# THE POWER OF WATER:

# A HISTORY OF THE SACRAMENTO MUNICIPAL UTILITY DISTRICT'S

# UPPER AMERICAN RIVER PROJECT

A Thesis

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by

Dean Scott Sault

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Department of History

Abstract

of

THE POWER OF WATER:

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This thesis traces the history of the Upper American River Project (UARP) from its original conception through construction. Owned and operated by the Sacramento Municipal Utility District (SMUD), the UARP is a publicly owned hydroelectric project located in the northern Sierra Nevada built between 1957 and 1971. Using institutional documents and publications, government reports, and regional newspapers, this thesis examines how post-Gold Rush era hydroelectric development and the City of Sacramento's quest for clean drinking water ultimately led to the construction and public ownership of a series of interconnected dams, powerhouses, tunnels, penstocks, and transmission lines in the upper American River watershed. Furthermore, the creation of SMUD in 1923, its entry into the electric utility industry during the 1930s and 1940s, and a rapid increase in regional demand for electricity during the 1950s each played key roles in the UARP's history. This thesis describes how the UARP began as an idea created within a local culture and over time within a broader social, economic, technological, and

political context developed into a major power project that supported the development of Sacramento and the greater Sacramento region.

_____, Committee Chair
Christopher Castaneda, Ph.D.

_____
Date

# PREFACE

The Sacramento Municipal Utility District's (SMUD) Upper American River Project (UARP) first came to my attention when the security firm at which I was employed assigned me to patrol a vast system of dams, powerhouses, reservoirs, and support facilities located in the Sierra Nevada above Sacramento, California. I developed a number of questions over the roughly three years that I patrolled the project. My occasional encounters with SMUD hydro engineers answered many of my technical questions, but I never fully understood how the UARP came to exist. How did SMUD come to own a hydroelectric project in the middle of the Eldorado National Forest? Why did SMUD build the UARP? How did it fit into SMUD's system? How did SMUD get the equipment into Jaybird Canyon? Why did SMUD use helicopters to reach the pieces of the UARP located in the Desolation Wilderness? Why did SMUD maintain the recreation facilities dispersed across the Crystal Basin? Who resisted the UARP's creation? Who profited? My questions never really ended, and neither did my fascination with the UARP. This thesis answers many, but not all, of my questions. In some cases, the answers are lost to time. For others, I simply ran out of time to research and space to write. There was one question I never asked while I drove the remote mountain roads that wound their way through the UARP. What does the UARP mean? Is the UARP symbolic of something? The history of the UARP is about ideas—how they change over time, and what they look like when they intersect with the environment.

DEDICATION

For Sarah and Georgia.

# ACKNOWLEDGEMENTS

I would like to thank my wife Sarah and daughter Georgia Mae for their unwavering support and patience. Sarah made my entire academic pursuit possible. Georgia's repeated smashing on my keyboard forced me to rethink many ideas as I was retyping them. I would like to thank my sisters, Jamie, Sarah, and Emily for their support and understanding when I exhibited signs of stress at family gatherings. I would like to thank my father Dean Sault for providing me with an insatiable curiosity. I would have no thesis without the ability to question my world. Thank you to my grandfather Milton Sault for taking me fishing.

The faculty in the History Department at the California State University, Sacramento (CSUS) all influenced and supported me in ways I can never repay. I would like to thank my Committee Chair Dr. Christopher Castaneda for his thoughtful guidance and patience. This work has improved tremendously with his sensible instruction. Dr. Patrick Ettinger was the first instructor to tell me that I should consider graduate school. Dr. Ettinger introduced me to the history of the West and to environmental and water related history. I am grateful for his work as my First Reader. Dr. Mona Siegel's support as an instructor, a graduate advisor, and an unpaid therapist proved invaluable. I consistently found the faculty in the CSUS History Department generous with their time and quick with their wit.

I would also like to extend my appreciation to my fellow graduate students. I enjoyed our many wonderful conversations about history, family, and life. Pat Kemper at

SMUD was instrumental to my project. Our conversations about SMUD's history and the UARP were both motivating and insightful. The staff and volunteers at the El Dorado County Historical Museum provided expert guidance through the rich history of El Dorado County. Patricia Johnson and Dylan McDonald at the Center for Sacramento History pointed me in the right direction when I did not know where to begin. I would also like to thank Amanda DeWilde of the Sacramento Room, Special Collections of the Sacramento Public Library. This work was possible because of my family, my friends, and my community. Thank you for your support.

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## One: Introduction

This work is a history of the Sacramento Municipal Utility District's (SMUD) Upper American River Project (UARP). SMUD is a publicly owned electric utility district that serves the greater Sacramento region. Throughout this work, I refer to the Sacramento Municipal Utility District as SMUD or the District. Sacramento citizens voted SMUD into existence in 1923, and in 1946 SMUD began operation as an electric utility. A five-person elected Board of Directors governs the organization, and a General Manager, accountable to the board, oversees operations. The SMUD organization, authorized by state law, is an independent political entity from the City and County of Sacramento. As of 2015, SMUD's service area is 900 square miles, with a population of 1.4 million people.[1] Within its service area, SMUD services 634,770 residential and business accounts.[2]

SMUD is headquartered in the City of Sacramento. In this work the City of Sacramento will also be referred to as the City, or simply Sacramento, and residents are sometimes referred to as Sacramentans. Located in the north part of the state in the Sacramento Valley, Sacramento is the California State Capital and is located 90 miles east of San Francisco. Sacramento is situated at the confluence of the Sacramento and American Rivers. This work refers to SMUD's Upper American River Project (UARP) as the UARP. The UARP is an integrated hydroelectric system constructed by SMUD

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[1] SMUD, "Company Profile, "https://www.smud.org/en/about-smud/company-information/company-profile.htm (accessed 10/21/2015).

[2] Ibid.

between 1958 and 1971. The UARP is located in the upper Sierra Nevada Mountains, approximately 60 miles from Sacramento, with the majority of the project constructed within the boundaries in the Eldorado National Forest. The UARP as a whole consists of a series of dams, powerhouses, penstocks, reservoirs, tunnels, canals, transmission lines, support facilities, and access roads. UARP facilities range across the Rubicon, Silver Creek, and South Fork American River watersheds. With the interconnected powerhouses and reservoirs positioned at differing elevations, the tiered nature of the UARP has given it the nickname, "stairway of power."[3] The highest portions of the UARP reside in the Desolation Wilderness at roughly 6,500 feet and the lowest elevation facility sits a few miles outside Placerville at approximately 990 feet. The UARP has the capacity to generate 688-megawatts of power and to store more than 425,000 acre-feet of water.[4] The UARP's Union Valley Reservoir, Loon Lake Reservoir, and Ice House Reservoir form major components of the Eldorado National Forest's Crystal Basin Recreation Area.

This work is a chronological narrative that endeavors to document the history of the UARP, to understand its origins as a locally constructed idea, to follow the idea from conception to execution, and to examine the interconnections between the UARP, regional culture, and the environment. This work treats the general quest for clean mountain water, the Silver Creek Project, and the UARP as evolutionary stages of one idea; that is, how can The City of Sacramento extract water and power from the Sierra

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[3] Ruth Sutherland Ward, *"for the people…": The Story of the Sacramento Municipal Utility District* (Sacramento: Sacramento Municipal Utility District, 1973), 70.

[4] Federal Energy Regularity Commission, "Final Environmental Impact Statement for the Upper American River Projects Nos. 2101-084 and 2155-024," (March 14, 2008) file:///C:/Users/Sault/AppData/Local/Temp/20080314-4000%2818907130%29.pdf (accessed 10/21/2015).

Nevada. I argue that by tracing the evolution of Sacramento's quest to extract resources from its hinterlands, we can understand how SMUD came to own and operate a "stairway of power" high in the Sierra Nevada.

