three additional units to be added. These RICE were dual-fuel-capable units that could operate on either diesel that could be purchased from the local refineries in Rangely, Jensen, or Vernal or natural gas that was purchased from Standard Oil of California, Rangely Gas Company, or Union Pacific Railroad and produced by the Rangely oil field. Natural gas was plentiful from the Rangely oil field for a time, but supply became sporadic, which eventually led to this generating plant being shut down in 1975 after power and energy from Flaming Gorge became available. The generating units were sold in 1979, and the buyers moved them to various locations, one as far away as Florida.



Rangely generator move



Rangely generators

In 1954 Moon Lake Electric interconnected with Utah Power and Light Company at Vernal. In 1957 Moon Lake Electric Association entered a contract for power supply from UP&L. The Uintah and Yellowstone Hydro Plants were supplying less than 1 percent of the company's electricity by this time. Although MLEA and UP&L had many disagreements and contests, UP&L was always willing to sell wholesale power to Moon Lake for a profit.

In 1954 the feasibility of a second hydroelectric plant was studied on the Yellowstone River; and use of the Clyde Spring nearby for increased power production was also studied. These options were deemed unfeasible. In 1955, the dam on the Yellowstone River was increased in height by four feet to improve operations and output of the Yellowstone hydro.

FLAMING GORGE AND WAPA

In 1950 the Bureau of Reclamation proposed two huge projects—the construction of Echo Park and Split Mountain Dams. While these two dams would significantly add to the water storage from the Green/Colorado River drainage, create hydroelectricity, and enhance recreation within the region, they were blocked by public outcry. Utah-born Bernard DeVoto, a nationally recognized historian and author, led the battle, and soon the Sierra Club joined in the protest. They claimed that power lines would have a widely damaging effect upon wilderness and scenic values. Development of a power project would

require the introduction of construction and operation roads and other facilities, which would otherwise not be built. The Moon Lake Board heartily approved the projects and hoped to gain additional power from the projects, but those hopes were dashed as the projects were scrapped in the ensuing years because of the public response.

The next proposed dam project was Flaming Gorge. This one gained approval, and in 1958



Moon Lake's 138 kV transmission line serves Dutch John and Flaming Gorge Dam.

Moon Lake won the bid and contracted to supply construction power for the Flaming Gorge Dam Project. A 138 kV transmission line was built by Moon Lake Electric from the Vernal substation to the construction substation for Flaming Gorge. This delivered the power generated by Moon Lake Electric that was sold to the US Bureau of Reclamation (USBR) for construction of the dam and to the workers in the government town of Dutch John. Moon Lake Electric also had a contract to sell power over that transmission line to Bridger Valley Electric, a Wyoming cooperative. When the dam was completed, ownership of that line was transferred to the USBR, and the line was then utilized to carry power from Flaming Gorge back to MLEA to service its consumer accounts.

The Flaming Gorge Dam is one of the largest dams in the west. Groundbreaking for the huge structure across the Green River began in 1958, and the project was completed in 1964. Originally, the dam's hydroelectric power plant consisted of three generators, powered by three Francis-design turbines of 50,000 horsepower rated at 37,000 kW. Today, the total generating capacity of the Flaming

Gorge Dam is 151,950 kilowatts. The Bureau of Reclamation operates the power plant, and presently the Western Area Power Administration (WAPA) markets and delivers the power generated by the hydroelectric plant. The initial cost of construction of the hydro generation dams is being repaid by power sales, sold at prices determined by production costs not stockholder dividends. In 1962, as the Flaming Gorge Dam and hydroelectric plant were nearing completion, a fifty-three-mile transmission line, from Meeker, Colorado, to the Southwest Rangely transmission substation near Rangely, was completed to transport power that was first purchased from the Colorado Public Service Company, and later from WAPA. This substation was also interconnected by a tap of the 138 kV line from Hayden Power Plant to Vernal substation by a line constructed by the USBR.

The Western Area Power Administration markets and delivers hydroelectric power and related services within the western fifteen-state region. It was created on December 21, 1977, when high gas prices and an emphasis on conservation led Congress to create the Department of Energy. WAPA is administered under the US Department of Energy. It is one of four (originally there were five) power-



Flaming Gorge Dam



Circuit breakers for the Southwest Rangely substation

marketing administrations within the Department of Energy serving the role to market and transmit electricity from multiuse water projects to retail power distribution companies and public authorities. Its transmission system carries electricity from fifty-five hydropower plants operated by the Bureau of Reclamation, US Army Corps of Engineers, and the International Boundary and Water Commission. Together, these plants have a capacity of 10,600 megawatts.⁷⁹

Moon Lake Electric received a large allocation of power and energy from the Federal Hydro Power System after Flaming Gorge was completed. This originally consisted of 18,000 kW in the summer season and 21,000 kW in the winter season. In the late 1960s, that allocation of Contract Rate of Delivery was increased to 46,000 kW in the summer season and 47,500 in the winter season when the Colorado River Storage Projects (CRSP) were completed. In 1989, summer season demand became 50,142 kW with energy at 107,807,697 kWh, and winter season demand became 62,822 kW with energy at 130,948,871 kWh. Allocation factors included the power requirements of the systems and the available capacity from the resources, factors that favored MLEA. In 1963 when Moon Lake began purchasing power from Flaming Gorge it became an integral part of the Federal Power grid that was developed in association with the construction of the Flaming Gorge Dam and generating plant.

In the attempt to secure and further power supply, the MLEA Board was always looking for additional sources. In 1959 they expressed interest to the US Atomic Energy Commission of Oak Ridge, Tennessee, about a small, pressurized, water nuclear reactor. The Board was interested, but it did not come to pass. No further information is available.⁸⁰

In the early 1960s, the directors and management made plans for a long-term, independent, reliable power supply. They secured coal leases in western Colorado at the site of the Staley Coal Mine

Uinta Canyon Hydro



with the intention of eventually building their own coal-burning power plant. Water rights in the White River for a consumptive use for the power plant were also obtained. It was expected to be a mine-mouth power plant with a rated output of 150 MW.

When MLEA Manager Ballard and Engineer Hilton left Moon Lake Electric in the late 1960s, these plans were tabled at that time but re-emerged some twenty years later. The coal mine eventually became the Deserado Mine originally operated by Western Fuels-Utah and, later, following Deseret's financial restructure in 1995, by Deseret under its subsidiary Blue Mountain Energy as the single dedicated source of coal for the Bonanza Power Plant. Water rights were transferred to Deseret Power for the Bonanza Power Plant to supplement water rights from the Green River that Deseret was able to obtain.

In the early 1970s, an unprecedented growth hit the utility industry creating a demand for more and more power. Factors driving this sharp upswing in power, particularly in Moon Lake's service area, included a greater dependence on power from private individuals as households expanded use with more television, refrigeration, heating, and cooling, as well as small appliance use, but mainly due to an oil boom in the Basin. After the Rangely generation ceased in 1973, it was only a short time until MLEA was using its total allotment of power and energy from Flaming Gorge, and Moon Lake was in need of additional resources. In the short term, MLEA was able to buy from various resources, but they were unable to secure a long-term commitment from any supplier throughout the western states. No generation utility was willing to commit to a sale.⁸¹

As Moon Lake Electric's service demands grew, its need to secure large, long-term power source(s) became paramount. An additional power supply was critical for the growth demand of existing customers and also to meet the projected requirements of future customers, some of which estimated large power requirements. Several alternatives were investigated: hydro generation, wind turbines, solar, the burning of wood, garbage, manure, and even nuclear options. The other electric cooperatives of the region were facing the same concerns, so the Intermountain Consumer Power Association (ICPA) was formed from the six power cooperatives servicing Utah as well as most of the municipal power companies in Utah. These six were too small to justify a plant, so they sought other utilities to join them. After a lengthy search throughout the west, six utilities in Southern California (Los Angeles Department of Water & Power, Pasadena, Riverside, Anaheim, Burbank, and Glendale) were interested in joining ICPA's members in construction of a plant. A motion was forwarded to purchase into the UP&L Huntington Plant, but with the history between the cooperatives and UP&L, they were not desirous of partnering. No alternative met the needs of the cooperative except to construct its own generation plant.

In the short term, Moon Lake finally signed a contract with UP&L to purchase power at an unfavorable rate. But until the proposed plant came online, Moon Lake's growth was such that it could not meet its load needs without additional supply. The contract was completed in 1974, and Moon Lake started purchasing power from UP&L in March 1975. Part of the problem was the UP&L's billing and assessment was sixty days after the usage of power. Power is apportioned and sold to varying companies not at a set rate but at a usage rate that varies upon the time of day of its use. High demand times such as evenings from 5:00 to 10:00 p.m. had a higher rate than midnight to 6:00 a.m. UP&L consistently billed Moon Lake at the highest rate possible.

In 1974 ICPA had a feasibility study performed to determine if a coal-fired power plant could be justified. In 1975 a contract was entered into between Utah Power and Light and Moon Lake Electric to purchase additional power from the Hunter II plant. This was a stopgap move, and MLEA knew the advantages of owning its own plant far outweighed the disadvantages. The initial cost was staggering to the small cooperatives and its potential partners, but those costs could be amortized over the lifespan of the project. They would also own the transmission lines associated with the plant. This

would enable ICPA to purchase economy energy when it is available, rather than generating it, and thus pass the savings on to its consumers.⁸²

To further complicate matters, in 1978 the Utah Public Service Commission ordered Utah Power and Light Company to cancel its wholesale power contracts with cooperatives within a certain period of time. The reasoning behind this was that Utah Power and Light, to meet the increasing wholesale power sales, necessitated construction of or expansion of their generation facilities. This in turn was driving up the cost of electricity to its consumers. The Commission also ordered UP&L to make available to their wholesale purchasers the opportunity to replace this cancelled power by purchasing into a new UP&L-owned plant.

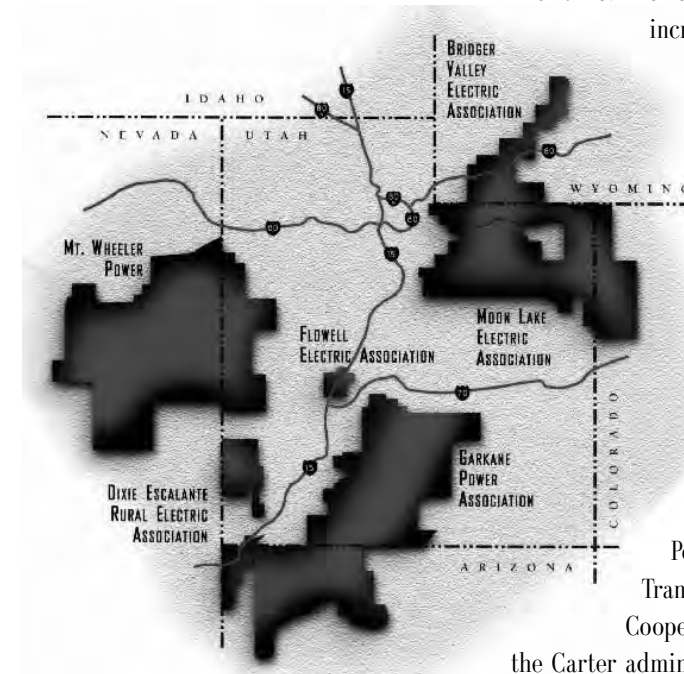
DESERET GENERATION AND TRANSMISSION COOPERATIVE AND THE HUNTER II PLANT

In 1978, in order to purchase a portion of UP&L's Hunter II plant and to provide a reliable power supply, Moon Lake joined with Garkane Power in Richfield, Dixie-Escalante in Beryl, Flowell Electric in Fillmore, Bridger Valley Electric in Lyman, Wyoming, and Mt. Wheeler Power in Ely, Nevada, and they formed Deseret Generation and Transmission Cooperative. Deseret Generation and Transmission Cooperative is owned by these six rural electric cooperatives. During

the Carter administration and the fuel shortages of the 1970s, no plant was approved that planned to burn fuel derived from Middle East oil. It was hoped that shale oil could come into play. With this in mind, Deseret Generation and Transmission, a wholesale power supply cooperative, was incorporated on May 26, 1978.⁸³

Working together, these six companies were hopeful that the new cooperative could produce and transmit power and energy at a lower cost than regular business models for private power companies could do. Deseret is governed by a Board of Directors, comprised of two elected officers from each of Deseret's member/owners. The Board hires Deseret's CEO and works with him or her to provide direction and policy on long-range planning for the organization. The second CEO at Deseret was Merrill Millett, who had been Moon Lake's general manager until that time.⁸⁴

In 1980 Deseret purchased 25 percent of the Hunter II Plant, for a sum of \$115 million. Since that time Deseret has supplied some 70 percent of Moon Lake's power needs.⁸⁵ Most of the other 30 percent comes from WAPA. In 1980 Moon Lake Electric signed a contract with Deseret, and they became Moon Lake Electric's All-Requirements Power Supplier.



