

## Columbia Water and Light Centennial Celebration 1904-2004

### How the tradition began

*On July 21, 1893—nearly 14 years after the invention of the incandescent lamp—Mrs. R.B. Price turned the switch that sent a current to newly installed electric street lamps in downtown Columbia. “The light is a glorious success,” reported the August 4 issue of The Missouri Statesman. “It is an everlasting monument to the town’s fidelity and enterprise.” At 15 cents per kilowatt-hour, electricity cost almost two and a half times what it does today!*

By the late 1800s, Columbia was a prosperous community of more than 5,000 citizens. Broadway bisected a lively business district that included large department stores, taverns and cafes, doctors’ offices, law firms, hotels, livery barns and dozens of retailers. Horse-drawn coal and ice wagons sloshed through muddy downtown streets, their drivers calling out advertisements for their loads. Most homes and businesses were heated by coal or wood stoves and lit by gas and kerosene lanterns. Water was drawn in buckets from shallow, rock-lined wells. And, like most cities of the time, Columbia was plagued by fire. Despite an 1869 ban on the construction of wooden buildings downtown, countless Columbia homes and businesses fell victim to “the dread fire king.” Between 1879 and 1889, four catastrophic fires claimed much of downtown, the worst of which burned nearly a full block of buildings in the area bounded by Cherry, Broadway, South Ninth and South Tenth, as well as buildings on the west side of South Ninth. To the citizens of Columbia, it was readily apparent that to effectively fight fires, Columbia needed a modern waterworks.

The late 1800s also marked the dawn of electrification. Following Thomas Alva Edison’s invention of the incandescent lamp in 1879, electric utilities quickly spread across the nation, and electric streetlights soon became the hallmark of a modern city.

In comparison to its East and West Coast counterparts, Columbia was decidedly behind the times. Its citizens needed a reliable source of water and longed for the prestige of modern electric lights. On November 25, 1890, the voters of Columbia, by a two-thirds majority, approved a \$45,000 bond issue to establish a municipal water and light plant and provide for the use of local taxes to retire the bonds in twenty years. Opponents to the measure insisted that Columbia lacked the constitutional authority to raise its tax rate to the proposed level, and the Boone County prosecuting attorney filed an injunction suit to nullify the ordinance. In November 1891, the Audrain County Circuit Court upheld this contention, indefinitely putting the notion of municipal ownership on hold—and unwittingly jeopardizing the pillar of Columbia’s economy.

### The university burns

*“Of the establishments that were here 25 years ago, only three remain. Nearly all the business portion has been burned and rebuilt.” —Missouri Statesman, 1895, From Southern Village to Midwestern City, page 39.*

On January 9, 1892, faulty electrical wiring in the ceiling of Academic Hall sparked a devastating fire.<sup>2</sup> “Suddenly, the electric lights flared up with a gurgling sound,” reported the Columbia Herald. “There was a dazzling brilliancy for a brief moment, and as the spectators glanced with a little uneasiness up to note the cause, down fell the splendid chandelier over the orchestra row.” Citizens, students, faculty and even then university President Jesse and Mayor J.H. Guitar dashed in and out of the burning building, saving what furniture, musical instruments, equipment and important documents they could. But by morning, the building was burned to the ground.

In the weeks that followed, politicians from Moberly, Clinton, Boonville, and Sedalia tried to convince the state legislature to relocate the university to their respective hometowns, citing Columbia's lack of adequate water supply for fighting fires. Boone County citizens raised \$50,000 to help fund the rebuilding of the university and pledged to provide adequate fire protection to the university. A passionate debate ensued. On March 15, the House voted 69 to 67 in favor of Sedalia as the new site. Two days later, the Senate voted in favor of Columbia, killing the university's removal and preserving Columbia's place as Missouri's center of academia. But with the option of municipal utility ownership stalled in the courts, Columbia's citizens had to look elsewhere to fulfill their commitment to provide a waterworks.

*“At last the mass of red tape that has been impeding the progress of municipal ownership in Columbia has been gone through with and it is announced that the city will actually take charge of the waterworks and electric light plant August 1. At that time the present Columbia Water and Light Company will turn over to the Columbia Board of Public Works the water and light plant, dam, together with a lease for five acres of land at the Hinkson Dam. The city will pay the Water and Light Company \$100 a month for the lease and will furnish water and light free to the members of the company until the expiration of the lease. The lease is for six months and there is no option for a renewal.” — Columbia Missouri Herald, July 22, 1904.*

### **A private solution**

As the waterworks issue heated up, the push for modern electric streetlights simultaneously picked up steam. Unlike water utilities, the business of producing and selling electrical power had become a profitable industry—and that meant a successful electric plant could provide means to subsidize a public water system. In the months that followed the Academic Hall disaster, the city took steps to grant a utility franchise to private investors. And on December 17, 1892, Mayor J.H. Guitar called a special election to determine whether Columbia's old-fashioned gas streetlights should be converted to electric. Columbians voted 647 to 14 in favor of an electric light system.