The Gold Rush era created a Northern California culture confident in its ability to manipulate watersheds in the Sierra Nevada. Northern California's gold fields also created a local culture that rapidly reached the forefront of hydroelectric development and power transmission. Sacramento's close proximity to hydroelectric developments meant that the city enthusiastically welcomed the electrification of homes, businesses and farms. At the start of the twentieth century, the region's rapid electrification created lucrative markets for energy and the close proximity of potential hydroelectric power sources in the Sierra meant that entrepreneurs and engineers scrambled to survey, claim, and develop regional watersheds. At roughly the same time, Sacramento's poor water quality sparked a local debate about water sources available to the city, which culminated in the creation of a pool of citizens committed to finding and harnessing a source of clean mountain water. The Silver Creek Project emerged from that local water quality discourse. The City opted for a filtration plant on the Sacramento River, thus the Silver Creek advocates worked to create the Sacramento Municipal Utility District in 1923 as a vehicle for obtaining water from Silver Creek. Many Silver Creek advocates saw hydroelectric power generation as a means for funding the water project, and because of advances first developed during the Gold Rush, the technology existed to bring power to Sacramento. SMUD moved rapidly to obtain water rights on Silver Creek, as both private companies and neighboring municipalities scoured the Sierra for water and power sites.

Over the next decade, the Silver Creek Project failed to obtain funding in local bond elections, in 1927, 1929, and 1931, although a majority of citizens approved of the idea. In the 1930s, the Great Depression, the proposal of the Central Valley Project, and fierce opposition from PG&E, all played important roles in SMUD's transition into an electric utility.

SMUD began operation as an electric utility in 1946, but only as a power distributer. As the Silver Creek idea sat on the cusp of abandonment, a demographic boom in post-Second World War California combined with a new surge in the electrification of 1950s American culture created a surge in demand for electricity. SMUD leaders calculated that power purchased from PG&E and the Central Valley Project would be insufficient to meet SMUD's distribution demands in the 1960s. SMUD's imminent need for more power incentivized the organization to reevaluate the Silver Creek Project, and by 1955 the Silver Creek idea reemerged within the local discourse as the Upper American River Project. Across several decades, the Silver Creek/UARP idea remained embedded within the local political discourse. By 1958, the idea was ready to reshape a portion of the Sierra. SMUD completed the UARP in 1971. By the 1970s and 80s, society's changing relationship with electricity consumption, increased environmental activism, new environmental laws, and the growing assertiveness of local, state, and federal regulatory agencies created a political climate that made construction of systems like the UARP extremely difficult, if not impossible.

A range of both primary and secondary sources made discovering and understanding the UARP's history possible. I found works by historians William Cronon

and Donald Worster particularly instructive for understanding the theoretical implications of the UARP's construction. Each author contributed thought-provoking ideas that helped guide my research and clarified many of the complex relationships I encountered along the way. In *Nature's Metropolis: Chicago and the Great West*, Cronon examines the relationship between the City of Chicago and its hinterlands, and he concludes, "Cities and country have a common history, so their stories must be told together."[5] From that perspective, the people, the land, the forests, and the gold-bearing streams and rivers of El Dorado and Placer Counties are inseparable from the history of Sacramento. Flowing water, electrical transmission lines, and a shared political culture connect Sacramento and its mountain county neighbors. Additionally, Cronon's work explores how commodity markets shaped Chicago because "few economic institutions more powerfully affect human communities and natural ecosystems in the modern capitalist world."[6] The commodification of water and electricity played a key role in determining who built water and power infrastructure and where it was located within the region. Finally, Cronon's work illustrates how "each new improvement meant a shift in regional geography," creating "a kind of 'second nature,' designed by people and 'implemented' toward human ends."[7] In the Sierra, the construction of second nature incentivized additional environmental manipulation. Human action in the Gold Rush era built mining flumes, reservoirs, and hydraulic mining pits across the Sierra, and those environmental

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[5] William Cronon, *Nature's Metropolis: Chicago and the Great West*, (New York: W. W. Norton & Company, 1991), xvi.

[6] Cronon, *Nature's Metropolis*, xvii.

[7] Ibid., 56.

modifications served as the foundation for the UARP's dams, reservoirs, powerhouse, and roads. Cronon's study of a city and its mutually constitutive relationship with its hinterlands served as an important theoretical roadmap for explaining the relationship between Sacramento, SMUD, and the counties affected by the UARP's construction.

Historian Donald Worster's *Rivers of Empire: Water, Aridity, and the Growth of the American West* provided insight into the creation of social, political, and administrative hierarchy during the formative years of California water development. Worster argues that the American West "can best be described as a modern hydraulic society, which is to say, a social order based on the intensive, large-scale manipulation of water and its products in an arid setting."[8] The fight for control of California's water resources spawned numerous private companies, irrigation districts, municipal utility districts, and local and state government agencies. An array of federal agencies then joined the maelstrom from outside the state. The history of the UARP is inseparable from the creation of water related hierarchy in California. Worster, like Cronon, asserts that water in the modern capitalist state is "purely and abstractly a commercial instrument," and thus water "becomes so many 'acre-feet' banked in an account, so many 'kilowatt-hours' of generating capacity to be spent."[9] Throughout its history, the residents of Sacramento were convinced that the profitable manipulation of water for gold mining, agricultural irrigation, flood control, domestic consumption, and power generation was the key to economic growth. The California Water and Mining Company's ditches at

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[8] Donald Worster, *Rivers of Empire: Water, Aridity, and the Growth of the American West* (Oxford: Oxford University Press, 1985), 7.

[9] Worster, *Rivers of Empire*, 52.

Loon Lake and Gerle Creek in the 1870s and the UARP's reservoirs and tunnels in the 1960s were parts of a system that commodified water. SMUD's organizational thinking was inseparable from the price of water and power at any given point in its history. The UARP was also a cultural product in other ways, as Worster observes, "the imperative of domination had not begun to be satisfied. There were rivers in the West not yet utilized."[10] The Silver Creek Project advocates reminded the public at every turn that it was their duty to drink Silver Creek water; if they did not someone else would. Sacramento had a duty to harness the upper American River.

Further, this work would not have been possible without Ruth Sutherland Ward's *"...for the people": The Story of the Sacramento Municipal Utility District*. Published in 1973, shortly after the completion of the UARP, Ward's SMUD history served as a roadmap throughout my research. Ward's work supplied key insights into SMUD's inner workings, organizational goals, and provided a timeline of events that might have been impossible to work out on my own. Written to celebrate SMUD's first 50 years, her work traces SMUD's history from 1923 to 1973, including the development of the UARP. Ward, an employee in SMUD's public relations department, takes a laudatory tone throughout her work. Noting the UARP's completion and SMUD's public ownership, Ward celebrates SMUD's mastery over the wilderness and the District's commitment to public ownership.[11] Ward overlooks that SMUD conquered a Sierra wilderness that locals had already tamed and adapted to their needs. Furthermore, for Ward, "the people" only

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[10] Worster, *Rivers of Empire*, 239.

[11] Ruth Sutherland Ward, *"...for the people": The Story of the Sacramento Municipal Utility District* (Sacramento, California: Sacramento Municipal Utility District, 1973), ix.

refers to the ratepayers of the publicly owned district. The people of El Dorado and Placer counties had to fight to retain limited access to the water resources located just a few miles from their homes. SMUD's story is a "record of determination," and she dedicates the work to "the visionaries who dreamed the dreams of capturing the snows of the Crystal Basin."[12] Ward labels SMUD's opponents the "implacable opposition."[13] While Ward's work provides little voice for SMUD's commercial, political, and philosophical opposition, it provides a necessary and thorough depiction of SMUD's perspective over the years. When she writes, "The Story of the Sacramento Municipal Utility District is the story of the Crystal Basin of the Sierra Nevada, of water and power, inextricably entwined," she is correct, and her observation is foundational to this work.

