Colorado Springs Utilities History
William Jackson Palmer (1836 – 1909)

- Quaker/pacifist
- Passionate abolitionist
- Colonel 15th Pennsylvania Cavalry Regiment, promoted to general (Brevet)
- Civil War Cavalry Officer and Union spy
- Medal of Honor recipient
- Civil engineer, soldier, industrialist, philanthropist
General William Jackson Palmer

• Built the Denver and Rio Grande Railway\(^1\)
• Founded Fountain Colony\(^2\) (1871) (incorporated and renamed Colorado Springs in 1872)
• Envisioned resort town strong in character and rich in culture
• Donated 1638 acres for public uses\(^3\)

\(^1\)Railway reached Denver August 1870, Colorado Springs October 1871, and Trinidad by 1873
\(^2\)Palmer also founded Manitou Springs, Salida, Alamosa and Durango along his railroad lines
\(^3\)Union Printers Home, Colorado School for the Deaf and Blind, churches, Colorado College, Cragmoor Sanitarium, Public Library, many parks

Glen Eyrie Castle one of the first buildings wired for electricity, generated on site
First plat was approximately 300 acres
Cascade to Wahsatch, Rio Grande to Willamette
The first building block -- water

• First water from wells and ditches
• El Paso Canal (1871)
• Boulder Reservoir (1872)
• Grasshopper plague (1873)
• Six wooden cisterns for fire protection (1874)
• Citizens vote for a municipal water system (1878)
• 12” pipe from Ruxton Creek including Mesa Reservoir (1878)
• 12” distribution main Mesa Reservoir to Cache La Poudre St. (1878)

“If you had a big tub and a strong back, you could lug home all the water you needed by scooping it out of the various ditches which meandered through Colorado Springs.” Department of Public Utilities, An Informal History
“All parties are requested not to throw straw, paper, shavings, or other litter into yards and streets, which blown away by winds, lodge in the water way and make them filthy. To make Colorado Springs a place of beauty, par excellence, the running water must be kept clean and sweet.” R.A. Cameron, Superintendent of Fountain Colony, 1872
Colorado Springs Utilities History

The Antlers Hotel – 1883
Burned down 1898

Early water and wastewater systems

- Adjudication of water rights held in district court (first in time, first in right) (1882)
- Wastewater system was a series of open ditches to Fountain Creek
- Citizens approve bonding 8 mile sewer system (1888)

“I don’t believe there is another city in the United States that has as pure water and as much of it as we have.” J.C. St. John, Chairman, Water Committee
“...in the opinion of the Board of Trade, the city council should acquire every available or purchasable water privilege contributory to the city...as they are sure to grow more and more valuable and their purchase more and more an unavoidable necessity, and the city council should promptly and decisively act to secure the greatest possible amount of water for the city.” Colorado Springs Board of Trade, 1888
Gas service comes to our community

- Colorado Springs Gas and Coke Company (1879)
- Coal gas used for illumination
- Not used for cooking and heating until after 1895

“The gas produced by the Colorado Springs Gas and Coke Company was only used for illumination, it wasn’t until later (after 1895) that the gas was used for heating or other purposes. The gas produced was called Coal Gas since it used coal to produce it. Later the process was changed to make what was called Water Gas, using a process invented and owned by Thaddeus S.C. Lowe.”  Chris Thompson
Electricity comes to Colorado Springs

- Privately owned El Paso Electric Company\(^1\), 60 Kilowatt (kW) coal\(^2\) fired steam power D.C. plant, Huerfano St. (Colorado Ave.) between Nevada and Tejon (1886)\(^3\)
- New location for enlarged A.C. plant at Cucharras and Sahwatch Streets (1887)
- Tensions rise between City and Electric Company over use of poles for fire alarm system (1889)