Soon thereafter, City Council awarded a contract to the newly formed, privately owned Columbia Water and Light Company. The company constructed Sherman's Dam on Hinkson Creek, backing up water for nearly a mile. A small pump house fed impounded surface water into the city's first water mains, and a coal-fired steam engine powered up at dusk to midnight each day to power the newly installed electric street lamps downtown and the homes of a few wealthy citizens.

But the enchantment of electric lights soon fizzled, and over the next ten years, Columbia citizens grew increasingly dissatisfied with the utility. Electric lights were still a luxury that few could afford. Pumped water was costly, and water pressure was low. Many residents purchased drinking water from the ice plant or relied on shallow private wells, which often stopped producing during long periods of dry weather. But most importantly, the quality of Columbia's public water was highly suspect.

In 1903, Ithica, New York—a city much like Columbia—suffered a typhoid epidemic, nearly closing Cornell University and raising awareness of the human and economic costs of impure water. City Council commissioned a study that found Columbia's surface water to be unsafe and recommended that public water instead be furnished by deep wells. The privately held Columbia Water and Light Company resisted, refusing to include deep wells in its renewing contract with the city. A citizen group called The Municipal Ownership League circulated a pamphlet with photographs and graphic descriptions of hog wallows, animal carcasses and outhouses (one of which belonged to the Columbia Water and Light Company) along the Hinkson Creek watershed and urged the citizenry to vote for public ownership of the utility. “Even upon the eve of asking for a new contract the Columbia Water and Light Company did not take the most elementary precautions for protecting the water from contamination,” they wrote. “Hence, municipal ownership with deep well water furnishes the only safeguard for the public health.”

After considerable debate and multiple elections, the council and the Columbia Water and Light Company arrived at a price of \$67,506.92 to purchase utility assets, and city officials drew up plans for drilling two deep wells northeast of town, at More's Lake. On February 23, 1904, voters overwhelmingly approved the purchase of the utility and sanctioned a \$100,000 bond with a vote of 469 for and 115 against. Within weeks, City Council appointed four men to a Board for Public Works, which was charged with the duties of appointing a superintendent, setting rates for water and lights, and making recommendations to the council regarding management of the plant.

On July 29, 1904, the purchase of Columbia Water and Light Company was finally complete. On August 1, eight new city employees assumed utility operations, and Columbia's tradition of municipal ownership began.

*The city of Columbia assumed utility operations in August 1904 with eight employees who worked 12-hour shift: 1 Bookkeeper, \$40/month; 1 Electrician, \$75/month; 1 Plumber, \$50/month; 2 Engineers, \$50/month; 2 Firemen (for keeping the fires going, not fighting them), \$37.50/month; 1 Helper, \$35/month. R.E. Henry supplied the first load of coal for 8.25 cents per bushel.*

## A trusted source of affordable electricity and pure water for 100 years

### 1900s

Columbia's experiment with municipal ownership got off to a rocky start. The city-owned plant was operating from a building that had formerly been a wooden icehouse. Aging, inefficient equipment continued to dictate high electricity prices; in 1910, the utility had only 61 electric customers. Although deep wells and a reservoir at More's Lake were providing safer water, water use was not metered, and copious leakage and waste went unchecked. No charges were made for fire protection, street lighting and other public uses. And, not surprisingly, the enterprise ran an annual deficit for its first eight years of operation.

*Soon after being put into service, a Columbia newspaper described the 100'x 80' wooden building built to house the power plant at More's Lake as "worthless," and advised that a new one should be built. In 1911, workers began construction of a new brick building about twice the size of the original. That building comprises the north portion of the current plant.*

In 1910, City Council commissioned a detailed report on the plant's condition, operation and value. Recommendations included building a new brick power plant near the railroad to facilitate coal shipments, improving one of the deep wells dug in 1903, doubling the number of water mains in the city and various other upgrades—all at an estimated cost of \$125,000. On September 27, 1910, Columbians sanctioned a \$125,000 bond issue to build a modern power plant at More's Lake, the present site of the plant on Business Loop 70. And in the spring of 1912, the new stone and brick power plant was completed.