Local and regional histories also play an important role in providing historical context for the UARP. Joseph A. McGowan's, *A History of the Sacramento Valley* provides a window into local cultural, demographic, and economic trends as they changed over time across the Sacramento Valley. McGowan's work recognizes the importance of local rivers and water in the region, noting, "Water has always been one of the keys that unlocked the valley's history."[14] McGowan's depictions of valley flooding, local irrigation efforts, and related issue along the American and Sacramento Rivers helped to contextualize SMUD's and the UARP's role in valley life. Myrtle Shaw Lord's *A Sacramento Saga: Fifty Years of Achievement—Chamber of Commerce Leadership*

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[12] Ward, *"...for the people,"* ix.

[13] Ibid.

[14] Joseph A. McGowan, *History of the Sacramento Valley*, vol. 2 (New York: Lewis Historical Publishing Company, 1961), 350.

details the early history of the Sacramento City Chamber of Commerce. Her work illustrates the deep connection between the local business community and city officials, a relationship that played a critical role in developing the water acquisition idea that evolved into SMUD's UARP. Charles M. Colman's *PG&E of California*: *The Centennial Story of Pacific Gas and Electric Company, 1852-1952*, helped me understand the development of the local hydroelectric industry and culture in the years leading up to SMUD's creation. Understanding PG&E's history helped to contextualize its central role as SMUD's primary competitor throughout the years. In addition to the sources above, other local and regional histories proved useful for creating a full narrative of the UARP. The UARP's long evolution and eventual execution can only be understood by having a clear picture of the region and culture that brought it into existence.

Few secondary sources examine the history of Northern California watersheds. One of the purposes of this work is to address that problem in some small way. Even though most California water histories largely favor statewide projects, or water developments associated with Los Angeles and San Francisco, I still relied on some key California histories to explain complicated water and power issues at the state and federal level. Norris Hundley's *The Great Thirst: Californians and Water, 1770s-1990s* helped me understand a range of California specific water issues, including but not limited to, the hydraulic mining industry's role in the development of hydroelectric power in Northern California, San Francisco's development of the Hetch Hetchy, and the creation of the Central Valley Project. Hundley's depiction of legal developments within the state, changes in cultural attitudes towards electricity, and the construction of water and power

projects across California help to explain the historically contingent development of the UARP. James C. William's *Energy and the Making of Modern California* provided insight into California energy related issues, including the development and consolidation of the hydroelectric power industry, the creation of a local electric culture, and the rise of publicly owned utilities. William's work, like Hundley's, provides context and examines key events that served as necessary precursors for the UARP. The Silver Creek Project, and its successor plan the UARP, always reflected their times. In addition to the sources discussed, this work utilized scholarship focused on environmental and natural resource issues, electricity and culture, public utility ownership, and other regional histories.

This work draws upon a diverse array of primary sources, including newspaper articles from regional papers, contemporary articles from journals and magazines, government reports and legislation at the local, state and federal levels, SMUD documents, and oral histories. The *Sacramento Bee*, *Sacramento Union*, *Placerville Mountain Democrat*, and the *San Francisco Call* were all indispensable for understanding the culture surrounding local events. Although often highly partisan, local newspapers provided the only real sources for understanding opposing views, a particularly valuable quality when analyzing contentious electoral issues. Furthermore, newspapers often provided the only sources for the technical details of proposed projects. Government reports proved essential for understanding water and power issues in the Sacramento region. Reports from local, state, and federal sources illustrated shifting government priorities and provided insight into complicated water rights issues. The increasing complexity and scope of government reports over time also illustrated the

incremental evolution of hierarchy within the water and hydroelectricity industries. Articles from professional journals addressing contemporary events highlighted cultural priorities within various disciplines. Internal SMUD documents, including short histories written by SMUD employees, official annual reports, memos and reports written by engineers and contractors, and employee newsletters provided technical details for SMUD projects. SMUD's employee magazine *High Lines* proved to be an excellent source for UARP details and information about SMUD's efforts in the late 1940s and 1950s to expand electricity use in the Sacramento region through direct sales marketing. Oral histories also provided interesting perspectives of key participants, usually after many years of reflection. After consulting a wide range of primary and secondary sources, I concluded that the UARP began as an idea conceived of by a distinct local culture. The City of Sacramento wanted Sierra resources, first water and later power, and the UARP represents the culmination of an important local discourse that changed significantly over time.

# Two: Electricity

## The New Gold: Making Electricity with Moving Water

The California Gold Rush created a cultural and technological foundation that influenced early waterpower advocates in Northern California. From the beginning, semi-organized placer miners manipulated Sierra watersheds hoping to extract gold from mountain streambeds. California water historian Norris Hundley notes that in placer mining, "Common sense called for diverting water—and divert the miners did, from as far away as necessary and practical through wooden sluices, iron pipes, ditches, and whatever else worked."[15] As stream-based placer mining evolved into corporate hydraulic mining during the 1850s, a new era of environmental manipulation in the Sierra Nevada arrived. Between 1860 and 1875, corporate mining operations pioneered the development of high-pressure nozzle systems, termed monitors, which produced jets of water that miners used to wash away hillsides that harbored ancient gold-bearing riverbeds. The angled flumes designed to create high water pressure for the monitors later proved ideal for powering early hydroelectric turbines.[16] The construction of flumes, dams, ditches, and other support infrastructure permanently altered the land in the mining regions of the Sierra, creating a readily exploitable second nature that served as a

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[15] Norris Hundley, *The Great Thirst: Californians and Water, 1770-1990s* (Berkeley: University of California Press, 1992), 69.

[16] Steve Hubbard, "Hydropower in California," *Sacramento History: Journal of the Sacramento Historical Society* 6, no. 1-4 (2006): 226.

primitive foundation for hydroelectric development.[17] Building upon the legacy of the hydraulic mining industry, Northern California's hydroelectric industry subsequently diverted rivers and filled enormous reservoirs, and spider-webbed power lines, penstocks, and diversion canals across the Sierra. There was a cultural legacy as well. As Charles M. Coleman observes, the mining industry created "a vast water system and legal rights to water sources; and they left, too, a generation of men who knew how to build tunnels, canals, and flumes, how to lay pipe in rugged terrain, how to handle water and where to find it."[18] The hydraulic mining era created a cadre of citizen-engineers whose hard-won experience manipulating and modifying the hydrological systems of the Sierra made them well suited for the development and construction of hydroelectric projects.

The rapid evolution of the hydraulic mining industry inspired hydroelectric innovation as miners committed themselves to maximizing profits. According to Hundley, the immense profitability of hydraulic mining operations "encouraged around-the-clock operations with illumination for night work at first supplied by torches, then in the 1860s by oil-burning locomotive headlights, and eventually electric lights after the North Bloomfield mine pioneered the practice in 1879."[19] Miners engaged in numerous experiments as they adapted the existing hydraulic infrastructure to power lighting. An innovative idea by a "mining camp 'tinkerer'" named Lester Pelton reimagined the design of the age-old water wheel, and his Pelton water wheel shaped the history of local

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[17] David Beesley, *An Environmental History of the Sierra* Nevada (Reno: University of Nevada, 2004), 151.

[18] Charles M. Coleman, *P.G. and E. of California: The Centennial Story of Pacific Gas and Electric Company*, 1852-1952 (New York: McGraw-Hill Book Company, Inc., 1952), 5.

[19] Hundley, *The Great Thirst*, 74.

hydroelectric power.[20] In 1889, the *San Francisco Call* praised "the Pelton water wheel, which is distinctly a California product and is justly regarded as a most useful invention."[21] By 1895, roughly 850 companies used Pelton Water Wheel Company systems.[22] California's nascent hydroelectric industry developed in isolation while electrical developments continued on the East Coast.[23] Need, ability, and isolation created a distinct California culture surrounding hydroelectricity.