Deseret members



Hunter Plant

THE BONANZA PLANT

In 1977 Moon Lake and most utility companies were preparing plans for curtailment of power, determining in what order people would be shut off in case of scheduled brownouts. Knowing that the lead time in construction of a power plant was ten years, the directors began exploring the possibility of building their own power plant.⁸⁶

Feasibility studies indicated that Moon Lake Electric did not have sufficient funding potential to build a power plant for its sole use. A plant small enough to service only Moon Lake's needs was not practical. Many of the costs of a plant were the same regardless of the size of the plant constructed. There was an obvious advantage in sharing the costs and output by having other cooperatives share in the plant. All the other cooperatives also projected substantial growth in the coming years.

As the Intermountain Consumer Power Association (ICPA) scrambled to secure power, six California municipalities and the Utah Coops began analysis for a power plant called the IPP (Intermountain Power Project). An Environmental Impact Study (EIP) was begun, and an agreement, as was required by the State Inter-Local Cooperation Act, between the many interested parties was reached. Twenty-three municipal power systems made up the 11.19 percent of the project, UP&L purchased 25 percent, and the six Utah Cooperatives committed to 5.87 percent. The balance of the project was subscribed to by other California entities. In short, the cooperatives contracted with the California cities to use and pay



Bonanza Power Plant



Intermountain Power Project



The Bonanza Power Plant was dedicated in 1985.

for the cooperatives' allocation of power from IPP until such time as the cooperatives needed the power. The cooperatives could take back the power when it would be needed for future use.

To finance the project, the participants organized the Intermountain Power Agency (IPA), which consisted of the twenty-three municipal power systems in Utah. IPA would actually own and finance the plant and sell power under contract to the California municipals, UP&L, and to the cooperative members. IPA planned to sell tax-exempt municipal bonds valued at an estimated cost of \$8.9 billion to finance the plant.⁸⁷

As the environmental impact studies were completed, the participants selected a site in Wayne County for the plant. However, Secretary of the Interior Cecil Andrus insisted that no plant would be constructed south of Interstate-70. His contention was anything south of I-70 would be too close to the several national parks in Utah, so the \$8 million spent for the study was wasted.

In response, Utah Governor Scott Matheson created a Power Plant Citing Task Force composed of state and federal agencies. They, along with the IPP staff, selected a site in Millard County. This project, known as the Intermountain Power Project (IPP), was constructed and continues to operate near Delta, Utah. Moon Lake eventually became a 2 percent participant in this project. It is owned by the Intermountain Power Agency (IPA) and primarily serves California interests.

A second possibility was the coal-fired power plant project Moon Lake Electric had been previously planning. But in 1977, Colorado Governor Richard Lamb opposed construction of a new power plant in Colorado. Supporting their governor, the Colorado Public Utilities Commission went on record opposing construction of a plant in its state, claiming that the power produced would all be leaving the state while using the coal and water supplies of Colorado and leaving the pollution was not a worthy pay-off regardless of any tax benefits to the state.

With the studies and proposals under way, the need for power continued to swell. ICPA made several renewed attempts to purchase an interest in UP&L's Huntington Plant that had been built in the late 1960s. They also tried to get in on the Hunter I plant built in the late 1970s, but UP&L refused, insisting it needed the power to supply its customers' rising needs. With projected growth for the foreseeable future, the Utah Public Service Commission, fearing that brownouts and outages would result without immediate action, approved the Hunter II Plant purchase. This was only a short-term

fix. So the ICPA members negotiated the purchase of the undivided interest in the Hunter II Plant and also started to develop the Moon Lake Project.

After lengthy delays and interstate conflict, the Bonanza Plant was approved for construction in Utah, south of Vernal but within a reasonable distance for a future railroad to the coal

mine. In 1981 groundbreaking ceremonies for Deseret Generation and Transmission Cooperative's 460 MW Bonanza Power Plant took place.

In the fall of 1985, the Bonanza plant started generation. The plant is capable of generating over two and one-half billion kilowatt-hours of power per year. Construction costs for the plant, water delivery system, the transmission lines, and the Deserado Mine came to \$1.05 billion. However, it came

with a penalty to increase rates. In an effort to soften the rise in price, DG&T developed a “phase-in” wholesale rate to spread the increase over five years rather than one large increase in 1985.⁸⁸

By 1987, Deseret was facing a \$400 million loan default. Its debt burden had reached a critical stage and, in turn, created an enormous threat to Moon Lake Electric as the largest shareholder among the six owner companies. The reasons for Deseret’s staggering debt load included overages in construction from inflation, initial power sales failing to meet expectations, coupled with a sagging national economy headed by plummeting oil sales that fell from \$32 a barrel to less than \$10. This led to a drop in projected load growth and resulted for a while even in drop in load. At that time Deseret received 84 percent of its revenue from Moon Lake Electric, and 63 percent of MLEA’s sales had been from the oil industry. New oil exploration in the Uinta Basin stopped and marginal wells were closed down. Natural gas prices were extremely low, and many consumers moved from electric to gas heating and appliances. Simply put, the financial studies and models used to project future wholesale power sales that justified construction of the generation plant were wholly inaccurate. The peak demand from DG&T in 1992 only reached 238,836 kW compared to the projected load of 954,000 kW. Member loads that had been projected to grow over 430 percent between 1979 and 1994 only grew 34 percent. Also the studies projected that by 1992, members would be paying an average of 114.32 mills per kWh, but their actual cost in 1992 was only 40.4 mills.⁸⁹

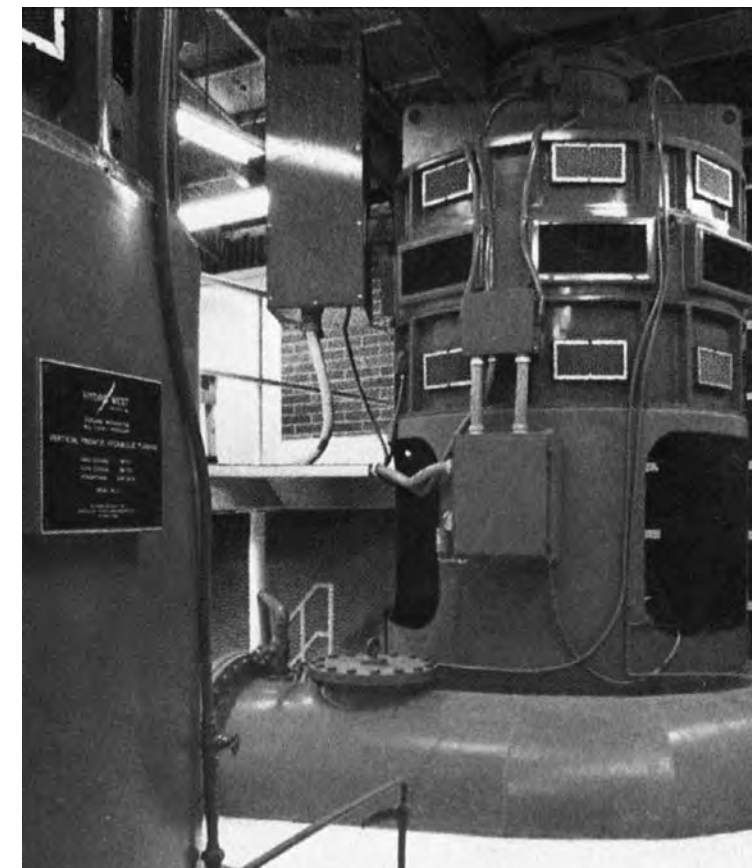
All this created grave concern for Moon Lake Electric’s Board, General Manager Grant Earl, and Engineer Ken Winder. After countless miles flown to meetings in Denver, Washington, DC, and other various cities, hundreds of meetings, and many hours of painstaking negotiations by all the parties involved, Deseret and its creditors reached an agreement in 1990 to defer a substantial portion of its debt. However, by 1996 it was obvious that a complete restructure of Deseret’s debt was necessary. Ongoing expenses, including deferred debt obligations, were much greater than the projected revenues. Again, with multiple negotiation meetings, a new restructured debt was agreed upon for Deseret which included additional guarantees from Moon Lake and the other member systems, the result of which enabled Deseret to continue its operations while in control of its members. This restructured debt enabled DG&T and MLEA to breathe a sigh of relief. The completion of the Bonanza Plant and purchase into the Hunter II Plant moved Moon Lake Electric from a small rural cooperative into a modern and competitive utility company by any standard. It finally had ample supply for its needs and for future growth. The restructured loan, brought about by the efforts of many, was the crucible on which turned its present security and future growth.

At this same time, Moon Lake’s other major supplier, WAPA, put into effect a 46.5 percent rate increase in October 1990. This increased cost to Moon Lake came to \$1.2 million annually. Usually, this would necessitate a hike in rates to the customer; but Moon Lake was able to absorb the increases and not raise rates, and in fact actually reduce rates as the economy began to grow again. By the next year, MLEA offered two refunds to members totaling some \$4.6 million.⁹⁰

In spite of its rocky beginnings and financial hardship, Deseret has emerged to become a sound and competitive generation and transmission cooperative in the western United States. One of its great advantages is that it owns and manages all the assets necessary for it to generate and transmit electricity. Deseret’s Bonanza Plant generators are fueled



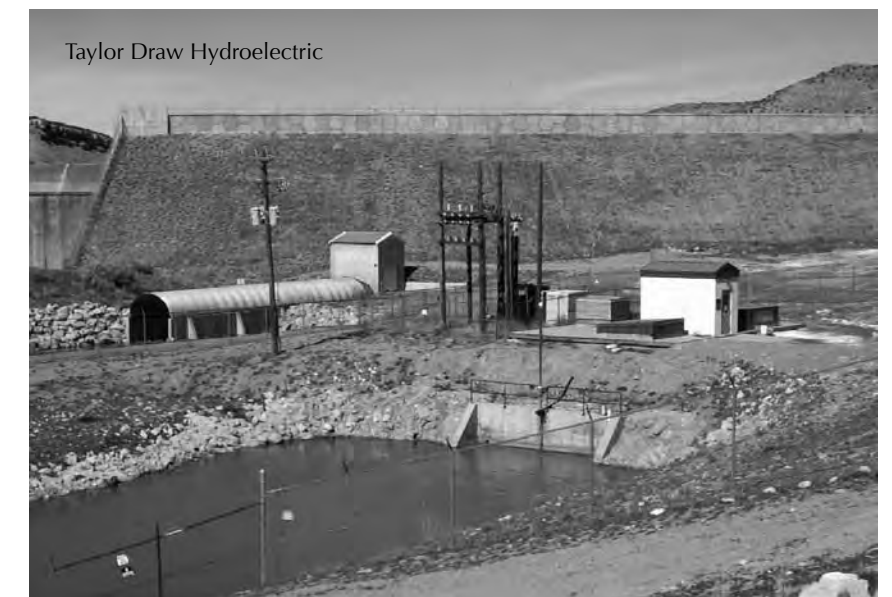
Deserado Mine



Sand Wash Hydro

stabilize and actually decrease. In 1985 when the plant started full production, its cost per kWh was 4 cents, by the year 2000 it had dropped to 3.5.⁹²

Additional generation units for Moon Lake Electric include the Sand Wash Hydro, a private generation facility on Sand Wash reservoir inlet that supplied power to MLEA under a PURPA contract and was constructed in 1982 but retired in approximately 2004 when the reservoir was enlarged. And in 1993 the Rio Blanco Water Conservancy District built the Taylor Draw Dam on the White River above Rangely. It created a reservoir; later named the Kenney Reservoir. Part of that project was the 1.6 MW Taylor Draw Hydroelectric Plant. Moon Lake Electric interconnects with this project and purchases the power and energy generated. This additional source of energy is capable of supplying the needs of approximately 1,000 households within the Moon Lake system.