\(^1\) 8 different companies were granted franchises from 1879-1898
\(^2\) Coal mines located “north” of the city, now parts of Rockrimmon, Cragmoor to Colorado Springs Country Club
\(^3\) 350 original customers, plus 5 streetlights, $0.62 per Kilowatt hour (kWh). Four years after Edison’s first investor-owned utility in Manhattan. Ten years after Edison invented the electric light in 1879

“The nationwide controversy surrounding direct current versus alternating current had some impact in Colorado Springs, where the first alternating current plant was not built until 1887. At one point experts said that an alternating current system was not practical because motors could not be built, oil insulators had to be used, and the power line must be fenced in.” A Century of Power, Samantha Meigs
Colorado Springs Utilities History

Meeting a new community’s needs¹

- Fountain Creek ranchers sue to stop wastewater releases² (1890)
- South Slope acquired and developed³ (1890-1929)
- Prospect Reservoir (1891)
- Pikeview Reservoir (1894)
- 10 water bond issues by 1898
- 25-year electric franchise to G. W. Jackson & Assoc. (1898)
- Minnehaha Hydro Plants⁴ (1898)
- Tesla burns out El Paso Electric Company dynamo (1899)

¹South Platte and Arkansas Rivers considered “over appropriated” by 1900
²Resulted in settlement and creation of 35 acre sewage farm/lagoon located at Las Vegas Wastewater Treatment (LVWWT) Plant site
³All South Slope completed by 1905 except Big Tooth (1929)
⁴Provided power for Strickler Tunnel project and subsequently for Manitou Springs. Abandoned 1907

“By the 1890s electricity had become an important element of daily life in Colorado Springs. In addition to the street lights, electricity was used to furnish power for the city’s street car system, provide illumination for the window displays of businesses, and for residential lighting.”

A Century of Power by Samantha Meigs
Colorado Springs Utilities History

“\textit{I constructed a laboratory in the neighborhood of Pike’s Peak. The conditions in the pure air of the Colorado Mountains proved extremely favorable for my experiments, and the results were most gratifying to me.”} \textit{Nikola Tesla}
Colorado Springs Utilities History

Our water system growing pains

• Strickler Tunnel¹ (connects South Slope reservoirs) (1900)
• Plague of caterpillars near Lake Moraine (1900-1901)
• Extravagant water use (200 gallon per capita per day (gpcd) summer and 100 gpcd winter), water restrictions (1901)
• Manitou Hydroelectric plant 2.25 Mega Watt (MW) (1905)²
• City of Victor water heist (1909)

¹Dr. Strickler, Mayor of Colorado Springs in 1888, 1893-1894, instrumental in securing early water rights and property.
²Highest head hydro plant in the world in 1905. Expanded to 5MW by 1939 and 5.5 in 2005. The Pikes Peak Hydro Electric Company sued in 1906 by the city for interfering in the operation of the water system and wasting water.

“From 1890 to 1910 there was dramatic growth in the population of Colorado Springs, going from 11,140 in 1890 to 29,078 in 1910. The increased population meant an increase in electrical demand, and several private companies flourished during this period. There were, in fact, so many different operations that the poles belonging to the various companies were painted different colors so they could be distinguished from one another.” A Century of Power by Samantha Meigs
Colorado Springs Utilities History

“Passing through your wonderful mountains and canyons, I realize more and more that this is the playground for the entire republic. I have been more and more impressed with that as I have been through your state, and you will see this, the real Switzerland of America, made as much a holiday place as Switzerland is in Europe.” President Theodore Roosevelt, 1905

Water system 1901

President Roosevelt at second Antlers Hotel, 1905
Colorado Springs Utilities History

The community prepares to take control of the electric and gas systems

• First Home Rule Charter, requiring any franchise to allow City right of purchase (1909)
• Separate gas and electric utility companies consolidated in the Colorado Springs Light, Heat and Power Company (1910)¹