The Gold Rush culture of water manipulation and hydroelectric experimentation gave way to the formalization of related engineering fields. Professional organizations like the Pacific Coast Electrical Transmission Association (PCETA), formed in 1897, exemplify the developing California hydroelectric culture. The PCETA's publication, *The Journal of Electricity, Power, and Gas*, encouraged regional discourse among professionals. Additionally, during the 1890s, Northern California's educational institutions, including University of California, Berkeley and Stanford University, developed electrical engineering programs.[24] The generation of engineers trained in regional schools at the end of the nineteenth century would be at the forefront of electrifying Northern California's cities in the twentieth.

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[20] Hubbard, "Hydro Power in California," 9.

[21] *San Francisco Call*, December 17, 1889.

[22] Jean E. Starns, *Wealth from Gold Rush Waters* (Georgetown, CA: Jean E. Starns, 2004), 307.

[23] James C. Williams, *Energy and the Making of Modern California* (Akron: University of Akron Press, 1997), 187-89.

[24] Williams, *Energy and the Making of Modern California*, 187- 90.

Hydraulic mining did more than create water infrastructure and electricity producing marvels. The round-the-clock evisceration of Sierra hillsides and canyon walls over almost three decades of hydraulic mining created debris fields that moved out of the hills and onto the Sacramento valley floor. In many locations, the debris fields contained high levels of mercury, increasing the environmental costs. The destruction wrought by hydraulic mining encouraged resistance by citizens whose economic interests lay downstream. Edwards Woodruff filed suit against North Bloomfield Mining and Gravel Company citing the environmental destruction to his farmland next to the Yuba River. In 1884, Judge Lorenzo Sawyer of the Ninth U.S, Circuit Court in San Francisco sided with Woodruff, citing the extreme environmental damage. Sawyer's injunction against hydraulic mining techniques made many mining operations unprofitable, subsequently bringing the hydraulic mining era to a close for many companies. The industry's environmental legacy remained in the form of scarred hillsides, water infrastructure, and mining tailings that stretched for mile in some areas. Interestingly, the legal actions taken by citizens against the environmental damage caused by the hydraulic mining served as examples for environmental activists who opposed hydroelectric projects in the next century. During the twentieth century, the court system served as an important battleground where competing entities fought for control over the Sierra. During the 1890s, citizens like John Muir fought to preserve places like Yosemite based on a belief that the Sierra had intrinsic spiritual value; other men looked at the Sierra with utilitarian visions, seeing the possibility for logging fortunes and powerhouses. Citizens like Muir looked at the legacy of hydraulic mining with shame, and they formed the Sierra Club in

1892 to ensure opposition to industrial exploitation. A new breed of entrepreneurs who saw opportunity where Muir saw destruction quickly capitalized on the hydraulic mining industry's abandoned infrastructure.

The demise of the hydraulic mining industry created a new rush on Sierra resources, with entrepreneurs hoping to make money with water. The frenetic cultural impulse was captured in an editorial piece in the *San Francisco Call*, with the author warning that "a new kind of 'hustler' has arisen….He is the promotor of new electrical enterprises, and especially just now the promotor of schemes for the long distance transmission of electric power."[25] The skeptical author adds, "The air of California…has all at once become filled with talk of water-wheels in lonely mountain places and making them give light and cheaply."[26] Eugene de Sabla Jr., a 'hustler' of mountain-made electricity, and part owner of the Nevada County Power Company, spent 1894 in San Francisco looking for investors.[27] De Sabla and his partners, John Martin and Alfonso A. Tregidgo, began work on their power plant on July 5, 1895, and Nevada City received power from the plant on February 1896, just seven months later.[28] Martin utilized his association with East Coast electrical equipment manufactures, and Tregidgo, a former mine supervisor, handled construction oversight, putting his experience in the Sierra gold fields to use. Coleman notes the importance of their efforts: "In little more than 10 hectic

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[25] *San Francisco Call*, June 1, 1895.

[26] Ibid.

[27] Joseph A. McGowan, *History of the Sacramento Valley* (Lewis Historical Publishing Company, 1961), 33.

[28] Ibid., 34.

years they built hydroelectric power plants, organized one corporation after another, consolidated gas and electric systems, snowballed their small beginnings into the extensive foundation upon which the P. G. and E. structure was raised."[29] Pacific, Gas, and Electric's (PG&E) origin are instructive for several reasons. First, PG&E's rise illustrates how Gold Rush era physical infrastructure, hydraulic and engineering knowledge, and organizational management served as a foundation for the local hydroelectric industry. Second, the company's early history exemplifies the post-Gold Rush spirit of the times as citizens, entrepreneurs, and municipalities hailed the extraction of new commodities from the mountains in the form of water and electricity. Most importantly for this study, PG&E's dominant presence in California during the twentieth century directly influenced SMUD's growth and development as a public utility.

**How the Lights Went on in Sacramento: The Folsom Powerhouse**

Horatio Gates Livermore, a Gold Rush transplant, arrived in Georgetown, El Dorado County in 1850. Embracing the economic ethic of the day, Livermore set out to make the Sierra hills fill his treasure chest, if not with gold than with the profits from timber and agriculture, and eventually electricity. Elected to the state senate in 1854, Livermore mixed politics with profit as he accessed the halls of power.[30] Soon he identified Folsom as an ideal place to build a sawmill powered by the American River. Joined in 1856 by his two sons Horatio Putnam and Charles Edward Livermore, the Livermore family controlled the Natoma Water and Mining Company by 1862. The

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[29] Coleman, *P. G. and E. of California*, 134.

[30] Ibid., 118.

Livermores attempted to execute a grand vision that saw Folsom as an industrial center powered by water. The plan included a dam, reservoir, and canals for power and irrigation. Coleman observes "Work on the dam started in 1867….then for 26 years there were heartbreaking delays caused by shortages of capital, lawsuits, political bickering, and other obstacles….the dam was not completed until 1893."[31] Built with labor from the state prison, the dam, according to Coleman, "cost the state 520,349 man-days of convict labor," and the Livermores and their investors lost money.[32] During the intervening years neither the Livermore sons nor the field of electrical engineering remained static. Rapid technological advances during the 1880s and the potential of the new dam helped both the Livermores and Sacramentans see the American River with new eyes. In just a few short years, the citizens of the region re-conceptualized the American River, transforming the river in their minds from the well-worn mother of the California Gold Rush into an unmined resource full of untapped electric power.

Taking power from the river required more than a granite dam: it required a powerhouse. By October 18, 1881, Charles E. Livermore became president of the Folsom Water and Power Company, at which time the new company absorbed the "properties and rights that were related to water power," thus securing a source for future power generation.[33] Given the rapid advance of electrical generation technology, the American River's potential as a hydroelectric source became apparent to others as well. In 1881, a

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[31] Coleman, *P. G. and E. of California*, 119

[32] Ibid.

[33] Ibid., 120.

citizen named John Eitel, described in his 1891 obituary as a man whose "ideas were always advanced in favor of public elevation and municipal betterment," informed the *Sacramento Daily Record-Union* editors that he saw the potential for electric power generation on the American River.[34] Eitel suggested a rudimentary plan: "If dynamo-electric machines, if worked by turbine or other suitable water-wheels adapted to the locality, were placed in suitable buildings…a power could be created to produce all the motive power California requires at the present writing, besides furnishing electric light for city and village."[35] Even Sacramento's general citizenry increasingly saw the potential for power generation on the American River.

Once the Livermore's plans for a commercial hydroelectric plant became public, enthusiasm began to build. The cultural excitement over the powerhouse began well before its construction. The *Sacramento Evening Bee* and the *Sacramento Daily Record-Union* had both been active participants in the local discourse surrounding the electrification of Sacramento, both advocating for the Folsom project. The papers followed the Livermore's progress, let citizens debate the merits of the project, and educated the public about electrical theory and the benefits of electricity for Sacramento. The *Union* declared that the host location stood to prosper, observing that, "From a Rip Van Winkle village Folsom will at once become a leading manufacturing city of the

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[34] *Sacramento Daily Record-Union*, March 10, 1891; *Sacramento Daily Record- Union*, June 22, 1881.