Taylor Draw Hydroelectric

by some 7,000 tons of coal per day that is mined from the Deserado Mine. The mine is managed by Deseret’s subsidiary company Blue Mountain Energy. From the mine, the coal is loaded onto the Deseret Western Railway, an all-electric railway, chosen to keep costs low. The railway transports the coal thirty-five miles from the Deserado Mine to the Bonanza Power Plant, southeast of Vernal. Bonanza’s 462-megawatt unit is ranked among the cleanest and most environmentally safe coal-fired power plants in the world. Deseret also owns 25 percent of the Hunter II Plant, which delivers 100 megawatts. To deliver power to its six cooperative consumer companies, Deseret owns and maintains more than 287 miles of transmission lines that carry more than 300 megawatts of power to more than 40,000 consumers in six states.⁹¹

Today DG&T is on secure and firm financial footing. It produces more power than its six members require and sells the surplus at a profit to areas within the power-starved western United States. The extra revenue from outside power sales produces higher profit margins that can be passed on to its owner-members. As Deseret climbed out of its financial hole, it has enabled wholesale power sales to its members to

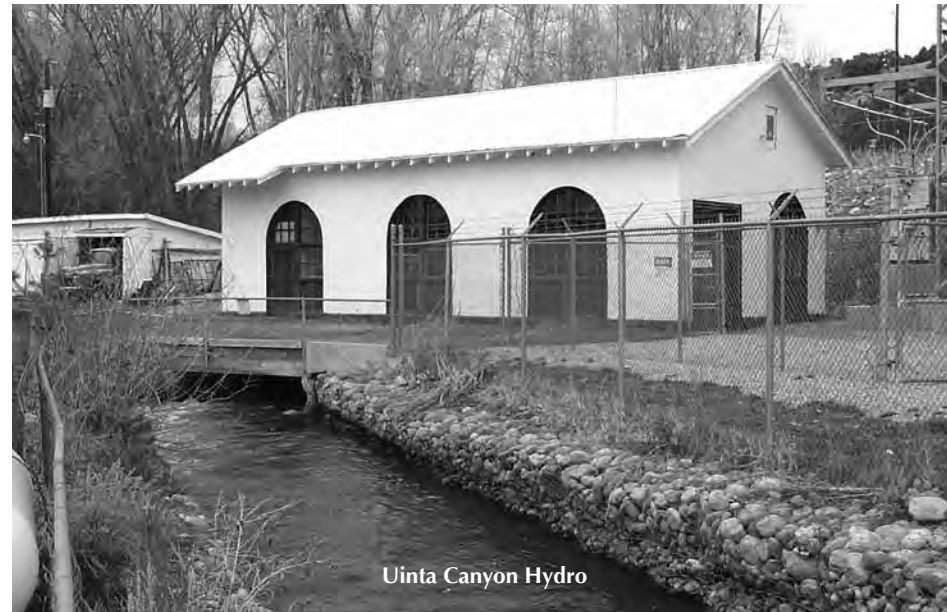


Board of Directors, 1972. Front, left to right: Harry Fieldsted, Lloyd Nelson, Ferron Peterson, Ira Cramer, and C. D. Dudley. Back, left to right: Don Rooks, Cal Monks, Earl Dillman (attorney), Merrill Millett (manager), Willard Wall, and Lee Jensen.

Board of Directors, 1975. Front, left to right: Harry Fieldsted, Lee Jensen, Don Rooks, and Ferron Peterson. Back, left to right: Willard Wall, Art McKee, Cal Monks, Ira Cramer, Lloyd Nelson, Earl Dillman (attorney), and Merrill Millett (manager).



Board of Directors, 1977. Front, left to right: Willard Wall, Lloyd Nelson, Art McKee, and Harry Fieldsted. Back, left to right: Lee Jensen, Ferron Peterson, E. W. Long, Cal Monks, Merrill Millett (manager), and Earl Dillman (attorney).



CHAPTER 7

Infrastructure

Moon Lake's first distribution line was started May 1, 1939, and the fifty-two miles of line was completed September 1 of that year.

...

Limitless generation without the ability to transmit the electricity to users is of little value. Over the years Moon Lake Electric has built an up-to-date delivery system that is superior to most of the age-worn grid that serves much of the nation. Initial lines constructed by Moon Lake Electric were 7.2/12.5 kV distribution lines. These lines were adequate for the loads they served and the few customers there were in the 1930s and '40s. However, as lines were extended farther and farther from the power sources and as customers were added, and electrical usage increased, the quality of service deteriorated. Voltage provided to consumers must meet specific standards, but that becomes impossible with a long radial distribution circuit as electrical load increases beyond certain limits. Outages can last a long time while linemen are trying to determine the cause and make repairs when lines are hard to patrol, especially since they were originally strung across fields to shorten the distances rather than staying along accessible roads. Transmission and distribution lines and substations are designed and built for specific amounts of electrical capacity. Over time, substations are modified, changed, or retired. Transmission and distribution lines may be tapped or enhanced as new substations are added. When the capacity of a transmission or distribution line reaches its maximum load, it must be replaced with a new line of higher capacity. Moon Lake Electric transmission and distribution lines and substations are changed as justified. MLEA tries to build looped transmission lines with dual feed to its substations from multiple sources. It double ends its distribution lines where possible. This increases reliability and efficiency of the infrastructure because so many customers are affected when something fails.

The solution to better service required transmission lines and substations. The standards for these facilities are designed to provide reliability and to lower the electrical losses so that the system becomes more efficient and reliable. They also provide increased system capacity for load growth when the generation resources are available. From substations, which transform (reduce) transmission voltage to distribution voltage, multiple distribution lines (feeders) serve specific smaller areas for improved reliability and quality. Regulators in substations control voltage to keep it within specific limits.

TRANSMISSION LINES AND SUBSTATIONS

Expansion of the loads in the 1950s and projected future load growth in the area served by MLEA required the construction of many transmission lines and substations. Transmission lines are higher voltage lines and operate at 69 kV and 138 kV, as compared to the lower voltage distribution lines.



Following the acquisition of the generating plant at Rangely, in 1952 MLEA built its first 69 kV line, known as the Utah line, from the Rangely substation and generating plant in Colorado to the newly constructed Jensen substation (replaced in 1982) in Utah. Additional substations were added to this line beginning in 1966: in 1971, the Edison substation (named after Professor Edison from the University of Nebraska) and the Cramer substation (named after Moon Lake Electric Director Ira W. Cramer of Rangely); in 1980, Water Plant #2 substation; the 1989 Levison substation, named after the prominent oil leases in that area of Rangely; and the Mapco substation was added in 1993, serving loads along US Highway 40 near the Bonanza highway junction.

In 1952, a 69 kV line was extended from the Jensen substation to the new Lapoint substation. That line was tapped in 1957 for extension of a 69 kV line to the new Leota substation (updated in 2010). The 1979 line was tapped for the Great Lakes substation located near Lapoint, which was named after the Great Lakes sawmill located nearby.

American Gilsonite, Moon Lake Electric's first large-scale industrial customer, extended a distribution line from the end of Moon Lake Electric lines to their operations in Bonanza. This provided only marginal electrical service, and so they requested a transmission line for their increasing load. In 1956, a 69 kV line was extended from the Rangely substation in Colorado to the new Bonanza substation in Utah. American Gilsonite is still one of Moon Lake Electric's principal customers. That line was tapped for the new Chevron Pipe Line Rangely substation in 1982. In 1957, Standard Oil of California applied for service for its Red Wash oil field, and a 69 kV line was extended from the Bonanza substation to the new Red Wash substation.

The development of power supply must also be accompanied with a power delivery system to match. At the beginning of the 1950s, the major power generation resources for Moon Lake

Electric were located at the Yellowstone Hydro and in Rangely, Colorado. Other interconnections and transmission lines were required to tie this into an electrical network to provide reliability for the customers all across the Uinta Basin and into Colorado. The required projects were expensive but necessary. Engineering and construction of 69 kV transmission lines from the Yellowstone Hydro to a new substation at Talmage and to interconnect with the Lapoint substation with its existing transmission tie to Jensen and on to the Rangely generating plant made a solid system when these facilities were constructed in 1955 and 1956.

The Talmage-Lapoint 69 kV line was tapped for the extension to the Ioka substation in 1956. This tap was rebuilt in 1977 with larger conductor and H-frame structures. This substation was expanded and relocated to a new site in 2006. The Talmage-Roosevelt-Lapoint 69 kV line was tapped in 1976 for an extension to the new Plateau Refinery substation near Roosevelt. The refinery ceased business in 1990, and the transmission tap was retired in 2000. This was a loss of a major customer for MLEA, and also a major loss to Roosevelt City, the Basin workforce, and the surrounding oil fields. Oil that was formerly handled at the local refinery now had to be trucked to the refineries north of Salt Lake City.

As mentioned previously, Moon Lake Electric was successful in its bid to furnish the construction power for the Flaming Gorge Dam and the town built for the construction workers at Dutch John, Utah. To provide that service, Moon Lake Electric constructed a transmission system. That system involved a line from Meeker, Colorado. Constructed in 1961 as a 115 kV line, it was originally operated at 69 kV and was eventually expanded to operate at 138 kV. The line was built to a new substation called the Southwest Rangely substation. Moon Lake Electric originally owned and operated the switching terminal at Meeker and the Meeker-Southwest Rangely line. By 1965, the switching terminal and the portion of the line not in the Moon Lake Electric Service Area were sold to Colorado-Ute Electric Association and later transferred to the predecessor, Tri-State Generation and Transmission Cooperative. This line connected Moon Lake Electric to the Western Electric Grid, enabling it to buy from and/or sell to other utilities. It is still a critical line in the Western Grid. The Rangely substation was remodeled in 1957 to accommodate a planned line from the Southwest Rangely substation that was extended at 69 kV to Moon Lake Electric's Rangely substation in 1961.

The final leg of the MLEA transmission lines to Flaming Gorge was to build from Moon Lake Electric's new Vernal substation to Flaming Gorge. This line was constructed at 138 kV in 1960, and after the dam was completed, ownership was transferred to the USBR. Moon Lake Electric's vision was to ensure that it had a delivery path for power and energy produced at the federal dam to the Moon Lake Electric system. This insight became extremely important when Utah Power and Light Company opposed any all-federal power transmission system being built in Utah. UP&L announced in 1960 that it would build an equivalent system and collect wheeling for delivery. That gave UP&L control and gave the "preference customers" (cooperatives and municipal utilities) uncertainty and higher cost except for Moon Lake Electric because of its earlier agreement with WAPA to build a 138 kV line and eventually purchase power generated by Flaming Gorge Hydro.

When the Federal Power lines from Hayden to Vernal and Southwest Rangely were announced to be 138 kV in 1961, Moon Lake Electric purchased autotransformers (138 kV to 69 kV) for its Vernal and Southwest Rangely substations to interconnect their 69 kV system with the USBR 138 kV power system and the Western Grid. The USBR substation at Vernal was built adjacent to Moon Lake Electric's Vernal substation, and so the 138 kV interconnection was only a few hundred feet in length. At Southwest Rangely substation, the USBR line interconnected, but Moon Lake Electric owned all the interconnecting equipment. Vernal and Southwest Rangely substations became federal points of delivery at 138 kV.

From MLEA's Vernal substation, three 69 kV lines with circuit breakers were installed. Two 69 kV lines were constructed to respectively tap into and provide terminals with breakers for the taps

of the Jensen-Lapoint line. The third line with breakers went to Red Wash and on to Bonanza to complete the Red Wash loop for dual feed to those substations for increased reliability. The Red Wash Loop was completed in 1958-59. That line was tapped in 1977 for the Green River substation that was retired in 1985 after Deseret's Raw Water substation was constructed in 1984 and utilized by Moon Lake Electric as well.

In 1961, the Vernal substation, owned by the US Bureau of Reclamation, was constructed. Two transmission 138 kV lines from Flaming Gorge Hayden-Southwest Rangely and one from UP&L's Carbon plant eventually interconnected at this substation. This is adjacent to the Moon Lake Electric Vernal substation.

The tap of the 69 kV line to the Talmage substation extended the transmission system to the new Duchesne substation on Blue Bench in 1962. Distribution feeders were extended into Duchesne where UPALCO served and also had a diesel generation plant. At this same time, the Roosevelt tap was completed from the 69 kV line between Talmage and Lapoint substations to interconnect with UPALCO at Roosevelt. This also tied the generation at the Uintah Hydro and Roosevelt Diesel Plant into the Moon Lake Electric transmission network and provided more reliability and sources of power for Roosevelt and other UPALCO loads as well as the Moon Lake Electric loads. At that time UPALCO started to purchase power from Moon Lake Electric under their 1961 agreement.