Over the next five years, Columbia grew both in size and prosperity. The number of water and light customers increased, and the utility's financial health steadily improved. By 1917, Columbia Water and Light had become quite profitable, and City Council passed a measure requiring 2 percent of the utility's gross earnings be deposited into the general revenue fund.

### 1920s

The U.S. emerged from World War I not only victorious, but also prosperous. The war effort had proved a boon to the economy, creating a market for weapons, machinery and mass-produced goods. For most of the decade, unemployment was low and disposable income was high. Electricity was no longer viewed as a luxury.

*By 1925, utility revenues had paid for the power plant, as well as all power poles, transformers, wires, water main extensions and other improvements required to keep pace with growing power and water demand.*

More customers meant greater demand and more revenue, and the utility started showing strong profits. Not surprisingly, the increased demand also caused the plant's maximum load of 1400 kilowatts to be overloaded frequently. In 1926, City Council initiated an 8-year building program that provided an additional 2,250 kilowatts of power. To ensure adequate water, the city also built a reservoir and an additional deep well.

These improvements, as well as new water mains, electrical service lines, and a number of community building projects, were financed with utility revenues. No bond issues nor property taxes were needed. What's more, utility customers' rates were lowered. By the end of the decade, electric rates had been cut to 8 cents per kilowatt-hour, the lowest power rates in Missouri. For Columbians, the "experiment" of public ownership was clearly a success.

### *The benefits of municipal ownership*

*By keeping local money in the community, public ownership has helped build our city's landmarks—enduring contributions to the quality of life in Columbia. In 1932, voters allowed the Columbia City Council to spend \$125,000 in Water and Light funds to build a new city hall at Broadway and Sixth Street, introducing an era of civic improvement projects funded by Water and Light revenue. Utility funds were used to build the fire and police building, the Armory, Douglass Swimming Pool and Park, the public library (now home to Parks and Recreation and the city's Human Resources Department), sewers and streets. Utility revenues also funded land for the cancer hospital and the municipal airport on the site where Cosmo Park now stands. In this way, the utility was able to reinvest in the community, rather than paying profits to private investors.*

### **1930s**

The Great Depression took its toll on Columbia, causing university appropriations to drop and many businesses to close—including the town's major industrial manufacturer and employer, the Hamilton-Brown Shoe Company. Still, our municipal utility remained debt-free and profitable. In fact, public ownership actually bolstered the local economy during those hard times. In 1932, City Council increased contributions to the city's general fund to 10 percent of gross earnings, infusing the city's coffers.

But perhaps even more significantly, Columbia's citizens recognized that public ownership provided an opportunity to heed FDR's New Deal axiom, and lift itself up by its own bootstraps. In 1932, voters endorsed a measure that allowed City Council to spend \$125,000 of Water and Light funds to build a new city hall at Broadway and Sixth Street. In the years that followed, similar measures helped fund construction of several other public projects. This provided work for the unemployed, stimulated the local economy, and accelerated recovery from the Great Depression.

Despite these important contributions to the general fund and infrastructure of the city during the 1930s, utility rates were twice reduced, resulting in an end-of-decade power rate of 5 cents per kilowatt-hour, and a water rate of 25 cents per hundred cubic feet (CCF).

### **1940s**

By 1940, a growing population and consequent increase in demand had begun to once again strain Columbia's power resources. City Council initiated plans for power plant expansion, but the bombing of Pearl Harbor and U.S. entry into World War II interfered. Manpower and equipment needed for upgrades were restricted by the War Department until the war ended in 1945. In the last four years of the decade, the city completed major facility and equipment upgrades that included a new 13,800-volt generator and distribution loop. The reservoir at More's Lake was no longer an adequate source of cooling water for the plant, so a cooling tower was installed.

Columbia's water system also suffered the effects of war. The growing city was badly in need of additional water, but pipe and other materials necessary for drilling new wells and connecting them to the system were in short supply. Even after the war ended, scarce resources continued to delay construction such that from 1946 to '48, the city was forced to purchase water from the university. In 1947, Columbia installed its first elevated water tower at Walnut and Garth, providing a one million gallon emergency reservoir. That same year, an additional deep well was drilled and connected to the system using materials and equipment already on hand. Although its 1,000 gallons per minute capacity was welcome, the city would continue to purchase water from the university until yet another well was completed in 1948.