“The white field is intended to represent the cleanliness and health of the city; the blue border our blue skies; the shield carries the sun of which we are justly proud; the mountains stand for Pikes Peak and on it are pictured the gold ingots of our mining industries; the green band about the shield represents the park system surrounding the city.” Official resolution adopting the Colorado Springs flag, 1912
Colorado Springs Utilities History

“It is necessary to adjust our plans for public improvements on a scale to meet large future demands, and yet to conserve present needs and economical outlay. To do this...so as to not burden the present with taxes, is a problem demanding ability of high order, probably not fully appreciated by the masses.” Mayor John R. Robinson

Water Department, 1914

Water Distribution System, 1916
First leaders of our community owned utility

**George Birdsall**
Mayor and Council Member 1921-1943

**Martin Drake**
City Council Member 1921-31 and 1937-51

**E.L. Mosley**
City/Utilities Manager 1925-1947
Citizens make a difference

- Citizens demanded change in electric and gas services due to high rates, poor service and lack of infrastructure

**Lillian Kerr**
- Vice-chair of the State branch of the National Women's party
- Began in 1918 to advocate for municipal gas and electric ownership
- A citizen “Committee of 15” formed to develop recommendations for purchasing gas and electric operations (1920)
- Citizens vote against granting a franchise to the private electric and gas company (1923)

“The founders of this city were confronted at the outset with the water problem, and one of the first questions which arose was whether the function of water supply should be entrusted to private enterprise. That question was hotly and even bitterly contested.” --Walter C. Frost, Chairman, Finance Committee, Member of Water Committee
Colorado Springs Utilities History

Becoming a multi-service utility

• The City acquired Colorado Springs Light, Heat and Power Company (1925) including:
  • Municipal Steam Plant #1 1 5MW
  • Manitou Hydro Plant -Municipal plant #2
  • Ruxton Hydro Plant -Municipal plant #3 2
• Public Service Company proposed to purchase the City’s gas system – defeated in election (1928)

1This coal plant had 3 boilers, two steam turbine generator sets (ea. at 3125 Kilo Volt Amperes (KVA)), and 3 motor generator sets to provide 1000 kw of DC for street railway and elevators in town. Most City electricity was provided through the Ruxton and Manitou Hydros. Other fueled plants were abandoned. At full load, capable of 5000 kw
2First fully automated plant in the world.

“The Town of Fountain shut down its power plant in the summer of 1925 and began to buy power from Colorado Springs. Several extensions were made including a line from Manitou to the Town of Cascade, and one from the Broadmoor to the top of Cheyenne Mountain. Besides the extensions the greatest impact was in the design of the distribution system itself. Due to the generally poor physical condition of the system in Colorado Springs at the time of purchase and its inadequacy to meet the increasing load densities, the decision was made to entirely replace the system.” A Century of Power, Samantha Meigs
Colorado Springs Utilities History

Ushering in a new era

**J. S. Nichols**  
Chief of Operations

**John Pinkerton**  
General Foreman 1945 – 1972

**Jack McCullough**  
Water Department Director 1948-1979

**T.M. Hohl**  
Director of Utilities Department 1949 – 1956

**Ray Nixon**  
Director of Utilities 1956 – 1974

"Ray Nixon had a total love for the city. He dedicated himself to Utilities. Ray brought us through the early years of significant growth in a very professional manner. He was highly respected in the community and possessed a quiet power.” Ed Bailey
Colorado Springs Utilities History

Responding to rapid population growth

- Birdsall Power Plant Unit 1 – 16.5\(^1\) Mega Watt (MW) (1953)
- Electric 115 Kilo Volt (kV) system interconnect to Pueblo (1953)
- Birdsall Unit 2 – 16.5 MW (1954)
- Concrete slabs cover El Paso Canal on Wood and Cascade Avenues (1954)
- Blue River Decree (1955)
- El Paso Canal ceased operation\(^2\) (1956)

\(^1\)Birdsall Units natural gas and fuel oil
\(^2\)High maintenance, noxious weeds, mud deposits, ditch boxes, leaks, high maintenance and safety