The 69 kV line from the Duchesne substation to the new Strawberry substation was constructed in 1968. The primary purpose for this 69 kV system and substation was the tunnel boring (using large electrically driven boring machines) being done as part of the Central Utah Project (CUP) to take water from the Duchesne River drainage to the newly enlarged Strawberry Reservoir into Utah and Salt Lake valleys. Current Creek substation was built in 1971, mainly for CUP boring, and the Rabbit Gulch substation, serving customers including the oil field west of Starvation Reservoir, was built in 1974 (updated in 1976) as taps of the Strawberry 69 kV line. A parallel line from Duchesne to Rabbit Gulch substations was constructed in 2010.

The Neola City, Roosevelt City, and Duchesne City substations became property of MLEA in 1971 when Uintah Power and Light property was transferred to MLEA. Those facilities in Neola and Duchesne were replaced shortly thereafter when Moon Lake Electric modernized those systems. The Roosevelt substation has gone through numerous modifications over the years, and significant changes are being planned in the future after new power transformers with increased capacity were added in 2012 to meet the growing load.

The 69 kV line between Lapoint and Talmage was again tapped in 1973 for the new Altamont substation and also for the new Dry Gulch substation. Transmission line taps and new substations in 1974 provided power for the new Chevron-Monarch and Chevron-Talmage pumping stations of the Altamont-Bluebell oil field. A pipeline was extended from these pumping stations to the refinery in North Salt Lake. After a few years of operation, this pipeline became accidentally plugged with wax from the high paraffin oil from these oil fields. This condition could not be remedied, and the pipeline was abandoned. The Chevron-Talmage substation and line was retired. The Chevron-Monarch substation was converted into the Monarch distribution substation in 1982 to serve other Moon Lake Electric consumers.

In 1971, MLEA was in need of additional transmission delivery capacity in its service area to meet the needs of expanding oil and gas industry in Duchesne County. Utah Power and Light had a 138 kV line that went from its Carbon Plant to Vernal. Negotiations were successful to interconnect with that UP&L facility and tap it to construct a substation. This became MLEA's Upalco transmission substation. A small autotransformer (138-69) was originally installed and then replaced with a larger autotransformer in 1972. MLEA extended 69 kV lines from Upalco substation to interconnect with its Ioka substation and a new line (built for eventual operation at 138 kV) to Duchesne substation to serve



Neola line upgrade, 2005

its consumers and to wheel power for UP&L to its Chevron pump station load at Hanna. UP&L also constructed a 69 kV line from the Upalco substation to its Chevron Pipe Line load at Myton and to eventually wheel power to MLEA's Pleasant Valley substation constructed in 1980. The Upalco substation has been expanded over the years and is central to additional load growth currently being planned. The UP&L 69 kV line has been extended to its Pariette substation. MLEA also taps feeders from Pariette to serve loads in its service area.

The 69 kV line between Roosevelt and Vernal was tapped in 1972 for the temporary Neola substation (rebuilt in 1977). The Strawberry line was tapped, and the 69 kV extension to a Hanna substation and Utah Power and Light's Wolf Creek substation near Hanna was completed in 1973. This extension was also required for the tunnel boring of the CUP. Eventually, a new substation was also constructed in Tabiona in 1981 as a tap off of the Hanna 69 kV line. The original Strawberry substation was replaced in 2001, and the new Fruiland substation replaced the Current Creek substation in 2006. Many Moon Lake Electric consumers benefited then and now from the construction of these 69 kV lines that were paid for by the CUP.

Load growth in the Rangely oil field during the early 1970s for the water flood-enhanced oil recovery technique required transmission lines and substations. In 1974 the Texas 69 kV transmission line extended from Southwest Rangely substation to the new Texas substation, and on to the Edison substation. The Texas substation was located near the Texaco field camp when drilling was originally taking place in the field. The Main Water Plant substation was constructed as a tap of this line in 1978. In 1979, Emerald substation was added to that transmission line, and West End Waterplant was added in 1985. Water Plant #2 tap and substation off of the Rangely-Edison 69 kV line were added in 1985.

The successful bidder on the first federal oil shale lease was a group of oil companies doing business as the Rio Blanco Oil Shale Company. They paid MLEA to build a large-capacity 138 kV line to their project in 1979. The new twenty-two-mile line tapped the Southwest Rangely-to-Meeker transmission line at a new switchyard called Calamity Ridge. Years later, this oil shale project was abandoned, the Rio Blanco substation was retired, and the site was returned to its natural state. However, the transmission line is still in use by MLEA and its neighbor White River Electric. It now serves other experimental oil shale projects, oil and gas industry projects in the Piceance Basin, and other MLEA customers in that area. Another line has been extended from the C-a site (now a

transmission switchyard) to another oil shale project operated by Shell Oil Company. The substation for that project is the Shell Mahogany substation built in 2000. White River Electric now interconnects other 138 kV facilities of theirs in the Piceance Basin to the C-a switchyard.

In the early 1980s, MLEA extended a 69 kV line and built a new substation to provide construction power for the Bonanza Plant project. After the plant was built and operating, that line would interconnect with the substation at the Bonanza Power Plant and deliver power into the Moon Lake Electric power grid. MLEA also constructed a 138 kV line to the Deserado Mine from the Calamity Ridge switchyard and constructed the substation at the mine that would provide electrical power and energy for the mining operation that was solely dedicated to supply the coal for the 460 MW Bonanza Unit #1. Eventually, the mine, including the transmission line and substation, became the property of Deseret during its financial restructuring of 1995. MLEA exchanged its ownership of its line and substation facilities and the requirement to supply the mine with power and energy for reductions in interconnection costs at the Bonanza plant at that time.

Load growth in the late 1970s justified a temporary substation near Rangely (about fifteen miles from Dinosaur) called the Blue Mountain substation as a tap of the Utah line. As loads continued to grow in the early 1980s, a permanent substation and 69 kV extension from the Utah line were built for a Dinosaur substation located at the town. This was constructed in 1983.

As part of the Bonanza Plant Project, 138 kV transmission lines were extended by Deseret from the substation at the plant site to the Vernal, Southwest Rangely, and Upalco substations and a 345 kV line to Mona substation in central Utah. These lines are owned by Deseret, and are required for reliable operation and to deliver power from the Bonanza plant. They also provided reliability, capacity, and stability to the power grid in the MLEA service area. MLEA was allowed to tap the Upalco line when it was constructed in 1984 for its Cove (Hancock Cove near Roosevelt) transmission substation and its Fort Duchesne distribution substation. Thus, the Bonanza project has made a tremendous difference to MLEA and its members.

In 1985, Chevron Oil Company expanded its recovery efforts in the Rangely oil field by injecting carbon dioxide under high pressure into the oil-producing formation along with water that was already being injected. Recovered carbon dioxide from producing wells was then sent to a compression plant and then recycled to the wells. Moon Lake Electric negotiated with Chevron to use electric motors in the recompression and was successful. Chevron



eventually installed eleven 4,000 hp compressors at the CO₂ Plant. This became Moon Lake Electric's single largest load. It required expansion of the Southwest Rangely substation and a 138 kV line extension to the new substation at the CO₂ Plant; the transmission line was also extended to the new California substation, which is a combined transmission and distribution substation for the additional load and reliability of the Rangely oil field. This was called the California transmission line. The California substation was located near the site of the Standard Oil of California camp used during the original exploration and drilling of the oil field.

Moon Lake Electric originally extended service to the Gulf Oil Company's Wonsits Valley oil field through a distribution line from the Red Wash substation. When Chevron became the owner of that oil field and wanted to increase the electrical load, a 69 kV transmission line (Wonsits tap) and new Wonsits substation were constructed in 1987. Today that substation also provides power to Rocky Mountain Power customers in their service area near Fiddler compressor and the Mountain Fuel Bridge across the White River.

Moon Lake Electric's substation infrastructure presently consists of six transmission substations: Southwest Rangely, California, Vernal, Cove, Upalco, and the Bonanza Plant. There are two switchyards: Calamity Ridge and C-a. The distribution substations include Rangely, Shell Mahogany, Texas, Edison, Levison, Emerald, Chevron Pipe Line, Southwest Rangely, California, CO₂, Main Waterplant, West End Waterplant, Bonanza, Red Wash, Wonsits, Dinosaur, Mapco, Jensen, Vernal, Lapoint, Great Lakes, Leota, Neola, Roosevelt, Monarch, Ioka, Altamont, Yellowstone Hydro, Uintah Hydro, Duchesne, Talmage, Pleasant Valley, Dry Gulch, Rabbit Gulch, Fruitland, Strawberry, Hanna, Tabiona, Flaming Gorge, Fort Duchesne, and Taylor Draw Hydro. Retired substations comprise Neola City, Duchesne City, Current Creek, Chevron Monarch, Chevron Talmage, Green River, Blue Mountain, Colorado Oil Shale, Plateau Refinery, Water Plant #2, Cramer, Bonanza Plant construction, Deserado (transferred to Deseret), Sand Wash Hydro, and Myton town. Substations owned by others and utilized by MLEA include Bonanza Plant origination of MLEA 69 kV line to the Red Wash-Bonanza line, Pariette owned by Rocky Mountain Power (serving south of Pleasant Valley), Flaming Gorge owned by Western Area Power Administration and the origination of two MLEA distribution lines (Browns Park and Diamond Mountain), Deseret's Raw Water substation serving MLEA loads along the Green River below Jensen, and Wild Mountain owned by Pacific Power and Light serving MLEA loads in Clay Basin near the Utah-Wyoming Border.

DISTRIBUTION LINES

Distribution lines for Moon Lake Electric are operated at 7.2/12.5, 14.4/24.9, or 19.9/34.5 kV. These are the most common lines owned by the cooperative and are extended either overhead or underground to efficiently carry power and energy from substations to the transformers and meters at each customer. Customers apply for service and must eventually have distribution lines extended to them unless they already are there to provide that service. Each of Moon Lake Electric's distribution lines has its own story, but some are more noteworthy than others.

During the World War II era, materials for building power lines were in very short supply. Copper and aluminum wire were not available, and some lines were actually constructed with Amerductor (all steel) conductors. Other lines were built with Copperweld conductors that were made of steel strands with copper outer covering. These lines could be stretched tightly to increase the span lengths between poles. In 1946 native lodgepole pine poles were being treated and used for power poles because of the scarcity of poles available to meet REA standards.

In 1952, a distribution line was extended out of the Rangely area up the White River to customers who were usually farmers/ranchers and the Staley coal mine. Eventually that line was extended far enough by Moon Lake Electric and by White River Electric (the neighboring utility) to join their

respective lines (each operated radially without a normal tie). That provided an emergency source of power for reliability to either system for the customers along these lines.

In 1960, when the areas around Flaming Gorge were subdivided for cabins and plans were laid for retail establishments, applications for service were received. Ranchers in the famous Browns Park area also applied. Moon Lake Electric planned for two separate feeders to serve these areas. These feeders would originate from the USBR substation at Flaming Gorge. One would be extended in 1961 to cabins and retail customers in the areas near the dam. With the aid of federal funds, that line was extended in 1968 across Diamond Mountain to the Jones Hole Fish Hatchery. This is the federal hatchery that was created to raise the trout to be planted in Flaming Gorge reservoir and below the dam in the Green River to create a blue-ribbon fishery. The other feeder would be built into Browns Park and Ladore in 1962, but there were few customers and lots of miles of line needed to serve them. Special financing was required, and Moon Lake Electric was acquiring the UPALCO system at that time. Together, the combination of area coverage, more consumers, and generation to serve the loads, along with REA funds, worked in everyone's favor.

In 1961, Moon Lake Electric had applications for service to Baxter Pass, south of Bonanza. When information about a possible extension to that area became available, the Uintah Oil Shale Company, which would become a customer along that line, made an application. At the same time, the Federal Aviation Administration (FAA) also applied for service on Douglas Pass, the next pass to the east of Baxter Pass. The line to Baxter Pass was constructed in 1961, and that same year it was extended along the top of the mountain to Douglas Pass. This became a very lengthy feeder. However, the line to Douglas Pass had problems from ice storms, wind, and snow that destroyed parts of the line periodically. The solution to get the reliability (two-way feed) required, a line had to be constructed up the Douglas Pass highway to the FAA site, and that was done in 1962. Eventually, the line between the two passes had to be removed.