*In 1947, Water and Light funds supplied 58 percent of the city's income and provided public lights and water at no charge.*

Deferred upgrades and postwar inflation caused improvements to cost a good deal more than had been budgeted several years back. To address the shortfall, water and light rates were increased slightly in 1948 for a period of one year. By the end of the decade, rates had returned to an all-time low.

### 1950s

By the 1950s, it was generally accepted that the utility would need to continually and regularly add generating power. "Through our operating personnel and city engineers, we have surveyed, planned, and investigated community trends to determine future needs," said Water and Light Director Fred Williams. "Our program attempts to anticipate physical growth and industrial movements and expansion while measuring present loads. Then we keep pace with service." But nobody could have predicted the magnitude of the demand that was to come...

The 1950s brought a plethora of electric appliances, television, and, of course, air conditioning into America's households. In 1954, when Columbia's population was around 34,000, the Columbia Missourian announced some 12,000 electric appliances were being sold in town each year. Despite large improvements made in the late '40s, the utility struggled to keep up with demand. In 1954, electric power use was 28 percent over the prior year's peak load.

*The 1950s surge in air conditioner use contributed to sharp spikes in demand and an overloaded distribution system. Beverly Perkins, a Water and Light employee from 1957 to 2000, remembers the cool appeal at her parents' Ninth Street restaurant, the Eat Mor Café: "We were the first restaurant in town to have an air conditioner, so they would stand in line to get in."*

Between 1958 and 1960, City Council put before voters three bond issues for power plant expansion. Each of them failed. As the decade came to a close, no solution to the power shortage was in sight.

### 1960s

The 1960s were years of phenomenal city growth and brewing environmental concern, two issues frequently at odds. Columbia quadrupled in size, from 11 square miles in 1960 to 41.7 in 1970. Consequently, the demand for power and water grew exponentially.

During the 10-week period from June 20 to August 26, 1960, the power plant's firm capacity was exceeded 30 times. Because recent bond issues to expand the power plant had failed, the city had to find external sources of power. In 1961, city officials reached an annually renewable 10-year contract with Central Electric Power Cooperative. In September, an interconnection was complete—and none too soon. The following May, the city was forced to tap that emergency supply.

The agreement with Central Electric guaranteed emergency power only until October 1962, and the city was badly in need of a long-term solution. Consulting engineers confirmed the urgency of the situation. "The city power plant is deficient now and will be seriously deficient in three years," they said. "You should have been putting in a new unit a year ago." Although some citizens argued that it was time to get out of the power-generating business, consultants found that further expansion of the municipal plant was the most economical option.

*More's Lake, the reservoir also known as the old "Water and Light Lake" near the Municipal Power Plant, was a favorite gathering place for fishing, swimming, picnicking, listening to live music, and attending other community events during much of the 1900s. The swimming pool that sat next to the lake was demolished to make way for power plant expansion in the mid-1960s.*

On December 11, 1962, City Council put the issue to vote for the fourth time, and a \$5.5 million bond issue passed by a margin of nearly 20-to-1. A new 22,000-kilowatt turbo-generator was placed in service in May 1965, culminating many years of planning to provide adequate electrical power.

During the '60s, the city's power shortage shared the headlines with another mounting concern: air and water pollution. In an attempt to comply with new environmental standards, the city began importing cleaner burning, but more expensive, coal from out of state, and researching options to clean up smokestack emissions.

### Tapping a new water supply

Just as one burning issue was put to rest, another began smoldering: where to get an adequate water supply for the growing town. Despite drilling additional deep wells, Columbia's demand for water continued to outpace supply, resulting in an overall capacity shortage of 8.5 million gallons. "The nature of deep wells is that they will pump only so much water," explains retired Chief Engineer Ron Powell, recalling the situation. "It was no longer possible to continue drilling wells in the city without the new wells interfering with the old ones," he said.

Water quality was also a growing public concern. Surveys by the state Conservation Commission indicated that more than 1,200 miles of Missouri's streams were polluted to the extent of damaging fish and wildlife.

Columbia investigated three options: treating water from the Missouri River, damming Perche Creek, and tapping an aquifer on the alluvial plain near McBaine. In the end, the engineers recommended that Columbia pursue a water facility at McBaine because of lower initial and operating costs and the superior quality of ground water over surface water. Water from the existing city wells should be used only for emergency fire fighting and to supply the municipal power plant, they advised.