[35] *Sacramento Daily Record- Union*, June 22, 1881.

state."[36] The *Union* reiterated its support for constructing the powerhouse, declaring, "Sacramento is actuated by a spirit of enterprise and progressiveness, and has the highest hopes of the scheme of the company Mr. Livermore represents, in utilizing the water power of the American River."[37] For the editors of the local Sacramento newspapers, the electricity provided by the Folsom Powerhouse promised regional benefits, and Sacramento in particular stood to enter the Progressive Era as a leading city.

H. P. Livermore, an astute follower of advances in both local and national electricity generation and transmission, saw the potential for electric train service in Sacramento powered by electricity generated at the Folsom dam.[38] H. P. Livermore created the Sacramento Electric Power and Light Company on November 5, 1892, with the initial purpose of operating an electric railway in Sacramento, but his railway operation also provided an opening into the Sacramento electricity market. At the time of Livermore's entry into the Sacramento electric train business, steam-generated electricity and battery power dominated the local electricity market. Livermore had other plans for Sacramento's electricity market. On October 12, 1893, the *Sacramento Record Union* posted under "miscellaneous" a reprint of Sacramento County Ordinance No. 36:

> Granting to the Sacramento Electric Power and Light Company, a Corporation, the Right of Way and Privileges to Construct, Maintain, and Operate One or More Systems for Generating and Transmitting Electric Energy for Electric Light, Power, Heat, and Such other Purposes as Electricity May Now or Hereafter be

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[36] *Sacramento Daily Record-Union*, April 16, 1888.

[37] *Sacramento Daily Record-Union*, July 27, 1889.

[38] Coleman, *P. G. and E. of California*, 120.

> Used for, from the Works and Canals of the Folsom Water Power Company, its Successors or Assigns.[39]

Water might flow free out of the Sierra Nevada, but powerhouses and transmission systems required money, a lesson that hydroelectric project proponents would relearn repeatedly over the next century.

To make money from a powerhouse the Livermores first had to find money to build one. Armed with plans for the powerhouse and transmission system from Westinghouse Company and the General Electric Company, both located on the East Coast, H. P. Livermore sought funding for his Folsom hydroelectric project. The powerhouse would utilize water leased from the Folsom Water and Power Company, operated by H. P. Livermore's brother Charles. Albert Gallatin, president of Huntington, Hopkins & Co., the hardware firm owned by Collis P. Huntington, owner of the Central Pacific Railroad, joined the cause. With Albert Gallatin heading financial negotiations on the East Coast, the Electric Securities Company agreed to underwrite the bonds. Gallatin subsequently became a major stockholder of the Sacramento Electric Power and Light Company.[40] With funding secured, construction on the powerhouse began on October 10, 1894. The elite citizens of Sacramento combined the indigenous Northern California entrepreneurial spirit and hydroelectric expertise with private investors from the East.

With the construction of the Folsom Powerhouse, Sacramento City entered into a relationship with hydroelectric power that simultaneously shaped the environment and

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[39] *Sacramento Daily Record-Union*, October 12, 1893.

[40] Coleman, *P. G. and E. of California*, 121-22.

local culture. The physical construction captivated the local print press. The project dammed the American River, redirected portions of its flow, moved tons of granite, built large buildings, and snaked wires across the countryside. The Folsom powerhouse project contained many impressive features, including a 650-foot dam that utilized "48,590 yards of granite masonry."[41] The project included a 50-foot wide canal from the river to the powerhouse with capacity to move 84,000 cubic feet of water per minute. While the powerhouse was still under construction, the *Union* reported, "In the dynamo room will be located four three-phase alternating current generators of the General Electric Company type," and they "weight about 40 tons each."[42] The newspaper's vivid descriptions and technical information most likely painted a staggering vison for the average reader. Mastery of the local landscape was the price of technological progress. The transmission of power from Folsom to Sacramento along 23 miles of county road required the Sacramento firm, Friend and Terry Lumber Company, to supply and erect 2,600 utility poles. As workers erected a small forest along the road to Sacramento, it is difficult to say if the new electric infrastructure looked like progress to local citizens. The electricity entered the city at a two-story brick substation, where the electricity voltage was stepped down from 10,000 volts to approximately 100, making it ready for distribution.[43] Electricity arrived in Sacramento from the Folsom Powerhouse on July 13,

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[41] *Sacramento Record-Union*, December 27, 1894.

[42] Ibid.

[43] Ibid.

1895 at four o'clock in the morning; a 100-gun salute marked the occasion.[44] Sacramentans could see that constructing powerhouses on distant rivers meant changes to their local landscape, but a growing desire for electricity trumped any misgivings.

**The Great Electric Carnival of 1895**

The City of Sacramento buzzed with anticipation as construction of the Folsom Powerhouse approached completion. While the city had access to electricity generated at local coal-powered plants, the arrival of hydroelectric power convinced citizens that their city finally had a permanent, reliable, and affordable source of electricity. On May 22, 1895, the *Sacramento Bee* called for a celebration to mark the arrival of Folsom Power in Sacramento. The *Union* agreed, and city leaders began making arrangements. After public debate and some discussion of the relevant costs, organizers timed the even for Admission Day, September 9, 1895. The event also marked the opening of the State Fair, and planners expected large crowds.[45] Exemplifying the aspirations of the city, the *Sacramento Bee* declared on June 3, 1885, "An Electric Carnival is something no other city can copy for years to come."[46] The editors believed electricity from Folsom would elevate Sacramento's standing as a California city and improve people's lives, observing on June 10, 1895 that "citizens generally are awakening to the fact that they are to have within a very short time a cheap power that will materially add to the prosperity of the

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[44] Rowena Wise Day, *Carnival of Lights: The Story of Eclectic Light and Power in Sacramento*, 1979-1895 (Sacramento: Sacramento College Alumni Association, 1957), 22.

[45] McGowan, *History of the Sacramento Valley*, 32.

[46] *Sacramento Bee*, June 3, 1895.

city."[47] The same edition attempted to take the pulse of the average citizen. J. M. Blair, "a leading Front Street merchant," told the *Bee*, 'It is a snap. A citizen of this community that would not favor that Electric Carnival don't deserve to be on top of the earth."[48] W. F. Peterson, a travelling candy salesperson, declared, "The men who sent the machinery here to bring into Sacramento 4000 horsepower are not making any mistake. They are shrewd, careful, far-seeing businessmen. As soon as they are ready to distribute the lightning they will have the people here to use it."[49] The influx of East Coast capital bolstered Peterson's confidence in the Folsom project. The arrival of electricity from Folsom evolved into a significant cultural event, one remembered fondly for decades. The Electric Carnival marked the beginning of Sacramento's enthusiastic embrace of electricity.

The *Sacramento Bee*'s front-page headline following the parade spared no words. On September 9, 1895, the *Bee* triumphantly declared, "The Lighting Blazed and Flooded Sacramento's Streets with Lakes of Liquid Fire," and in case the reader overlooked the magnitude of the event, a sub-headline added, "A Glorious Dawning, Then Glowed the Sunlight of an Aura of Progress and Prosperity."[50] The *Sacramento Union* mirrored the sentiment with a headline that read "Sacramento Has Her Day of Triumph: Transcendent

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[47] *Sacramento Bee*, June 10, 1895.

[48] Ibid.

[49] *Sacramento Bee*, June 10, 1895.

[50] *Sacramento Bee*, September 10, 1895.

Beauty and Grandeur of Her Electrical Parade."[51] Referencing the importance of hydroelectric generation to the event, the sub-headline added, "The Greatest Display of Electricity Ever Witnessed on Earth—And All from Nature's Great Storage Battery."[52] Other regional papers also lauded the event, noting Sacramento's entry into the elite club of electrified cities.[53] The regional print media's excitement mirrored the general population's enthusiasm as Sacramentans turned out to celebrate the arrival of a new era.