“\(^{\text{The Hour of Decision for the Academy would come in the year 1954. The field of contestants had narrowed to Colorado Springs, Lake Geneva, Wisconsin, and Alton, Illinois. Both Alton and Lake Geneva, especially Geneva, were not only boosting themselves, but attacking the adequacy of the Springs water supply.}}\)” Frederick T. Henry
Colorado Springs Utilities History

Responding to rapid population growth (Continued)

• Montgomery Reservoir (1957)
• Birdsell Unit 3 – 22 MW, total 55 MW (1957)
• Began undergrounding residential electric lines (1957)
• Las Vegas Wastewater Plant installs trickling filters, secondary clarifiers (1958)
• Electric 115kV system interconnect to Denver (1958)
• Cadets move to United States Air Force Academy (USAFA) (1958)
• Covered treated water storage program (1958)

“During the time period mentioned...the Colorado Springs population has increased...yet the Water Division of the Department of Utilities has maintained a high standard of excellence in the distribution, delivery and quality of water.” Fredrick T. Henry 1955
“Ongoing duties of the Electric Department also began changing in the fifties and sixties. They maintained the city’s downtown fire alarm system from a cable that ran behind the old Chief Theatre. In the crowded alleys of the downtown business section, there were no poles. Maintenance had to be accomplished by crawling out of the upper story windows to get to the timbers supporting the wiring. In other parts of town, it is said that living trees still served as poles during the 1950s.” *A Century of Power*, Samantha Meigs
Our progression in the water service

- Municipal Service Center (Fontanero) (1960)
- North Catamount Reservoir (1960)
- Homestake water project\(^1\) (1961-1967)
- Non-pot system launched (1962)

\(^1\)Water decrees, 2 tunnels, Otero Pump Station, 66" line, Homestake Reservoir

“Colorado Springs’ future is so brilliant, its future growth so assured that Utilities officials charged with meeting requirements of its customers, zeroed in on the greatest single financial – construction program in the city’s history. Joint partner in the next inter-mountain development is the city of Aurora – and with Colorado Springs is committed to a joint expenditure of $60 million in order to double the water resources of both communities.”

Department of Public Utilities, An Informal History
Colorado Springs Utilities History

Advancing our service capabilities

- President Kennedy signs the bill authorizing the Fryingpan-Arkansas water project (1962)
- Drake Unit 5 – 44MW\(^1\) (1962)
- Gas telemetry system (1963)
- Gas leak detection (1965)
- Drake Unit 6 – 77MW\(^2\) (1968)
- Pine Valley Water Treatment Plant 40 Million Gallons per Day (MGD)\(^3\) (1969)

\(^1\)Natural gas with coal back-up
\(^2\)Natural gas with coal back-up
\(^3\)Now 84MGD

"Know how vitally important water is...this is a national responsibility. The world may have been built in 7 days but this project was built in 30 years...it will be some years before its full benefits will be available to all of you...We salute this project and all who made it possible...and look to the future...this is an investment in the future of this country." President John F. Kennedy, 1962
Leaders of our era passing on the legacy

**Ed Bailey**
Water Dept Director/Water Resources Director 1964 - 1998
• Forward thinking on water development
• Arkansas River Exchange, Colorado Canal, Southern Delivery System (SDS) concept

**J.D. Phillips**
• Colorado Springs Utilities Department Director 1974-1992
• Nixon Power plant, McCullough Water Treatment Plant

**Robert M. Isaac**
• Mayor 1979-1997
• 1st popularly elected Mayor

“He was accountable for utilities, but he had the whole city at heart”. Former City Manager Richard Zickefoose regarding Utilities Director Jim Phillips

“He was accountable for utilities, but he had the whole city at heart”. Former City Manager Richard Zickefoose regarding Utilities Director Jim Phillips
Mounting regulatory requirements