In 1962 a distribution line was extended to the Moon Lake Lodge and the Moon Lake Dam on the Lake Fork River. In 1966 a distribution line was extended to the Defa Dude Ranch up the North Fork of the Duchesne River.

MLEA serves Clay Basin east of Flaming Gorge near the Utah-Wyoming state line. This area is very important for a major customer for MLEA, Questar Gas Company, which stores compressed natural gas in an abandoned oil and gas field. When demand for natural gas is low, natural gas delivered to this site is stored, compressed, and ready for delivery when demand is high. In 1992, this customer required a significant increase in electrical load, and MLEA worked with PacifiCorp/Pacific Power and Light to provide a distribution extension with enough capability to provide the requested service. Special wheeling and delivery arrangements were made to the state line, and MLEA extended lines on to the customer in the MLEA service area. This is a good example of utilities working together; and it is now quite common for this to occur between MLEA and neighboring utilities that were once bitter enemies.

TOTALS

As of November 2012, MLEA has 65,290 poles in service and each pole is numbered and mapped, 363 miles of transmission line (138 kV and 69 kV), 3,148 miles of overhead distribution line (7.2/12.5, 14.4/25, and 19.9/34.5 kV), and 259 miles of underground distribution line (7.2/12.5 and 14.4/24.9 kV).

Cregg Oaks affixes a number to this pole.



Underground line replacement

Vernal. A vote in May 1956 to move to Vernal was defeated at a special meeting of members. Two months later at another special member meeting, a vote was held to determine if the headquarters should be moved to Vernal or Roosevelt, and the majority voted for Vernal. The next Board meeting was held in Vernal, and Annual Meetings of Members from then until 1973 were also held in Vernal. The Slauch Motor Company building on Vernal's Main Street was purchased and remodeled in 1957, and despite protest by the founding members from the Altamont district, Moon Lake Electric Association moved its offices to Vernal in 1958.

Moon Lake's Vernal Office



Moon Lake Electric's impressive infrastructure and real estate has steadily increased in value. In 1954, the MLEA Utility Plant was valued at \$3,827,000. It took until 2005 for the MLEA Gross Utility Plant to reach a value of \$100,000,000. At the end of 2012, MLEA's Gross Utility Plant value was over \$172,300,000. This reflects the growth of Moon Lake Electric from its first office in a home and the first supply line of fifty-two miles of distribution line that was powered by electricity purchased from a neighboring utility, UPALCO.

OFFICE BUILDINGS

Poles and wires, generation and transmission do not complete the Moon Lake Electric infrastructure. Offices and warehousing yards are also a necessary part of the overall infrastructure to provide service to Moon Lake Electric's customers. As detailed earlier, the original office of MLEA in Altamont was set up in 1948, and a small district office in Altamont was constructed in 1957. In August 1955 the Rural Electrification Association officials demanded that Moon Lake Electric move its offices to Vernal to be more central to all its customers, particularly upon picking up the industrial loads in Red Wash and Bonanza. The arguments for the move included that Vernal was more centrally located to the service districts than Altamont, which is rather isolated within the Basin. A lengthy discussion was held concerning the opening of an executive office for accounting in



Moon Lake's Altamont Office

A new office building was constructed in Altamont in 1957. The original Rangely office was replaced with a new office in 1959, using the same construction plan as the Altamont office. Both of these offices functioned as area offices. A new Rangely office was purchased in 1992. This allowed the office and warehouse in Rangely to be adjacent to each other. Western Fuel-Utah, original operator of the Deserado Coal Mine, formerly owned this building and site.

After the completed merger of Moon Lake Electric Association and Uintah Power and Light Company in 1971, the Board put it to a member vote whether to remain in the office in Vernal or move to the more-centralized Roosevelt. A strong majority voted to move to Roosevelt. So construction began in the fall of 1972 for the 15,000-square-foot office complex at 200 North and 188 West in Roosevelt. The office's construction bid came in at \$276,343. In April 1973, Moon Lake moved its headquarters from Vernal to the newly constructed facility in Roosevelt. General Manager Merrell Millett said of that move: *"Our growth factor for that year was only about 25 percent, so we decided to move—lock, stock and barrel—just to keep things interesting."*⁹³ The Duchesne-area office building was constructed in 1976.

In 2010 Moon Lake moved once again. They had previously purchased property on US Highway 40 just outside Roosevelt. The new facilities in Roosevelt include the office building with 20,836 square feet and the operations building, which consists of 50,469 square feet total (main floor 38,245 square feet and a mezzanine of 12,224 square feet). These facilities, along with the materials



Moon Lake's Rangely Office

yard, are situated on 16.25 acres of land. This new location provides Moon Lake with a more efficient operation and a greater visible presence to all passing through the Uinta Basin. It also provides plenty of room for office, storage, supplies, and parking. Moon Lake employees moved into the newly completed and attractive facilities on February 26 and 27, 2010, and were open for business on Monday, March 1, 2010. An open house was held on Thursday, April 15, 2010,



Moon Lake's Roosevelt Main Street Office



Moon Lake's Duchesne Office

This sign heralds the location of Moon Lake's new facilities, 2010.



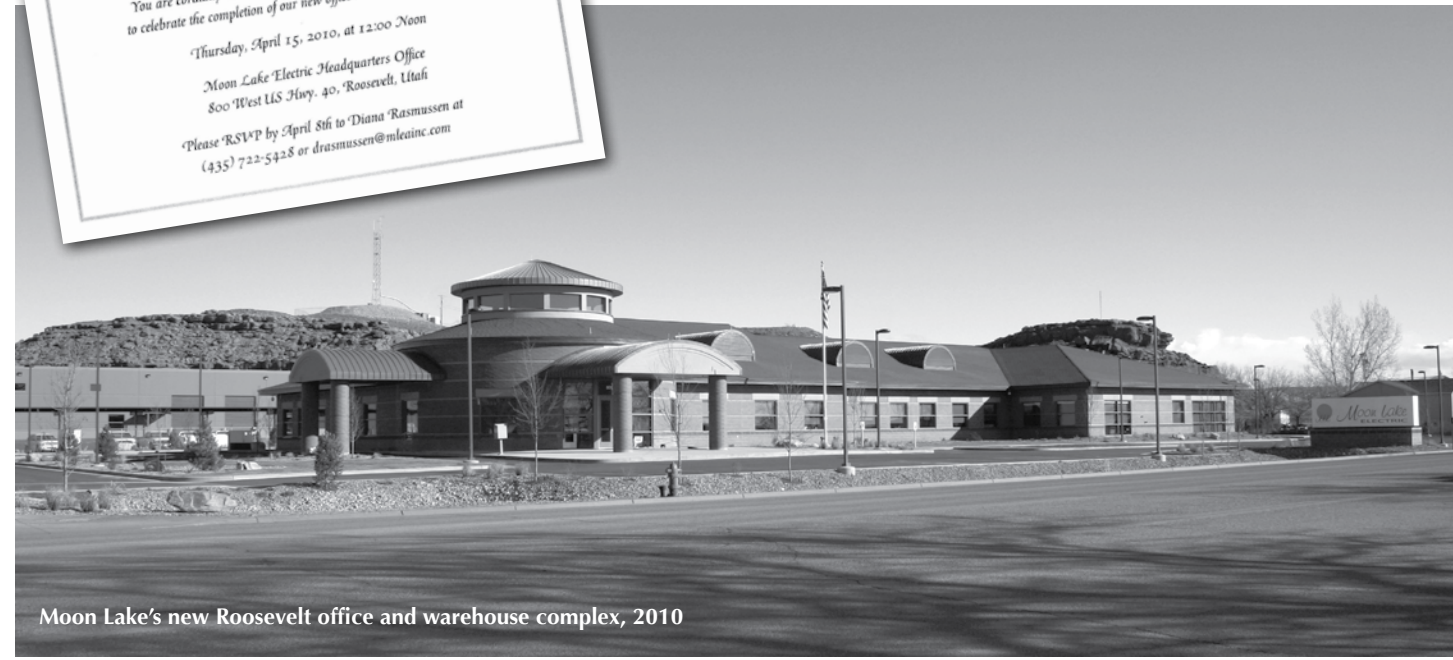
Employees pose during Moon Lake's Open House, 2010.



Ribbon cutting for Moon Lake's new office, 2010



Invitation to attend Moon Lake's Open House for its new Roosevelt office and warehouse complex, 2010



Moon Lake's new Roosevelt office and warehouse complex, 2010



Moon Lake's new warehouse facilities, 2010



Moon Lake's old Roosevelt warehouse

part of the office building, and property was adequate for an adjacent warehouse and yard. The Vernal office had a warehouse in the building and an adjacent yard. When the Vernal office was sold in 1973, the warehouse was moved to the Vernal substation area and has expanded in that location. The new Duchesne warehouse and yard was purchased and renovated in 1990. In Rangely, the warehouse and yard were located at the generating plant, and the office building, downtown. That

was improved greatly when the generating units were moved from the generator building. That changed for the most part when the latest office was purchased there in 1992, and the warehouse and yard are now adjacent to the office.

The UPALCO property next to the Roosevelt substation was the location of the warehouse and yard until 2010, and that situation was improved when the diesel units were removed and the generator building became part of the warehouse facility in the early 1970s. Those facilities were replaced for the most part and greatly enhanced with the new warehouse and operations center located on US Highway 40 next to the headquarters office.

This Moon Lake Roosevelt office was sold in 2010.





Board of Directors, late 1970s. Front, left to right: Earl Dillman (attorney), Don Rooks, Lee Jensen, Harry Fieldsted, and E. W. Long. Back, left to right: Merrill Millett (manager), Art McKee, Willard Wall, Cal Monks, and Lloyd Nelson.



Board of Directors, 1993. Left to right: Tom Thacker, Ron Peatross, Lillian Peacock, Grant J. Earl (manager), Larry Nielsen, Sanna Rae Draper (administrative assistant), Randy Vincent, Kent Olsen, and Alton Moon.



Board of Directors, 1981. Front, left to right: Don Rooks, Lloyd Nelson, Cal Monks, Willard Wall, and Harry Fieldsted. Back, left to right: Lee Jensen, Ferron Peterson, Lewis Vincent, E. W. Long, Earl Dillman (attorney), and Steve Glaim (manager).



Altamont crew, 2005



This plaque honors early pioneers in the Altamont area who helped in the formation of Moon Lake Electric. Present at its dedication during Moon Lake's fiftieth anniversary celebration were (left to right) Milda Daniels, wife of S. K. Daniels, and Zella Bennion, first employee of Moon Lake Electric.



Board of Directors, 2003. Left to right: Shirl Rawlings, Paul Tanner, Randy Vincent, Richard Ross, Grant J. Earl (general manager/CEO), Sanna Rae Draper (administrative assistant), Doug Holgate, Pat Lollar, and Kent Olsen.



Board of Directors, mid-1980s. George Mangan (attorney), Harry Fieldsted, Lloyd Nelson, Lewis Vincent, E. W. Long, Willard Wall, Cal Monks, Lee Jensen, Ferron Peterson, Don Rooks, and Grant J. Earl (general manager/CEO).

Board of Directors, 1989. Left to right: Larry Nielsen, Ron Peatross, Harry Fieldsted, Lewis Vincent, Lee Jensen, Lillian Peacock, Ron McKee, and Alton Moon. Standing, left to right: Grant J. Earl (general manager/CEO) and Sanna Rae Draper (administrative assistant).



Board of Directors, 2008. Left to right: Doug Holgate, Pat Lollar, Kent Olsen, Richard Ross, Yordis Nielsen, Larry Nielsen, and Tamara Vincent.





Staff members, 2010. Left to right: Grant J. Earl, Diana Rasmussen, Alan Haslem, Ken Winder, Bob Kissling, and Paul Betts.



Board of Directors, 2010. Front, left to right: Yordis Nielsen, Tamara Vincent, and Pat Lollar. Back, left to right: Doug Holgate, Richard Ross, Larry Nielsen, and Kent Olsen.



Altamont crew, 2009



Rangely crew, 2009

Tyler Lisonbee, Gary Nelson, Brett Miles, and Robert Richens replace a pole hit by a truck, 2012.



Annual meeting of members, 2006

CHAPTER 8

Overcoming Obstacles and Meeting Challenges

For years Utah Power and Light had a virtual monopoly over power development within Utah.