The parade itself illustrated for locals the potential of reliable energy and the possibilities of a new electrified city. Decorated storefronts flanked the three-mile parade route and decorative arches, paper lanterns, electric lights, and bunting added to the festive atmosphere. The trees in Capitol Park sparkled with multicolored lights and the State Capital "was outlined with lights which could be seen fifty miles away."[54] The parade itself, according to McGowan, consisted of "military units, sixty brass bands and twelve electric floats from the shops of the Southern Pacific."[55] Each float sat upon on the frame of an electric streetcar, drawing overhead power. A writer for the *Journal of Electricity* noted the optimistic tone emblazoned on many of the electrified arches, with "The New Sacramento," and "Progress" spelled out in red and yellow lightbulbs.[56] The writer for the engineering publication also noted the many displays "operated by power

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[51] Ibid.

[52] Ibid.

[53] *San Francisco Call*, September 10, 1885.

[54] McGowan, *History of Sacramento Valley*, 32.

[55] Ibid.

[56] "The Electric Carnival," *Journal of Electricity*, vol. 1, no. 3 (September 1895), 69.

from the American River at Folsom."[57] With the discourse surrounding electric power saturated with the rhetoric of progress and prosperity, attendees likely felt as if the future was rolling into Sacramento right before their eyes. Hydroelectricity generated at the American River at Folsom placed Sacramento among the world leaders in generation and transmission of electricity.

## The Electrification of Sacramento Industry and Culture

Prior to the arrival of Folsom's hydroelectric power, many local businesses either powered equipment with steam or generated electricity with small coal-burning steam-driven plants. By 1889, the Southern Pacific Shops were using electric power for machinery.[58] H. Fisher and Company produced three to four thousand pounds of candy a day using their own electrical plant, and A. A. Van Voorhies used an eight-horsepower motor to manufacture horse collars. Businesses that relied on coal-fired electricity generation welcomed a cheaper alternative. The Sacramento hinterlands contained moving water, but no coal. Day suggests that "The critical factor in generating electricity from steam in Sacramento appears to have been the high cost of coal."[59] Day also adds that "Imports to Sacramento from collieries in British Columbia and Australia caused congestion on the docks," creating tension between grain shippers and coal receivers.[60] Observing Sacramento, the *Journal of Electricity* opined that "electrical engineers will be

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[57] "The Electric Carnival," *Journal of Electricity*, 69.

[58] McGowan, *History of the Sacramento Valley*, 30.

[59] Rowena Wise Day, *Carnival of Lights*, 15.

[60] Ibid.

especially interested in the result of the competition between electrical power derived from waterfalls situated at a considerable distance, and the generation and transmission of power from coal over the lines of the local company."[61] Over time, Sacramento entrepreneurs, public officials, and curious engineers embraced the electrification of their city, and hydroelectric power became an important part of the local culture, and by the twentieth-century, Sacramento industry leaders considered cheap and reliable electricity essential for economic growth.

Sacramento shared in the nation's quest for electrification, but a distinct California electric culture developed in the years following the surge in construction of hydroelectric powerhouses like Folsom, both paralleling and diverging from the national experience. By 1896, one source estimated that the nation had 25,000 trolley cars using over 12,000 miles of track. The electrification of Sacramento's urban rail system placed the city at the leading edge of a national cultural and technological revolution. Beyond electric railways, there were an estimated 10,000 public and private power plants in operation.[62] By the end of the nineteenth century, electrical development was becoming an increasingly important part of the national economy. The *Sacramento Record-Union* informed its readers that "The aggregate of all the capital invested in electrical lighting, electric railways, and electric power is about $1,500,000,000…it has been estimated that at least 2 ½ per cent of the entire population of the United States make their living out of

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[61] Editorial, "The Newer Sacramento," *Journal of Electricity*, vol. 1, no. 3 (September 1895), 70.

[62] *Sacramento Record-Union*, November 29, 1896.

the electric light and power industry."[63] American culture rapidly came to associate electrification with economic growth. Clearly, in the eyes of local pundits, the electrification of the nation was underway and many Sacramentans desired to maintain a positon of national leadership when it came to electrification.

Locally, the electrical integration of the city accelerated. Williams illustrates how social integration of new electrical technologies shaped culture, observing "Street lighting, trolleys, and industry provided good markets for electric power companies, and in general, set people toward harmonizing electricity into their daily lives."[64] The early 1890s saw battery-powered electric streetcars replace horse-drawn trollies on the streets of Sacramento, and McGowan asserts that the switch to electric trolley cars provided a "glaring example of the need for electric energy in huge amounts at cheap rates and which could be used at considerable distance from the source of generation."[65] After all, the need to power his own electric train investment in Sacramento initially drove H. P. Livermore to connect Folsom Powerhouse to the distant city. In 1896, Sacramento County and the Folsom Electric Power Company negotiated a deal for the electrification of the county hospital. The *Sacramento Record-Union* reported that Chairman Morrison of the hospital board noted cost savings over gas and coal. In addition, the Chairman noted "The money paid for coal goes out of the state, while the money paid to the electric

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[63] Ibid.

[64] William, *Energy and the Making of Modern California*, 206.

[65] McGowan, *History of the Sacramento Valley*, 30.

company would be distributed at home."[66] The electrification of local businesses, train systems, hospitals and street lighting, highlighted for the citizens of Sacramento the economic and social benefits of local power generation.

## Conclusion

The Gold Rush Era created a large pool of men with the experience and expertise to make mountain streams pay, if not from gold discoveries, then from electricity sales. Where citizens resisted the environmental effects of hydraulic mining, regional citizens largely accepted the environmental consequences of hydroelectric development because the benefits of cheap and reliable electricity reached deeper into the social fabric of the local community. The first dam and powerhouse at Folsom brought the river's potential for power creation to the attention of the next generation of local entrepreneurs and civic leaders, many of whom would become Sacramento City leaders and SMUD's first administrators. It was only a matter of time before citizens expanded their expectations to include the development of the upper American River watersheds. Potential developers knew they could plan with confidence because they were building upon a foundation of successful manipulation of the Sierra watersheds. The Folsom powerhouse also illustrated the feasibility of long distance power transmission, a critical precursor technology necessary for bringing electricity generated in the mountains into the city. Issues of class permeated the Folsom Powerhouse story as the educated, wealthy, and politically connected elite championed projects that suited their interests. Finally, the Folsom Powerhouse became a catalyst for cultural change over time as hydroelectricity

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[66] *Sacramento Daily Record-Union*, October 9, 1896.

powered industry and illuminated people's lives. In 1895, the citizens of Sacramento celebrated locally produced hydroelectricity, proclaiming it a key component of Sacramento's future.

## Three: Water for Sacramento

### A City's Quest for Clean Water

Sacramento had electric power providers and a growing electricity market in the first decade of the twentieth century, but the city still lacked other basic infrastructure features found in the nation's most modern cities. At the end of the nineteenth century, the City of Sacramento had notoriously poor water quality, a problem largely blamed on the Sacramento River. The local debates over sewage and water quality ran concurrently with the electrification of the city. John Eitel, the same citizen that saw the American River as a source of electric power, had little faith in water obtained from the Sacramento River. Eitel argued in the *Sacramento Union* that Sacramento River water harbored an unpleasant smell and he added, "Sooner or later we must look to a purer source of supply direct from the fountain head," presumably in the Sierra Nevada.[67] For Eitel, the City's future growth depended on clean water. Sacramento's leading citizens, notably those in the medical community, engineering field, and city administrators slowly began to share Eitel's opinion. Sacramento's quest to solve its water quality problem transformed casual parlor conversations about mountain water into a heated public discourse, a process that ultimately brought Silver Creek to the City's attention.