On December 13, 1966, City Council put a \$16.65 million bond issue before the public, proposing the construction of a new water facility on the alluvial plains of the Missouri River between McBaine and Huntsdale, and a power connection with the Union Electric Company at its Overton substation. The bond issue carried 2,343 to 1,646, just 63 votes over the required four-sevenths majority. Columbia's new water treatment facility became operational on June 28, 1972.

### 1970s

In 1970, coal was still the major fuel at the municipal power plant, but the city had joined the national movement toward cleaner-burning natural gas. Workers had just installed a gas boiler capable of providing 100 percent of winter needs and 50 percent of peak summer requirements. But before the equipment was put to use, a nationwide natural gas shortage ensued. Periodic freezes and allotment reductions continued for much of the decade, setting off record inflation rates and initiating the dependence on foreign oil that still beleaguers our nation today.

Despite importing low-sulfur coal and installing costly pollution-control equipment, the utility struggled throughout the 70s to meet regulatory requirements. At the same time, a nationwide United Mine Workers strike caused coal prices to skyrocket. In 1972, Columbia was paying \$8 a ton for coal. By 1975, the price was \$34. "When you burn 90,000 tons in a year, that can hurt...to the tune of more than \$2.5 million," said then Water and Light Director Jim Lundsted.

*As part of downtown beautification efforts in the 1970s, city crews buried overhead electric wires servicing downtown businesses. That same decade, underground electric service wires were introduced in new residential developments. Although most of the city's older areas still use overhead wires, over half of Columbia's electric distribution system is presently underground.*

Rising utility costs were an unavoidable reality. In July 1972, City Council adopted a fuel adjustment charge, which allowed the city to pass to the customer increases or decreases in the cost of gas or oil. When the adjustment charge appeared on consumers' bills in February 1974, it was the first time rates had increased since the temporary one-cent hike imposed to cover post-World War II inflation-related costs. That same year, the nation's utilities raised rates an average of 22 percent. Aggressive regulation and high fuel costs made it increasingly expensive for small, older plants like Columbia's to compete in the power generation business. By the end of 1979, Columbia was purchasing over half of its power from Union Electric.

On the water side of the business, the '70s were comparably cheerful. Following the opening of the McBaine water plant in November 1972, the city's water supply, pressure and purity were no longer in question. The natural filtering system of the alluvial plains and relatively simple treatment process delivered some of the best quality water in the state.

## 1980s

The gasoline shortage and double-digit inflation persisted into the early '80s. With wholesale costs to the utility increasing more than 10 percent per year, preventing further increases in retail prices to customers was a formidable challenge. Adding to the problem was the Fuel Use Act of 1978, through which the federal government claimed natural gas was a rare commodity that should only be used for residential heating. Because two of the municipal power plant's generators operated on natural gas, the measure forced continued application of the fuel adjustment charge. But by the mid-1980s, the nation's economy began showing signs of improvement, and natural gas began to again flow freely. Restrictions on natural gas were lifted, and customers saw a reduction in the fuel adjustment charge. However, the problem of obtaining ample and affordable power for Columbia's ever-increasing population did not go away.

"We developed a strategy for how we wanted to pick up load growth through purchases, and when that purchase amount got to a certain level, try to lock down a block of power for the long term," said Dick Malon, retired director of Columbia Water and Light. The result was a long-range power supply program that included extensive power plant improvements, the purchase of participation in other plants, energy conservation and load management, and purchasing power off the grid.

In 1981, Columbia entered into a capacity agreement with the city of Sikeston to purchase power from its new, municipally owned generation plant. That same year, the city made a similar agreement with the Kansas City, Kansas Board of Public Utilities (BPU) to purchase power from its Nearman Plant. And in November 1983, Columbia voters sanctioned a \$15.5 million revenue bond that enabled extensive rehabilitation of our municipal plant and provided Columbia with a long-term, local generating source that would supply 86,000 kilowatts of power for 25 years or more. Even today, our municipal plant helps ensure affordable power during periods of peak demand.

*Annexation has long been a contentious topic, especially when it comes to utility providers. In the late 1980s, Robert Alderson, general manager of Boone Electric Cooperative, and former Director of Water and Light Dick Malon pioneered territorial agreements that helped preserve a positive relationship between the two utilities as the city grew. The agreements established which utility would serve outlying areas should they be annexed by the city over the next 20 years. This foresight not only prevented costly legal disputes, it ensured reliable service to utility customers. First approved by the Missouri Public Service Commission in October 1989, territorial agreements are now similarly employed in other states.*

## 1990s

On July 29, 1993, Columbia's Water Treatment Plant at McBaine, which is located about 2 miles from the Missouri River, stood as an island fortress against floodwaters. Columbia's facility is one of the few water treatment plants along the river basin that didn't succumb to the flood that year, during which the river crested more than 4 feet above the previous record set in 1951. "If it were not for what I believe is heroism by the people who work down at the water treatment plant, it would have been lost," says Ron Powell, retired chief engineer.