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BATTLES WITH UTAH POWER AND LIGHT

When they were formed, the REA cooperatives were not considered public utilities but, rather, private cooperatives. Therefore, Moon Lake Electric did not come under the jurisdiction of the Utah Public Service Commission. Within the initial wording of the legislation forming the REA cooperatives, the division between cooperative companies and privately owned companies was clearly laid out. However, as population and industrial growth occurred in the successive decades, they were soon in direct competition. During the early 1960s, the Utah cooperatives joined together to push for a change in the law so that cooperatives would be recognized utilities that would enable them to obtain from the Utah Public Service Commission (PSC) a Certificate of Public Convenience and Necessity. For years Utah Power and Light had a virtual monopoly of power development within Utah. It used its might to take unfair advantage when it was potentially profitable for it to do so, as the smaller cooperatives were not designated as public utilities, which put them outside the protection of the PSC. Moon Lake Electric obtained Certificates for Wasatch, Uintah, Duchesne, and Daggett Counties in 1960.

Taking advantage of this, UP&L tried to expand into profitable load regions such as service for the construction of Flaming Gorge and the Bonanza and Red Wash oil fields, but not to the rural areas of homes and farmsteads. At one point UP&L ran a line parallel to Moon Lake's lines to Flaming Gorge, some of which was constructed in the dark of the night. The 138 kV line from Flaming Gorge to Vernal that was built by Moon Lake ran directly past the Stauffer Chemical (now Simplot) phosphate mine. Moon Lake had purposely run it there to serve the large load for the mining and later slurry line built by Simplot. UP&L built a 138 kV line from Castle Gate to the phosphate plant just to plunder that profitable load from Moon Lake.⁹⁴

Utah Power and Light tried to block the sale of UPALCO to Moon Lake Electric. It involved the city councils of Roosevelt, Duchesne, and Myton, which approved resolutions favoring private enterprise rather than government-subsidized programs. It interfered with the sale of stock of UPALCO when Moon Lake Electric tried to purchase it. However, eventually, the stockholders of UPALCO sold their common stock to Moon Lake Electric.

In 1961 Moon Lake Electric and the other five cooperatives that serviced Utah residents sought legislative relief. It took four years, but they finally pushed a bill through the Utah legislature that first granted formal recognition to the cooperatives that they were, in fact, public utilities, and secondly,

that the service areas of the state would be specifically designated and regulated by the Public Service Commission. The certificate would designate a service territory in which to serve, and in which UP&L could not serve. Moon Lake's Board and management hoped UP&L's poaching would be brought to an end. UP&L fought the legislative battle at every turn. Finally, in 1965 the measure passed the Utah legislature and the cooperatives gained recognition as utilities.⁹⁵

With the passage of the new legislation, each cooperative, including MLEA, had to petition the PSC for a certificate to serve in a given area. To mediate this, the PSC held hearings on each petition. In each hearing UP&L appeared before the PSC in opposition to the cooperatives' requests. After four years of battle between the cooperatives and UP&L, the cooperatives were granted the limited Certificate of Convenience and Necessity, authorizing them to serve the customers in a given area. Yet, those areas were not specified as exclusive, so UP&L could still serve in those same areas. Moreover, it did not allow the cooperatives to operate in regions specifically designated for UP&L. As unfair as this was, it took another six years for the PSC to take final action. Moon Lake tried during those years to consolidate the UP&L service area, but the commission opposed it, chiefly because of UP&L's ongoing influence. A realignment of service areas between the two utilities became effective in 1971, a requirement of needed loan funds from REA for MLEA. For eleven years of the conflict, 1961-1972, UP&L had capricious advantage over the cooperatives.

Another major event in the conflict occurred when UP&L tried to take away the White River Oil Shale project on federal sites U-a and U-b. White River Oil Shale Corporation was on the side of UP&L before the Utah Public Service Commission and clear to the Utah Supreme Court, but MLEA prevailed and blocked every action. Another major interaction took place involving the service area boundaries and the joint service area that had given UP&L the right to serve all loads over 1,000 kW in part of Duchesne County. This situation was eventually solved to MLEA's satisfaction by expanding its service area and eliminating the rights of UP&L to serve loads within MLEA's boundaries (except for three grandfathered loads).

In 1959 several UP&L customers applied for service from Moon Lake Electric. At times, lines on one side of the street would belong to MLEA, and on the other side of the street, they would belong to UP&L. This situation was very complicated because exclusive service areas were not yet defined and regulated. In 1960, UP&L sought and received a Certificate of Convenience and Necessity in Duchesne County from the Public Service Commission. MLEA opposed it, but as Board minutes show, MLEA found it was not welcome in the hearings before the Utah Public Service Commission. MLEA applied for service areas in Wasatch, Uintah, Duchesne, and Daggett Counties later in 1960 and received franchises to serve in those areas. However, some areas were such that UP&L could serve all the large loads (over 1,000 kW) in an area, and MLEA could serve all the small loads.

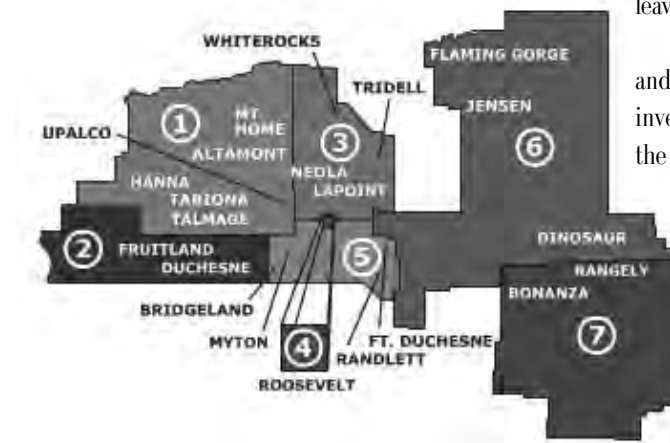
The years before the mitigation ruling by the PSC, Moon Lake was severely handicapped. Not only was its lucrative territory being plundered, but also throughout the years of conflict the Rural Electrification Association would not approve any further loans until the matter was settled. Moon Lake, knowing the nepotism of the PSC toward UP&L, resolved to bring the matter to a close, even if it meant an agreement that was unfair but necessary. Finally, Moon Lake and UP&L agreed to divide the area around Vernal so each served a separate portion. Moon Lake sold UP&L the facilities to serve 250 customers. Moon Lake also gave up the lucrative pumping loads at Myton, Hanna, and Tabiona on the Chevron pipeline, and both parties agreed upon areas of service throughout the Uinta Basin. With the agreements with Utah Power and Light that defined the MLEA Service Area and the interconnection agreement for Upalco substation and wheeling arrangement between the utilities, some of the rancorous feelings between these utilities could fade. Several more interactions took place during the 1970s and 1980s, and MLEA was able to establish itself as a capable service provider and not be trampled upon by UP&L.

With this mitigation agreement in place, Moon Lake went to the PSC for a new Certificate of Convenience and Necessity to serve the agreed-upon areas. Even with that agreement in place, the PSC vote only passed with a 2-1 margin from the commission. Upon receipt of the certificate, Moon Lake finally obtained a certified service area and satisfied REA. This ended a long struggle.⁹⁶

Another issue with ironic impact that angered UP&L, in which Moon Lake was only marginally involved, came up in 1986. Utah Power and Light filed suit in federal court challenging the constitutionality of the Western Area Power Administration's refusal to allocate federal hydropower to anyone other than rural electric cooperatives and the local power systems. It argued that since the dams were constructed with taxpayers' dollars, all taxpayers should have access to the power generated. What they conveniently forgot was that they had passed on the opportunity to buy into the hydro units when the Bureau of Reclamation was trying to get contracts for future power sales during their construction. When the federal hydro projects in Utah were proposed, UP&L vigorously opposed. The cooperatives had purchased all the available hydropower and years later UP&L found that its earlier decisions were now leaving it out of accessing the federal power.⁹⁷

While the specific details of the struggle between Moon Lake and Utah Power and Light are unique, the clashes between private, investor-owned power companies and cooperatives were not. Across the nation this drama was played out on many stages. Some of the conflicts were acrimonious and litigious with drawn-out battles, others less so. On the national scene, the struggle in Utah between UP&L and the six cooperatives, including Moon Lake Electric, was among the worst. After the above problems were resolved, both utilities agreed to work together to honor the service area boundaries and to cooperate in development of the facilities required to service the loads to keep costs down for the respective consumers

in either utility. This attitude has prevailed and worked well. It should be noted that because of the severely drawn boundaries, Moon Lake Electric has a good and respectful relationship with Rocky Mountain Power, which later merged with Utah Power and Light. Other issues still had to be resolved and were finally settled by the companies in 1992.



Moon Lake District Map

THREATS TO REA FINANCING

By the mid-1980s, in the attempt to cut the size of government under the Reagan administration, the REA was under attack. Opponents claimed that the REA had done its job of bringing rural America on line. While that was technically true, with 99 percent of rural America being served, Moon Lake Electric averaged four users per mile while urban electric companies averaged thirty-eight customers per mile. The density differential played a huge role in revenue requirements for operating and maintaining facilities. Moon Lake was still borrowing money from the REA at 5 percent interest at that time, when the national average of interest was 11.5 percent.⁹⁸

ATTEMPTS OF DEREGULATION OF THE POWER INDUSTRY

One of the problems in the utility industry is the potential for a monopoly. It is not practicable for multiple companies to run power lines in an area. But once they are installed and wire run, the residents in that area have little or no alternative but to purchase power from that company. To keep monopolies from unfairly taking advantage, the Public Utility Regulation Commission was formed. In the desire to deregulate and lift governmental oversight of utilities, privately owned

companies hoped to cut into the many REA cooperatives' areas of service to increase their sales. Utah's Public Service Commission asked national lawmakers to let the state deal with the issue and not interfere from the national level.

The argument for the legislation was that of customer choice in selection for electrical service. And while free-market capitalization could easily be argued as a reason to deregulate, the other side of the argument is that utility companies have to generate power and run transmission and supply lines, both of which are done at enormous cost, and they need to recoup those costs by power sales to customers. If they could not, there would be no incentive for the enormous outlay of monies. Deregulation of the industry, as has been done in some parts of the country, has not resulted in lower costs to the customers in those areas. Grant Earl and Ken Winder worked with, lobbied, and educated Utah legislators to help them see the folly of deregulation.

By the new millennium's start, deregulation was impacting California, resulting in an energy crisis there that commanded the nation's attention. Rolling brownouts were common. Even movie stars' homes in Hollywood were impacted. This came about through deregulation legislation that had been passed, and resulted in both consumers and energy providers being hurt. Utah and Colorado, where MLEA operates, commend their legislators for the patient and wise approach to move slowly and look to the future, in spite of large business and investor-owned utility companies' lobbying efforts to the contrary.⁹⁹

Moon Lake Electric Association, as a cooperative owned by its members, which does not have to pay stock dividends to shareholders, has constantly supplied its customers/members with the lowest kWh costs possible. In spite of these challenges and court cases, Moon Lake customers have electric costs that are in the lowest 10 percent of the nation's power rates.

THE UNITED STATES VERSUS MOON LAKE ELECTRIC

An improbable case against Moon Lake Electric came to a costly conclusion in 1999. Between 1995 and 1997, some seventeen raptors (hawks and eagles) had been electrocuted when they lit on Moon Lake power poles and brushed against the power lines. All involved, including Moon Lake officers and employees, were concerned and saddened about this, but the US Justice Department got involved and charged Moon Lake with thirteen misdemeanor violations of the Hawk and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Hawks and eagles like to roost, perch, and even nest high above the ground, and power poles with their cross arms are naturally enticing to them. The largest portion of the problem came from the power lines along the White River in Colorado, near the Utah border. The White River is an area that is home to several species of protected birds, including bald eagles, golden eagles, ferruginous hawks,



Protective equipment has been installed on this power pole to discourage raptors from roosting, perching, or nesting.

A raptor's nest on an unprotected power pole



A raptor on a nesting platform

OUR VIEW
The Salt Lake Tribune's Editorial Position

Raptor Protection Overkill

Moon Lake Electric Association is no match for the puissance of the federal government, which has forced it to plead guilty to electrocuting 17 eagles and hawks. The sad thing is that the problem causing these avian deaths could have been solved more amicably and with greater effect without the employment of coercion.

Last year, the U.S. Justice Department charged Moon Lake with 13 misdemeanor violations of the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. The charges claimed the company caused the deaths of 17 birds from 1995 through 1997 because they were electrocuted after perching on the company's power poles near Rangely, Colo.