Hydraulic mining debris washed down from Sierra mining operations muddied Sacramento and American River waters and disrupted flows, and the seasonal nature of the rivers made water levels unreliable. Locals recalled the clarity of both rivers at the

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[67] *Sacramento Daily-Union*, July 13, 1887.

start of the Gold Rush; however, by the 1860s the rivers had changed.[68] Deficiencies in urban sanitation in both Sacramento and in communities upstream contributed greatly to city's water quality problems. In 1897, a *Union* editorial chided city leaders: "First and foremost we place the necessity for a complete sanitary sewer system… scarcely second in importance…is the necessity for a clear, pure-water system for domestic use."[69] As knowledge developed about the links between sanitation, water, and disease, perceptions of Sacramento's water quality problems transformed from a nuisance issue into a public health concern.[70] At a local medical conference in 1898, Dr. G. L. Simons, ex-president of the State Medical Society, observed that "Outsiders say we drink dirty water," and Dr. F. R. Waggoner added, "Sacramento water does not kill everyone, but there is no mistake about it carrying the germs of disease. It drives people away from us."[71] Water quality became an increasingly important political and economic issue. Sacramento started the twentieth century with a quest for pure water, and despite the city's position at the confluence of two major rivers, a solution remained elusive. The city's future growth and its claim to progressive status, established by its rapid electrification, stood to suffer if water quality remained poor.

City water, coined "Sacramento Straight," by locals, because it came straight from the river unfiltered, evolved into an important local issue that inspired a level of

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[68] "Clean Clear Water," *Golden Notes* (Sacramento County Historical Society) 24, no. 4 (Winter 1978): 4.

[69] *Sacramento Record-Union*, September 7, 1897Ibid.

[70] "Clean Clear Water," Golden Notes, 11.

[71] *Sacramento Record-Union*, November 16, 1898

municipal intervention previously unseen in Sacramento.[72] While privately owned gas and electric companies maintained private infrastructure with profits from services rendered, local civic infrastructure such as roads, water resources, and sanitation systems languished under weak local governance.[73] A national tide of Progressive Era philosophy that encouraged government intervention and technical solutions for society's ills, coupled with the frustrations of local citizens, encouraged the city to address the long simmering legacy issues. In 1902, City Ordinance No. 575 determined "the public interest and necessity demand the acquisition and construction of a sewer system in the City of Sacramento."[74] The project's expense required the city to issue bonds to fund the project.[75] The bond issue went to the voters on July 23, 1902, and the city subsequently sold bonds to fund the project. Water quality remained on the city agenda as well and the city turned to professionals for solutions. In a report by Herbert B. Foster, released in 1907, titled *A Report upon the Sacramento River and a Source for Public Water for the City of Sacramento,* Foster suggested that filtered Sacramento River water would be "pure and wholesome, and comply with the most rigorous modern requirements of sanitary, aesthetic and industrial requirements."[76] Foster stated that both mechanical and

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[72] McGowan, *History of Sacramento Valley*, 126.

[73] Ibid., 127.

[74] R. L. Shinn, ed., *Ordinances of the City of Sacramento: up to and including, Ordinance No.180, Fourth Series,* (Sacramento: Independent Printing Company, 1924), 85.

[75] Shinn, *Ordinances of the City of Sacramento*, 85.

[76] Herbert B. Foster, *A Report upon the Sacramento River and a Source for Public Water for the City of Sacramento* (1907), 118.

sand filtering techniques would meet Sacramento's needs.[77] The 1907 report provided a clear solution for Sacramento's water quality problem.

In 1910, the local Women's Council invited Professor Charles Gilman Hyde, nationally recognized hydraulic and sanitation engineer as well as a professor with the University of California, to speak about the City's water quality options. In 1909, Hyde had written a *Report upon a proposed filtered water supply for the City of Sacramento, California*, making him well acquainted with the issue. With the filtration bond election set for March 24, 1910, the *Sacramento Bee* attempted to influence voters with an article by Hyde that touted the reasonable price of filtration and he promised an "inexhaustible supply so far as the needs and rights of Sacramento are concerned.[78] *Bee* editors repeatedly backed Hyde's position. The *Bee* informed readers that filtration was the only option, arguing "No supply so good could be had direct form any other source in the mountains without an outlay of more than $3,000,000 or $4,000,000."[79] Money became a key part of the issue for many voters.

By all appearances, the measure appeared destined to pass. After the filtration project lost by 177 votes the Sacramento Chamber of Commerce responded rapidly, vowing to hold a second election.[80] The Chamber of Commerce formed a special committee that included Judge Charles E. McLaughlin and Dan Carmichael, men who

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[77] Foster, *A Report Upon the Sacramento River*, 118.

[78] *Sacramento Bee*, March 17, 1910.

[79] *Sacramento Bee*, March 18, 1910.

[80] Myrtle Shaw Lord, *A Sacramento Saga; fifty years of achievement—Chamber of commerce leadership* (Sacramento: Sacramento Chamber of Commerce, 1946), 191.

also wanted mountain water sources developed.[81] Dan Carmichael would be instrumental in passing the legislation necessary for the creation of SMUD, and Judge Charles E. McLaughlin would go on to serve as president of the SMUD Board of Directors during the 1920. The filtration debate evolved into a proving ground where local politicians honed their abilities and sought out like-minded citizens. Despite initial defeat, the political battling over the filtration project resumed.

The engineers continued their evaluations while the bloodied political partisans returned to their corners. Hyde reentered the debate in 1916 with a comprehensive 659 page report, co-authored with George H. Wilhelm, consulting engineer, and Frank C. Miller, Sacramento City engineer. The engineers' effort, *A Report upon the Possible Sources of Water Supply for the City of Sacramento California*, left nothing to the imagination. The *Engineering News* deemed the report authoritative yet accessible, finding it "crammed fill of water supply data—results and conclusions—necessary for a proper study of the subject."[82] The large tome dissected at length the value of filtered water from the Sacramento River, local well water, and water from the Sierra Nevada Mountains, specifically from the upper American River at Silver Creek and the South Fork, and the Mukelumne River. The report found that the Sacramento River could provide up to 200-millon gallons of filtered water per day.[83] The report considered the

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[81] Lord, *A Sacramento* Saga, 191.

[82] Caleb Mills Seville, "Model Engineering Report on Sacramento Supply" in *Engineering News: A Journal of Civil Engineering and Construction* 76, no. 2 (December 1916), 749.

[83] Charles Gilman Hyde, George H. Wilhelm, and Frank C. Miller, *Report upon Possible Sources of Water Supply for the City of Sacramento, California* (San Francisco: Rincon Publishing Company, Printing, 1916), 256.

mountain sources to be too expensive and capped their available water supply at 100-million gallon per day each.[84] The report stated that Sacramento Valley well water sources would yield 30-million gallons per day, and require filtration because local wells suffered from sewage-related pollution.[85] The report favored filtration of Sacramento River water, but aspects of the report alluded to the potential of mountain water for power generation. Price seemed to be the primary deterrent for mountain water projects.

The Hyde, Wilhelm, Miller report favored filtration, but it contained a roadmap for exploiting the Sierra Nevada water supply should the money and motivation become available. The authors included an analysis of mountain sources because the idea served as the greatest political roadblock to their advocacy for the filtration solution, and they hoped their negative assessment would put the idea to rest. The authors noted the "considerable number of the citizens of Sacramento who believe that some mountain water project would represent a rational, desirable and in every way satisfactory solution."[86] The report charged that mountain water advocates believed in the "sentimental and advertising value of such a supply," and the potential for "public profits from the sale of electrical power."[87] Finally, those who wanted mountain water held to the illusion that Sacramento would receive water "under a uniformly considerable head

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[84] Hyde, Wilhelm, and Miller, *Report upon Possible Sources of Water Supply for the City of Sacramento*, 585.

[85] Ibid. 355-56.

[86] Ibid., 363.