- 1st Earth Day (1970)
- Environmental Protection Agency (EPA) established (1970)
- Occupational Safety and Health Act (1970)
- Clean Air Act amendments (1970)
- Clean Water Act amendments (1972)
- Endangered Species Act (1973)
- Safe Drinking Water Act\(^1\) (1974)

\(^1\)Amended 1986 and 1996

“The new movement’s impact on politics was swift and decisive. Public outrage at these new pollution problems, combined with the environmental movement’s deft use of science, lobbying, grassroots organizing, and the courts, led Congress to pass and presidents to sign dozens of environmental policies into law, from the Clean Air Act to the Endangered Species Act. By the end of the 1970s, the United States had protected millions of acres of wilderness and public land, dramatically improved air and water quality throughout the nation, and established the strongest environmental protections of any nation on earth.” *Breakthrough*, pp.21-22
The maturing of a 4 service utility

- Rampart Reservoir (1970)
- East Service Center (1970)
- Purchased Broadmoor water system (1973)
- Purchased Clear Spring Ranch (1973)
- Gas moratorium (1973)
- Propane-air Gas Plant¹ (1973)

¹Built in two stages. 2 compressors and bank of tanks 1973, 3 compressors and bank of tanks 1975

“Colorado Springs is not alone in having to face this gas shortage, but it may have been the first city to recognize the long range implications. We faced up to the problem sooner than other Colorado communities, not only because the city owns the utilities, but also because of our growth rate.” Mayor Andrew Marshall
Colorado Springs Utilities History

Modernizing our utilities systems

- Activated sludge added and trickling filters shut down at Las Vegas Wastewater Plant (1973)
- Purchased shares Twin Lakes Reservoir & Canal Co (1972, 1976)
- Drake Unit 7\(^1\) – 131MW (1974)
- Enlarged Otero Pump Station (1974)
- Water Control Center (1974)
- Electric Supervisory Control and Data Acquisition (SCADA) System (1977)

\(^1\)Coal with natural gas back-up

“Few cities have made the progress and kept so closely to high ideals as has the city of Colorado Springs. From its founding until the present hour, there has been, before the minds of its builders, the vision of a city of beauty, culture, righteousness, and healthfulness – a city, in brief, where, in the words of Aristotle, ‘Men may live a common life for a noble end.’” Mayor John R. Robinson
Colorado Springs Utilities History

Colorado Springs Utilities

City limits: 8.2 square miles

Colorado Springs Utilities

City limits: 81.2 square miles
Colorado Springs Utilities History
Colorado Springs Utilities History

Building on the legacy

- Electric and gas regulated by City Council (1983)
- Clear Spring Ranch solid handling (1984)
- Colorado Canal, Henry and Meredith (1985)
- Fountain Valley Authority 12.8 MGD (1985)
- Ute Pass Treatment Plant 1 MDG¹ (1985)
- Homestake II permit denied in court (1988)
- Annexation of Banning Lewis Ranch (1988)

¹ Expanded in the 2000-2001 timeframe. Now 1.5 MGD sustained and 2 MGD max capacity

“The cities believe their legal water rights are the only real substantial issue, they have been content to follow all required environmental procedures (EIS, Forest Service, Corps of Engineers, etc.) to begin construction of Homestake II. The key...conflict has been the refusal of Eagle County to grant a 1040 permit. Accordingly...they are all challenging the constitutionality of HB 1041 which allows counties to hold power over the home rule (in regard to water rights) cities.” Letter from Warren Hern to Aurora Mayor Tauer
Colorado Springs Utilities History

Leading an independent enterprise

Voters of Colorado Springs establish Colorado Springs Utilities as a separate municipal enterprise (1992)

*Phil Tollefson*
- Executive Director/First CEO 1992 – 2005
- Water Planning, Front Range Power
- Public process

“One thing’s for sure. Change, and the ability to deal with change, will become part of every utility’s new culture.” Phil Tollefson