After the waters receded, the utility secured federal grant money to build new floodwalls four feet higher than the 1993 crest. The city also has installed special equipment, added redundancy to electrical and plumbing systems at the plant, installed redundant power and water lines in the McBaine bottoms, and established emergency procedures should natural or other catastrophes ever threaten the plant again.

### Deregulation threatens power side of municipal utility

A few years later, Columbia's water and electric utility averted what many consider another near catastrophe: power industry deregulation. In the late 1990s, California and Rhode Island took advantage of the first Bush Administration's deregulation push, enacting state legislation that gave customers a choice of power providers. Many other states followed suit. For a time, the Missouri legislature seriously considered deregulating the electric utility industry here as well.

The former director of Columbia Water and Light, Dick Malon, chaired a committee under the Missouri Public Service Commission's Task Force On Retail Competition. The committee was charged with looking into the feasibility of deregulation and its impact on consumers. "We were asking questions like, 'would it really be good for the consumer? Would it really lower prices?' Or, was it just a way for

someone else to come in and charge what the market would bear? The more we studied it, the less everybody liked it.” Still, for a while, it seemed deregulation in Missouri was likely—so likely, in fact, that Columbia Water and Light drew up a business plan for operating in a deregulated environment, should legislation pass.

Following the 2000–2001 California energy crisis and subsequent Enron scandal, deregulation of the energy industry has come under increased scrutiny. Missouri lawmakers seem to have lost interest in legislation that would deregulate the industry here, at least for the time being. “I hope it doesn’t come back around, because I think it is a really bad idea....” said Malon. “At least on the retail side of the business.”

## **2000**

The year 2000 ushered in an era of new concerns for our municipal utility.

A Y2K Task Force prepared for the new millennium by rigorously testing and upgrading all microchip-dependent equipment, developing contingency plans, and coordinating with other utilities through the North American Electric Reliability Council and the Mid America Interconnected Network. Thanks to careful planning on the part of city employees, midnight on December 31, 1999, came and went without incident.

It was not long, however, before Y2K emergency plans were put in action. On the afternoon of Wednesday, May 10, 2000, a contractor hit a 36-inch main that brings water from the McBaine Treatment Plant to the city’s two pump stations. The accident caused the pipe to split open, cutting off the city’s water supply. The utility tapped emergency supplies from deep wells around town, and purchased additional water from the university and Public Water Supply District #9. A replacement pipe arrived on Thursday morning, and by nightfall, crews had installed the new sections of the pipe. Don Sisson, manager of water operations at the time, said, “We polished up our emergency plans for Y2K and yesterday we found that we had a good plan. The repair seems to be working just fine, so during the night we should be able to start refilling our reservoirs. It should be business as usual for our water system on Friday.”

But “business as usual” in Columbia generally means ever-increasing demand. On August 18, 2003, Columbia residents used 21 million gallons of water, pushing the city’s water treatment capacity to near its max. To provide more reserves, Columbia Water and Light has added a 2 million gallon reservoir at the South Pump Station and an Aquifer Storage and Recovery system at one of the city’s old deep wells. A \$28.3 million revenue bond issue approved by voters on November 4, 2003, will enable the expansion of the water treatment plant from 24 million gallons daily (MGD) to 32 MGD. The bond also will fund a second 36-inch transmission line feeding the city, a third pump station to furnish abundant water pressure to northeast Columbia, and other system-wide improvements.

In February 2001, Columbia leased to Ameren Energy a site for a new 154-megawatt gas combustion turbine plant near the city’s landfill. This arrangement afforded the city a big block of power without requiring a bond issue and guarantees Columbia favorable rates for the life of the plant. The Ameren plant’s proximity to the Bolstad substation also provides Columbia with a large source of generation that is connected directly to the city’s system.

## **A community tradition for 100 years: a fond look back**

All told, the first one hundred years of Columbia Water and Light history have been good ones. Sure, there have been challenges along the way—extraordinary growth, national crises and natural disasters have made for a colorful story. But by maintaining ownership of its own utility, Columbia has built one of the highest quality, most reliable and lowest cost power and water utilities in the state. Columbia’s publicly owned utility is a community tradition that has helped build our local landmarks, created jobs, generated tax revenue and added immeasurably to the high quality of life Columbia citizens enjoy.