As part of an agreement in return for Moon Lake's guilty plea (one would have thought the company willfully determined upon the birds' destruction), the utility agreed to pay a \$100,000 fine and retrofit 10 to 15 percent of its 50,000 power poles at a cost of \$800,000 to \$1.2 million during a probationary period.

For some years now, it has been known that birds can be electrocuted when their wings brush against unprotected circuits or lines. Their deaths can be reduced, if not prevented in every case, by insulation or by devices

that keep birds from landing on power poles. For example, some power poles have roosts installed at their tops — raptors like commanding heights — where the birds can perch and even spread their wings without touching power lines.

Protection of these birds is important. However, the adversarial climate created by the equivalent of murder charges sans intent (Moon Lake's only intent was to provide its customers electricity), the threats and piling on of multiple counts to induce a plea waste resources that could have been better spent addressing the retrofitting need.

Moon Lake was not averse to solving the problem. Utility officials told the U.S. Fish and Wildlife Service it was willing to work to retrofit its power poles. This the government was not willing to accept. Better a guilty plea, better a chastisement sternly meted out from the raised dais of a federal bench and the zero sum positioning of winner and loser.

True, the point that these birds need to be protected and that electric utilities, too, can and should do their part has been made. It is an important point, but one that could have been made just as well without the strong-arm tactics.

for years in court with appeals, motions, and trials; but the Board and General Manager Grant Earl decided it was cheaper and easier to plead guilty and pay the fine as it became obvious that the federal powers wanted to make an example of a power company. Moon Lake Electric was small enough that spending the millions to fight a many-year battle was considered unlikely by the government and thus a good target for the case.

and great horned owls. In that service area, Moon Lake had 3,096 power poles, and the oil field there is largely treeless, making Moon Lake's power poles preferred locations for birds of prey. The government alleged that Moon Lake failed to install protective equipment on 2,450 power poles, causing the death or injury of the raptors during a twenty-nine-month period commencing January 1996 and concluding June 1998.

This has been a problem and concern among wildlife officials, power companies, and interested parties for many years. Moon Lake was already aware of this situation and was working with Chevron installing protective devices, usually covered conductors on and around transformers and dead-end structures, and insulated triangles fitted on the crossarms between the wires and the pole that make it less desirable for the birds to land there. About 50 percent of the system in Rangely oil field (where the majority of the problems were occurring) had been retrofitted, but that was not good enough for the government. Acting as though Moon Lake had committed the blackest crime and intentionally caused the deaths of the birds, they prosecuted the case with unwarranted zeal. Moon Lake moved for dismissal of the charges, arguing that the Acts should not apply to unintentional conduct that is not the sort of physical conduct normally exhibited by hunters and poachers. Colorado Federal Court Judge Lewis Thornton Babcock denied the motion. Seeing that the government was determined to find a guilty verdict, Moon Lake Electric pled guilty of charges and agreed to pay a fine totaling \$100,000 and also to retrofit 10 to 15 percent of their 50,000 power poles, particularly those in the White River region, with raptor protection devices over the next three years of their probationary period.¹⁰⁰ The cost of the retrofit to poles was near a million dollars.

The electrocution of birds of prey happens frequently all across the nation. Moon Lake could have fought the charges and drawn the battle out



FIRE IN BROWN'S PARK

In the summer of 2002, a forest fire raged through the Dutch John and Brown's Park area. It burned some seventy poles and five miles of line at a loss of \$250,000. Employees worked feverishly to rebuild the lines and restore power to those areas. Insurance did not cover the cost.¹⁰¹

POWER GENERATION AND ENVIRONMENTALISTS

As was said earlier, there are only two ways to obtain power—purchase or generate it. The ability to purchase it is an option only if someone generating it is willing to sell. But the ability to generate more electricity is under attack from those who claim that greenhouse emissions are causing global warming. There is a huge disconnect in logic when it comes to energy use and radical environmentalists. They want unlimited and inexpensive power for their homes and businesses, gas for their cars, and every convenience possible, but protest and initiate litigation against those who produce the source of their luxury and comfort. Now well into the new millennium, all involved—consumers, producers, politicians, and environmental groups—are clamoring over what to do about the ever-increasing power and energy consumption in America and how to balance that with new generation of power and exploration and production of gas and oil. Regardless of an individual's views concerning global warming and whether burning gas, oil, and coal are directly causing global warming or not, every rational person wants a clean world in which to live. The rapidly swelling population in the nation and world brings pollution issues sharply to bear as cities and even rural regions continue to grow at unprecedented rates. With the rapidly expanding consumer use, power suppliers are unable to keep up. The North American Electric Reliability Corporation (NERC) reports that electricity generation is falling behind demand. In 2007 they projected that growth or demand would increase by 135,000 megawatts or 17 percent, while supply would increase only 8.4 percent.¹⁰²

The greatest contributing factor in this disturbing trend is that the construction of new power plants has virtually been halted. As was shown with the Bonanza Plant, new plants are extraordinarily expensive to construct, but even more prohibitive are the protests and lawsuits filed by environmental activists and groups such as the Sierra Club who claim that coal emissions are huge contributors in global warming. New or expanded coal-fired plants are anathema to them. The thought of nuclear plants puts them into a state of near apoplexy. Reasonable people on all sides of the issue share the concerns over



Mustang fire

CO₂ emissions from coal, and most Americans are gravely concerned about nuclear-fueled plants, particularly after the nuclear meltdown following the Japanese tsunami of 2011. However, when most protestors and even national legislators cite facts about CO₂ emissions from burning coal, they cite the emission data from coal mined in eastern states: West Virginia, Pennsylvania, or Kentucky. The sulfur content from that coal is several times higher than the coal mined in the West. Burning the low-sulfur coal



mined in Colorado, which is then emitted through the scrubbers in the smoke stacks at Desert, results in CO₂ emissions lower than EPA standards require. Few environmentalists are aware of this fact or do not care to mention it as evidence. Environmental activism has halted the construction of most new dams on the rivers of the west, which eliminates new hydro-generation capability. CO₂ emissions are not a factor

in hydro-generation; their arguments are based on the potential disruption of the stream-flow's impact on the river channels and flora and fauna. Many are even calling for the dams already constructed, such as Glen Canyon and Flaming Gorge, to be taken out to allow the rivers to flow in their natural and pristine state.

The resulting conflict is certainly understandable. No one wants polluted air: No one wants rolling brownouts or outages, or even to cut back on their electric-supported lifestyle. While energy efficiency can help in marginal ways, without new construction of generation plants, the ever-widening gap between demand and available power will grow too great and result in both power shortages and sharp increases in consumer costs. The movement by the Obama



administration for cap and trade lost momentum in 2012, but the idea has not gone away. The idea is to cap the carbon emissions allowed and provide a trading system in which the marketplace would establish the price of those allowances. This would, in spite of the rhetoric offered by its advocates, become a heavy tax on all industry that would, in turn, be passed on to consumers. Another argument advanced by some is a straight-out carbon tax. Either way, over the next years and decades, these environmental issues are going to impact all users. But the haunting question is still left unanswered: how much carbon dioxide will actually be eliminated through any of these draconian measures? Sadly, many citizens and legislators alike measure intent rather than results to evaluate the quality of an idea that may, and in many cases already has, become law.

The activist's answer to the concerns about coal and nuclear generation is solar- and wind-driven generation of electricity. While wind and solar generation are without CO₂ emissions or a potential meltdown, they are neither reliable nor cost efficient at present. In addition, to maintain reliability, it is necessary to construct a fossil-fueled or nuclear plant for each kW wind or solar facility to meet load requirements when the sun is not shining or the wind blowing. Currently, the generation cost for hydro-generation per kWh is 4.6 cents, 6.6 cents for coal, 6.7 cents for geothermal and nuclear; wind averages 11 cents, and solar generation soars up to 38 cents per kWh when generated by photovoltaic solar generators.¹⁰³ And while the debate rages on, consumer use and the number of consumers continue to climb while generation supply is being severely limited.

Moon Lake is doing everything possible to stay abreast of these issues. They are active in the National Rural Electric Cooperative Association, which has great lobbying power in Washington. Moon Lake also cultivates and maintains good relationships with Utah's congressmen and senators.





Community service, 2006

CHAPTER 9

Moon Lake Electric Today

With seventy-five years of stellar service in supplying the Basin's rural and small-town residents and industrial customers with dependable and affordable electricity, Moon Lake Electric Association has a remarkable past and a bright future.

—John D. Barton, Roosevelt

...

Electricity provided by REA's almost 900 rural electric systems allowed the American farmers and ranchers to increase productivity to easily feed our nation and help feed a hungry world—and at a cost that allows Americans to spend less of their income on food than people of any other nation. The REA overcame the unwillingness of private utilities to bring power to households, farms, and businesses in sparsely populated regions where profits were too low. The failure of the market, which left rural areas literally and figuratively in the dark, required an aggressive federal initiative to ensure that residents of sparsely populated areas were no longer comparatively disadvantaged in the twentieth-century American economy.

Moon Lake Electric's dedication to bring rural electrification has had an overwhelming influence on the way Basin residents live and work today. Bringing electricity to rural regions of the Uinta Basin provides choices in people's lives about where and how they live. For decades the children of the Basin's farmers and ranchers had to leave the area to find gainful employment. And as electricity has fueled industrial growth for the region, it has, in turn, brought new and higher paying jobs locally, which have supported population growth for the cities and towns. Those who wish to stay in the Basin and raise their families find opportunity to do so. In the beginning the organizers of the rural electric system knew they were taking on a big commitment to the future. Moon Lake Electric Association, in partnership with the REA, has turned the dream of electricity for all into reality, and set in motion an amazing success story of cooperative and economic democracy. Moon Lake Electric leaves an impressive legacy of success: it serves more than 8,000 square miles of land and provides service to more than 18,000 meters in seven counties in northeastern Utah and northwestern Colorado. At the end of 2012, MLEA had 18,118 accounts and sold 1,008,160,867 kWh for the year. Of this, approximately 73 percent was sold to customers involved directly with the oil, gas, and mining industries.

From its inception in 1938 to the mid-1950s, nearly all the farms in the Uinta Basin were provided electrical service. Monies borrowed from the REA were repaid, often ahead of schedule. The success of MLEA over the next two decades was even more impressive. As Moon Lake Electric grew, it resulted in new demands for household electrical appliances and more and more modernization of

lifestyle. This spurred growth in the construction trades throughout the region. Electrical service also brought revolutionary new vehicles of communication to rural farms, firms, and households. Radio was followed by television, which in turn was followed by computer technology. These new streams of information narrowed the cultural, educational, and commercial divide between rural and isolated Basin residents and the urban lifestyle.¹⁰⁴

Moon Lake Electric has successfully met a host of challenges to become the successful company it is today. Ongoing studies indicate that the demand for increased power for home, business, and industrial use are all continuing to rise. To gain more power, though, one cannot simply run a new wire. Sources must be developed, and done so in a timely manner, often in anticipation of growth needs prior to their being necessary. If the manager and directors grow power sources and they are in fact not needed, it runs costs up for unneeded supply. If, on the other hand, the sources are inadequate and demand outdistances supply, then there are shortages, outages, and brownouts. Thus far, the management and directors of Moon Lake have carefully and wisely led the company through seventy-five years. Moon Lake's average cost per kWh peaked in 1990 at 7.9 cents and dropped down to 6.7 cents in 1995. Through careful management and fiscal budgeting, rates remain at that level, which is within the lowest 10 percent of the nation's electricity rates. Moon Lake has a current debt load of \$12 million, but has a system valued at \$165 million. They have retired (refunded) to their members over \$34 million since 1977.¹⁰⁵

Moon Lake Electric is a good citizen within the community. It has provided thousands of dollars in scholarships to Basin students, helped develop a tax-exempt foundation for the construction of the multipurpose Senior Center, and in 2000, stepped forward with a large donation that enabled Utah State University to secure additional funding that led to the construction of the new Roosevelt Student Building. MLEA supports the Utah Rural Electric Youth Leadership Conference and other youth programs aimed at strengthening the leadership potential of the Basin's youth. When Utah State University Uintah Basin Campus raised funding to build a challenge course on the Roosevelt Campus, Moon Lake Electric constructed the course. They donated the use of their equipment to install new flag poles at the Roosevelt Cemetery. They support young people by purchasing prized livestock at the county fair. They give to the Boy Scouts. Moon Lake sponsors the Fine Arts Council, repairs lights at local sports fields for area youth, offers to chip used Christmas trees, prints local high school sports schedules, provides its area office facilities as public meeting rooms, and assists communities with



Moon Lake is committed to educating youth.

hanging their Christmas lights. They also provide assistance to qualified charities, youth, and civic organizations.¹⁰⁶

All employees at Moon Lake Electric are expected to be goodwill ambassadors of the cooperative. Most are friendly, helpful, and patient. And they do so while providing members with the best state-of-the-art technology and service. When Hurricane Katrina pummeled the coastline of Louisiana in 2005, Moon Lake sponsored six of its

Moon Lake's donation to Utah State University led to the construction of the Roosevelt Student Building.