“One of my major challenges was bringing us from the manual world to the automated world. We used to just drive out to a reservoir to see how much water was in it.” Ed Bailey
Colorado Springs Utilities History

Building new legacy and services

- McCullough Water Treatment Plant 50 MGD\(^1\) (1996)
- North East Service Center (Pinkerton) (1996)
- Drake Units 1-4 removed and scrapped (1996)
- Tesla Hydro Plant 28 MGD (1997)
- South East Service Center (Leon Young) (1999)
- Major flood damages wastewater system (1999)
- Nixon Combustion Turbines #2 (30MW) and #3 (30MW) (1999)

\(^1\)Now 75 MGD

“I don’t know what the environment might be like 20 years out, but have the utmost confidence in our staff to put us in the most competitive position possible.” Cheryl Gillaspie, City Council Member, 1996
“One reason for the city’s projected water expenses is the simple geographic reality that Colorado Springs is the only Colorado city of substantial size that is not located on the main stem of a river.” Gazette Telegraph, 1992
Colorado Springs Utilities History

Preparing for the 21st century

• Began Wastewater Improvement Program (2000)
• Enlarged Otero, new Twin Rocks Pump Station (2002)
• Consolidated control centers at the Systems Energy Control Center (SECC) (2002)
• Front Range Power 480MW (2003)
• Preservation Principles, 3 and 6-way agreements (2003)
• Automatically-read meters (2005)
• The Great Recession (2008)
• Southern Delivery System (SDS) Record of Decision (2009)
• Cascade Hydro 0.75MW (2010)

“This is a critical milestone toward making the Southern Delivery System and the water it will provide for our future a reality. Reclamation’s review of SDS was lengthy, thorough and complete and we ended up with a better project as a result.” Mayor Lionel Rivera
Colorado Springs Utilities History

Thriving in a new century

- SDS construction begins (2010)
- Ultraviolet (UV) disinfection at Las Vegas Wastewater Treatment Facility (LVWWTF) (2011)
- Waldo Canyon Fire (2012)
- NOx/SOx controls at coal plants (2012-2018)
- SDS Water Treatment Plant groundbreaking (2013)
- Homestake Dam Rehabilitation Project (2014)
- Drake Power Plant Fire (2014)
- Pikeview to Mesa pipeline replaced and enlarged¹ (2014)
- Xcel Energy interest in acquiring CSU generating fleet (2014)
- Pine Creek gas outage (2015)

¹Tripled capacity to 6 MGD

“SDS will benefit all of Colorado. In economic reality, what’s good for Colorado Springs benefits Pueblo, and what’s good for Pueblo benefits Colorado Springs. A rising tide, even a tiny rise in Fountain Creek, lifts all ships.” Gazette editorial 2008
Colorado Springs Utilities History

Thriving in a new century (Continued)

- Edward W. Bailey Water Treatment Plant completed (2016)
- SDS water delivery begins\(^1\) (2016)
- Began City/Colorado Springs Utilities Infrastructure Coordination in Support of 2C\(^2\) (2016)
- Martin Drake Power Plant Unit 5 Decommissioned (2016)
- Construction of the Manitou 30-inch raw water pipeline (2017-2018)
- Mesa Water Treatment Plant upgrades (2018-2019)
- Approval of 250MW of solar power and battery Storage (2017 and 2018)\(^3\)

\(^1\) 50 MGD Capacity
\(^2\) Coseley related to and coordinated with Water Main Replacement program and condition assessment efforts.
\(^3\) The Utilities Board approved 100MW of solar in September 2017 and an additional 150MW of solar paired with battery storage in September 2018.
Colorado Springs Utilities History

Continuing the Legacy of Leadership

Jerry Forte
- CEO 2005 – 2018
- Construction and Completion of the Southern Delivery System
- Emissions Controls at Drake and Nixon Power Plants
Colorado Springs Utilities History

Leading into the Future

Aram Benyamin
• CEO 2018 – Present
• Emphasis on Safety and Efficiency