## **Columbia’s utility today**

Public ownership: a community tradition

For the past 100 years, Columbia Water and Light has been owned by the people and operated for the people of the community. Thanks to the foresight and progressive spirit of the town’s forbearers, Columbia’s citizens continue to enjoy the many advantages of public ownership.

Local control. Public ownership means local control: every citizen has a voice in the policies that affect rates and service. City Council, with guidance from the citizen-based Water and Light Advisory Board, makes all major policy and budget decisions affecting the utility. This stands in stark contrast to modern-day investor-owned utilities, many of which are bought and sold by large, profit-driven corporations and often located hundreds—or even thousands—of miles from the customers they serve.

Lower rates. As a publicly owned utility, Columbia Water and Light is not beholden to investors or shareholders, which enables the city to keep rates low. Even when faced with extraordinary external economic pressures, such as the Great Depression and the 1970s Energy Crisis, Columbia's power and water rates have remained comparably low. Today, Columbia's electric and water rates are still among the lowest in Missouri.

*Like most mid-sized communities that are home to major universities, Columbia experienced above-average population growth over the years. City boundaries changed the most during a series of annexations in the 1960s. Columbia Water and Light has had service territory agreements in place for approximately fifteen years that define water and electric service territories, regardless of how the city's boundaries change.*

Jobs and revenue.

Columbia Water and Light currently employs about 220 people who live in and around Columbia. Keeping these jobs at home is good for the local economy. The utility also contributes significantly to the city's financial well-being. Water and Light conducts operations like an independent business, and contributes to the city's tax base through payments in lieu of tax, gross receipts tax and property taxes.

Community commitment. In addition to providing numerous conservation programs to help residential and commercial customers save energy and money, Columbia Water and Light helps educate future generations through the Partners in Education program with the Energy Challenge, Saturday Science and a calendar competition. Water and Light is also active in community tree plantings and participates in other local charitable events like the annual Battle of the Bulbs blood drive.

*In 2003, Columbia Water and Light's payments in lieu of taxes came to more than \$7.5 million.*

Reliability is job one

One of a utility's most important responsibilities is to ensure reliable service. For decades, the city has reinvested in the electric distribution system, ensuring well-maintained and technologically sound transmission lines, transformers and other equipment. The system is engineered with many built-in redundancies to help prevent interruptions in service in the event of equipment failures or natural disasters. Built-in "loops" enable workers to reroute the system and quickly put customers back on while repairs are made.

To ensure adequate power supply, the city has multiple long-term contracts and interconnection agreements with power wholesalers and marketers, affording many options for purchasing or producing power. Columbia also has maintained the ability to generate a portion of its own electricity through the city-owned and operated municipal power plant. The municipal plant's 86 megawatts of generating capacity gives the utility leverage to broker lower costs for the energy it buys and provides a source for emergency backup power, making it theoretically possible to disconnect from the national power grid in the event of an emergency.

Columbia's municipal power plant is capable of burning coal, natural gas and oil. The city purchases low-sulfur coal and uses pollution-control equipment to minimize emissions, and the plant is in full compliance with air quality standards set forth by the Missouri Air Conservation Commission (MACC) and approved by the Federal Environmental Protection Agency (EPA).

## **A closer look at Columbia's water supply**

From source to your tap: Columbia's water system.

The city of Columbia gets its drinking water from an area known as the McBaine bottoms, which is located near the Missouri River southwest of town. Fourteen wells averaging 110 feet deep can collectively pump

up to 28 million gallons of water per day. Water from the wells is piped to the McBaine Treatment Plant, where it is filtered, aerated, softened and fluoridated. It then travels from the plant through a 36-inch water main to reservoirs at the West Ash and South Pump stations, where it is pumped throughout the city to consumers. To provide additional capacity for periods of peak demand and fire fighting, this water system has enabled Columbia to have one of the highest ISO ratings in the state, which saves customers money on fire insurance.

Naturally pure.

Millions of years ago, glaciers left thick deposits of sand, gravel and boulders along the course of the river, creating a geological formation called an alluvium. Near McBaine, an underground aquifer runs through the alluvium. The alluvium's filtration properties result in water that is naturally free of harmful chemicals and bacteria. The water does, however, contain dissolved minerals, which are reduced through a process of aeration. Fluoride is added to comply with federal regulations.