Members of the Moon Lake Electric crew sent to Louisiana after Hurricane Katrina in 2005

linemen to join some 10,000 line crews from forty states to aid the damaged areas. The Moon Lake linemen worked to restore power to the residents of Cameron, Louisiana. They lived in huge, 600-man tents, showered in trailers, and ate catfish and beans most days. Gary Mathews recounted, "Words don't even begin to describe the destruction that the crew saw . . . There was so much devastation. All that was left of most of the power poles were little tiny stumps. The town was completely wiped out."¹⁰⁷

While there have been several noteworthy managers, Grant Earl has been at Moon Lake's helm longer than any other. With over forty years of total service, he has been with Moon Lake for more than half its existence. Earl started in Moon Lake's accounting department in December 1972 and honed his fiscal skills and understanding of Moon Lake's finances there for the next eight years. He was then promoted assistant to the manager for General Manager Steve Glaim. When Glaim announced his retirement, Earl applied for the position. Though relatively young for the weighty position, the Board recognized his leadership potential and appointed him as general manager. It was a fortuitous selection. For over a third of Moon Lake Electric's existence, Grant, working with the Board of Directors and a great management staff, has supplied keen vision, wise leadership, and sharp financial decisions. He has met the challenges of a sagging national economy and boom and bust cycles in the oil industry. Grant was integral in working closely with Deseret Generation and Transmission to buoy up their finances, so MLEA had a long-term, dependable power supply. He has led the expansion of service further and further into rural, and often nearly inaccessible regions, to supply the expansion of the oil industry, and overseen the move to MLEA's new facilities. Under his watch electricity rates have remained stable for thirty years while Moon Lake has supplied its consumers with dependable power. And without fail, when Moon Lake's successes are mentioned, he quickly shares credit with the well-trained, highly skilled and hardworking employees who are focused on providing the best service possible to the members.¹⁰⁸



Louisiana after Hurricane Katrina, 2005

At this time, Moon Lake Electric is poised for continued growth and development in the world-class energy basins within its service area. Projected growth by the oil and gas industry will far exceed anything in the past, if it is allowed to take place. Replacement of aging infrastructure and installation of new infrastructure capable of meeting the growth of electrical demand to provide consumers with reliable, efficient, and affordable service will continue, just as in the past, to challenge Moon Lake Electric.



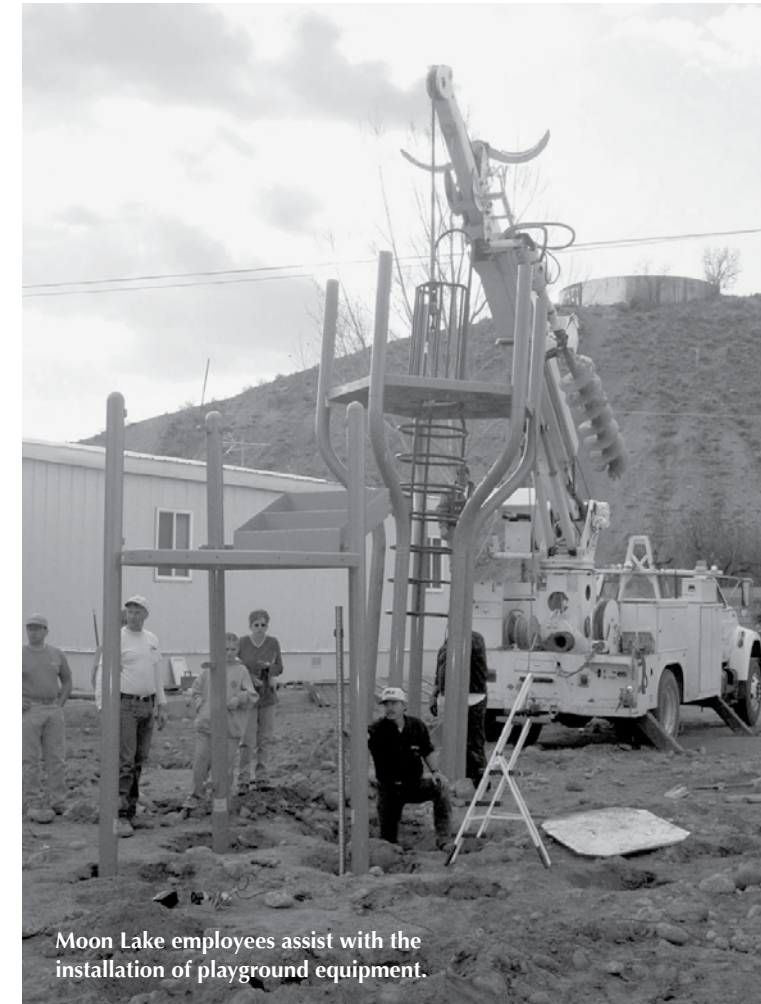
Grant J. Earl

With seventy-five years of stellar service in supplying the Basin's rural and small-town residents and industrial customers with dependable and affordable electricity, they have a remarkable past and a bright future. Their infrastructure is in good shape, particularly when compared with much of the power grid nationally. Their finances are well managed, and they have always met their commitments. They have a healthy working capital base and have supplied their customers with power rates

among the lowest in the nation. Moon Lake Electric Association will continue to work diligently to meet its stated goals of: **Our Vision:** To become widely recognized as a customer-oriented, socially responsible, financially strong, successful competitor in the evolving electric business. **Our Mission:** To meet or exceed our customer/member expectations for reliable and efficient electrical service in a socially responsible manner. To demonstrate that the cooperative enterprise is the most desirable method for providing and receiving electrical service. **Our Values:** Integrity * Teamwork * Commitment * Service * Human Resource Development * Respect for the Environment.



Youth Conference participants and leaders meet with Governor Jon Huntsman in 2006.



Moon Lake employees assist with the installation of playground equipment.

Thanks for
Buying for my
pig
Seyal Next year!
Cheyann
Wardell

As this thank you note attests, Moon Lake employees support young people by purchasing prized animals.



Youth Conference, 2011

Gratitude for support at the Duchesne County Fair



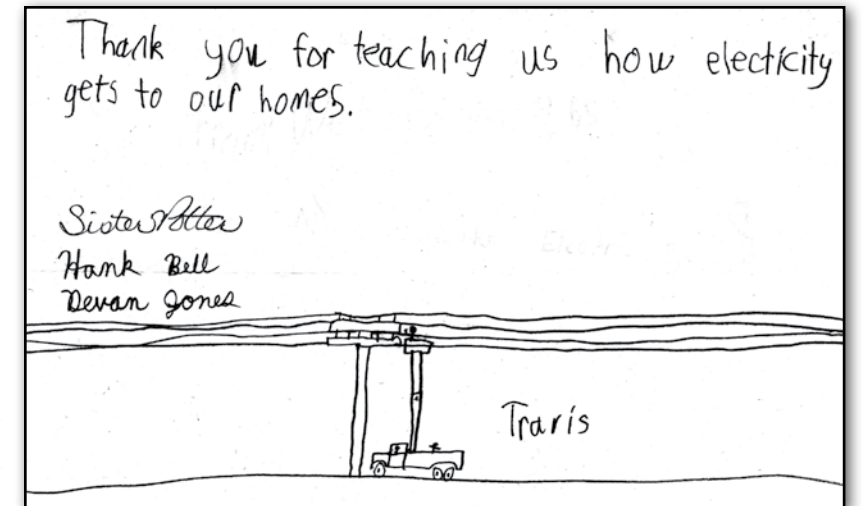
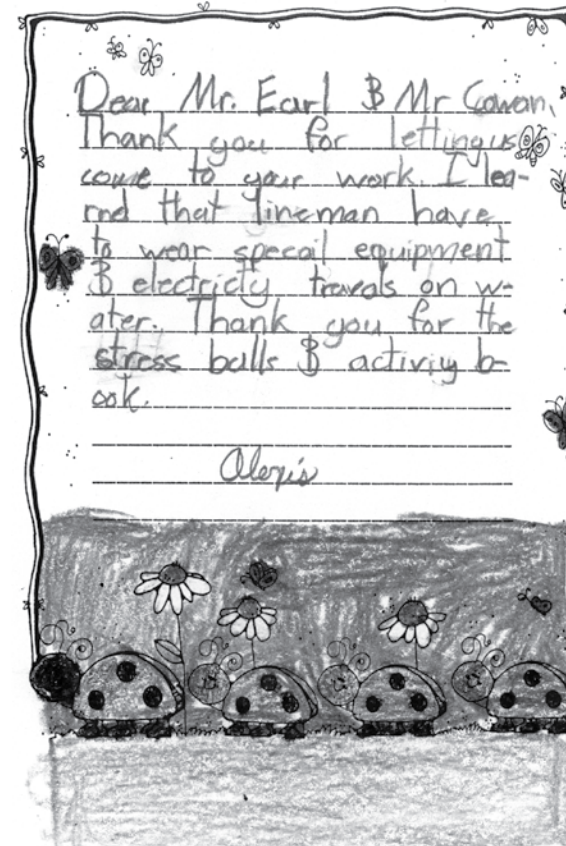
Thank You for
Supporting me at
the 2011 Duchesne
County Fair! I
appreciate your
generosity.
-Thanks-
Shonia McKinnon



Hanging lights on Altamont High School's football field



Moon Lake donated this fire truck to Roosevelt City.



Students thank Moon Lake Electric for educational demonstrations.



Safety demonstration for elementary students



Moon Lake's 1938 Ford truck has been featured in community parades.

District barbecue in Altamont



Annual meeting of members, 2011



Roosevelt State Street tree replacement project, 2012

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76. Ken Winder holds a BS degree in electric engineering, BYU, and is a registered professional engineer in Utah and Colorado. He holds membership in the Institute of Electrical and Electronic Engineers (IEEE), IEEE Power Engineering Society, Deseret Generation and Transmission Co-operative Rate Committee, the National Rural Electric Cooperative Transmission and Distribution Engineering Committee, NRECA System Planning Subcommittee (past president and recorder), and NRECA representative in Department of Energy Public Rulemaking on National Efficiency Standards for Distribution Transformers (2007, Negotiation Process 2011, and 2012).
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108. Grant Earl's service reaches far beyond Moon Lake Electric. He has been a valued member of several national committees and boards including National Cooperative Services Cooperative (NCSC) (past chairman) 1983-2003, Intermountain Power Project Coordinating Committee (IPPC) 1983-present, Utah Rural Electric Association (UREA) (alt) 1989-present, Western United Electric Association (WUE) 2009-present, Federated Rural Electric Insurance Exchange (FREIE) (past chairman) 2004-present, Blue Mountain Energy Cooperative (BME) 2012-present, Deseret Generation and Transmission Cooperative (DGT) 2012-present. He has been headhunted by larger power companies but has chosen to remain at Moon Lake Electric.

ABOUT THE AUTHOR

John D. Barton grew up in Altonah and is a fourth-generation resident of the Uinta Basin. He attended elementary and high school at Altamont, and currently resides in the Hancock Cove near Roosevelt. He completed his undergraduate and graduate degrees in history at Brigham Young University and has taught at Utah State University Uintah Basin Regional Campus for the past twenty-



five years where he presently holds the rank of Principal Lecturer. He teaches lower division courses in US History I and II, American Civilization, and Western Civilization; and his upper-division courses include Utah History, Western History, American Indian History, Ute History, and Colonial History. Barton has authored more than forty-five professional publications including three books: *Buckskin Entrepreneur: Antoine Robidoux and the Fur Trade of the Uinta Basin 1824-1944*, *A History of Duchesne County*, and *From Tabernacle to Temple: The Story of the Vernal Temple*. He was named to serve on the Utah State Board of History 2004-2007 by Governor Oleen Walker. He has been married to Patricia Wilkerson of Neola for thirty-five years. They are the parents of four children and have six grandchildren.