Abundant. In the area around the plant, forty-four billion gallons of water fill the alluvial aquifer to within 20 feet of the ground surface. Water is continually replenished by groundwater that moves slowly down from higher elevations and by water from the Missouri River that migrates through the formation.

Exceeds standards. Columbia's drinking water meets or exceeds all standards of quality set by the Federal Environmental Protection Agency and Missouri Department of Natural Resources. Our water is tested more frequently and more thoroughly than is required by law. In the nearly three decades since the McBaine facility opened, not a single violation of federal standards has occurred.

### ***Columbia Water and Light facts***

#### ***Electric system***

- Electric service area:  
approximately 58.4 miles.*
- Number of electric customers: 39,460.*
- Overhead distribution lines: 301.29 miles.*
- Underground distribution lines:  
366.08 miles.*
- Peak electric load: 253 megawatts on August 21, 2003.*
- Street lights: 7,680.*

#### ***Water system***

- Water service area:  
approximately 82.6 miles.*
- Number of water customers: 38,841.*
- Water supplied for the year:  
4,765.61 million gallons.*
- Highest daily pumping rate: 21.35 million gallons on August 27, 2003.*
- Water main lines: 582.20 miles.*
- Fire hydrants: 4,420.*

#### ***COLT railroad***

- Cars handled in a year: 1,627.*
- Top five commodities handled: coal, chemicals, petroleum, lumber and metal.*
- Longest train: 50 cars.*
- Heaviest train: 5,361 tons.*

*Information from the 2003 Water, Electric and Railroad Fiscal Report. Average number of customers is from end of June 2004.*

## COLT and CTI: helping to keep Columbia on track

Columbia's short line railroad is an important part of our utility and our local economy. It brings low-sulfur coal from Kentucky to our power plant; quality lumber, steel and other materials to area businesses; and raw materials to regional manufacturing companies.

In the early 1980s, Norfolk Southern announced that it planned to discontinue rail service on the spur from Centralia to Columbia. When there were no private bidders to take over the operation without charging the city a fee, the City of Columbia stepped in and purchased the rail line in October 1987. Under Columbia Water and Light, the Columbia Terminal Railroad, or COLT, has become a valuable tool for retaining business and attracting new industries to Columbia. Since 1987, rail business has more than doubled, up from 600 carloads per year in 1987 to over 1,500 in 2003.

The privately owned Columbia Transload Inc. (CTI) is the newest addition to the rail line. It is an 84,000 square foot temperature-controlled warehouse with a 30-ton overhead crane, loading docks and forklifts. The facility, opened in early 2004, enables the delivery of heavy commodities into the facility, where it can be off-loaded, stored if necessary, and trucked directly to the customers in the region.

*Railroads use one-third as much energy per ton-mile as do trucks, and one-tenth as much as airplanes. "As fuel prices increase, shipping by rail becomes even more advantageous," says Utility Services Manager Tina Worley, who oversees marketing for COLT.*

## Meeting future challenges

Dan Dasho, director of Water and Light since February of this year, predicts that the utility's future challenges include increased costs and increased use of alternative power sources.

"Many power plants across the nation are nearing the end of their life cycles," explains Dasho. "This will require construction of new plants, and that is going to be expensive. As new plants come on line in the next five to seven years, we expect the cost of electricity to increase." In addition, he says that changes being made by the federal government to the wholesale marketplace will put additional upward pressure on prices. Transmission costs incurred when we purchase power from the regional grid, which are similar to tolls on a toll road, are increasing as well.

"Columbia hasn't had an electric rate increase since 1983. We have some of the lowest rates in the state of Missouri. Unfortunately, it looks like it's going to be impossible to prevent a rate increase in the near future, and that's why we're looking at all of our options," says Dasho.

Those options include renegotiating agreements with current suppliers, upgrading the municipal plant, short-term purchases on the open market, and a likely increase in the use of what is commonly called "green power." Green power is power produced from a renewable resource: hydroelectric, wind and solar power, and biomass fuel, to name a few. Biomass is a catchall term for a wide assortment of biological fuels, including cornhusks, walnut shells, and certain wood products that can be burned as fuel. "Reclaiming gas produced by our landfills is another interesting possibility we're going to explore," said Dasho. Currently, the buildup of gas naturally produced by the decomposition process is being flared off the landfills. "Learning whether it would be viable to install electric generating units will require some in-depth engineering studies, but we do plan to look into it," he says.