[87] Ibid.

without the use of pumping machinery."[88] Hyde's report noted that any system that brought water to Sacramento from the Sierra would have to include pumps for several technical reasons, one of which was to meet the demands of extraordinary circumstances, such as fires. The quest for clean water might dovetail with hydroelectric power development under the right circumstances, but the 1916 report foresaw considerable obstacles.

Hyde and his co-authors suggested several reasons why power generation from mountain sources might be problematic for Sacramento. First, Sacramento's current power needs did not justify the costs of construction of powerhouses, and the city would have to sell any excess power. The report asserted that Sacramento power would have to compete on the open market, which "is apparently contrary to the rulings of the California Railroad Commission, or else, and better, to purchase the electrical distribution system and the business of one or both of the larger power companies now operating in the City."[89] The report added that the generation, transmission, and sale of power by a municipality was unprecedented. While the 1916 report considered the costs and political obstacles to mountain water development prohibitive, advocates saw the report as a roadmap for making their vision viable. SMUD eventually did exactly what Hyde outlined in his 1916 report, although it required significant legislative changes in the early 1920s, and it took several more decades to execute.

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[88] Hyde, Wilhelm, and Miller, *Report upon Possible Sources of Water Supply for the City of Sacramento*, 363.

[89] Ibid., 367.

## Albert Givan: Water from the Mountains

The authoritative and comprehensive Hyde report from 1916 struggled to move filtration development forward, while also failing to silence proponents of mountain water. The entry of the United States into the First World War in 1917 refocused many local issues, placing an emphasis on agriculture over infrastructure development during the war years. Albert Given, former Sacramento City Engineer, knew Frank C. Miller, from the 1916 Hyde, Wilhelm, and Miller report. Miller was the former Sacramento County Engineer who took over Givan's position as City Engineer when Givan resigned in 1914.[90] Givan would even replace Miller as City Engineer in 1921.[91] Givan believed the City needed mountain water. As Sacramento City Engineer in 1913, the City tasked Givan with surveying Sierra watersheds above Sacramento, placing him in charge of finding "possible sources of mountain water supply."[92] Givan's survey on behalf of the City, according to the journal that noted the activity, intended to cover the "middle and south tributaries of the American River, the middle and south tributaries of the Consumes River and the Mukelumne River."[93] The City maintained a general interest in mountain water sources, but Givan's surveys helped to illuminate the possibilities of the Silver Creek.

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[90] "A New City Engineer for Sacramento," *The Architect and Engineer of California* 35-39 (January-December 1914), 139.

[91] "Personal Notes," *Engineering News-Record* 87 (July-December 1921), 381.

[92] "Investigate Possible Sources of Water," *Municipal Journal* 35 (July-December 1913), 866.

[93] "Investigate Possible Sources of Water," *Municipal Journal*, 866.

Over the course of many years, Givan played a key role in focusing the City's efforts. Former Sacramento City Manager Edwin E. Fairbarn recalled in 1977 that Givan "was sold on mountain water. He was the one that invented the Silver Creek project and he had the city file for water on the Silver Creek and Silver Fork up there in the Sierra."[94] Fairbarn continued his recollection of Givan, observing, "Everybody seemed to be for the Silver Creek project except nobody would vote bonds for it. He tried twice and in the meantime, he was working on the filtration plant."[95] Even though he preferred the mountain water solution, Givan worked dutifully on the filtration project at the direction of City leaders, but as Fairbarn observes, "His heart wasn't into it."[96] In post-war Sacramento, the filtration plant issue gained momentum, but Givan was far from alone in his desire to see a mountain source of water developed for Sacramento.

In April 1919, Givan and fellow area engineers drafted an unofficial report for the Sacramento Engineers Club, titled "Mountain Supply for City of Sacramento, California." The special committee specifically set out to address claims made in the Hyde, Wilhelm and Miller report from1916.[97] The writers justified the need for their report based on their evaluation that rapid upstream irrigation development along the Sacramento River meant that within a few years, "the only water flowing as far down as

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[94] Edward E. Fairbarn, "'The water tasted like hell': Water Quality Reminiscences by a Former Sacramento City Manager," in "Water: Our History, Our Future," *Sacramento History: Journal of the Sacramento County Historical Society* 6, No. 1-4 (2006), 244-45.

[95] Fairbarn, "The water tasted like hell, 245.

[96] Ibid., 245.

[97] Sacramento Engineers Club, "Mountain Supply for City of Sacramento, California / Prepared for the Sacramento Engineers Club" (Sacramento, 1919), 17.

Sacramento City will be seepage and return waters from irrigated fields."[98] In the eyes of Givan and his fellow authors, Sacramento would require mountain water in the future whether the City built a local filtration plant or not. The expeditions that surveyed the American and Cosumnes River watersheds consisted of local engineers, including Albert Givan, P. M. Norbee, S. W. Curtis, R. G. Clifford, and R. E. Dodge. According to the report, in each area the group reconnoitered, "The watershed, Reservoirs, Dams Site, and proposed conduit line from the dam to Sacramento were roughly gone over to determine topography and soil conditions."[99] Among their observations, the group identified, "the Little Fork of the Rubicon, which also controls Gerle Creek, Loon Lake, Rockbound Lake, and Buck Island Lake as possible reservoir sites," all locations that later became major components of SMUD's UARP.[100] Importantly, the same report concluded that, depending on the location, mountain sources might prove less costly than a filtration plan in the long term, challenging Hyde's opinion. Presaging the creation of SMUD in 1923, the committee addressed the issue of funding, noting "The necessary funds might be obtained by the organization of the City into a district under the provisions of the law for creating municipal water districts and municipal lighting districts."[101] The unofficial Givan report clearly illustrates that engineers close to the City had detailed knowledge of specific high Sierra locations, and an early vision for organizing and funding the construction of a mountain water project. Albert Givan brought an increasingly

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[98] Sacramento Engineers Club, "Mountain Supply for the City of Sacramento," 17.

[99] Ibid., 4.

[100] Ibid., 9.

[101] Ibid., 53.

developed vision for a mountain water project with him when he became SMUD's Chief Engineer in 1924.

It is possible that the mountain water idea circulating within the local Sacramento discourse drew inspiration from similar projects unfolding across the state. Two high profile examples within the state illustrated how cities could meet their water needs through control of their hinterland resources. Los Angeles's quest for Owens Valley water and San Francisco's desire for water from the Hetch Hetchy Valley in Yosemite National Park created case studies for aspiring municipalities. As historian Norris Hundley asserts, "Los Angeles and San Francisco demonstrated what could be accomplished locally with well-organized and no-nonsense drives for water."[102] Givan had direct access to the men who made those projects happen, exposing him to the inside details of many of the prominent water projects of his day. Illustrating the cross-pollinating nature of the engineering field in California, the July 1920 issue of *Western Architect and Engineer* contained a brief article titled, "With the Engineers: Reports from Various Pacific Coast Societies, Personal Mentions, Etc," that listed the prominent engineers gathered for a tour of the Hetch Hetchy reservoir construction site.[103] San Francisco City Engineer Michael M. O'Shaughnessy acted as host for the distinguished gathering. Among the forty invited guests were Charles Gilman Hyde from the University of California, J. B. Lippincott, consulting engineer from Los Angeles, and Albert Given, now an Assistant State Engineer. Not only was Givan part of a local

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[102] Hundley, *The Great Thirst*, 200.

[103] "Engineers Visit the Hetch Hetchy Valley," With the Engineers: Reports from various Pacific Coast Societies, Personal Mention, Etc, *The Architech and Engineer* 62-63, no. 1 (July 1920); 117.

discourse that centered on Sacramento's needs, he was associated with a statewide discourse populated by politically experienced engineers who knew how to harness distant resources for their respective cities.

The men on the trip with Givan made the Los Angeles and San Francisco water grabs possible. O'Shaughnessy, for whom the dam creating the Hetch Hetchy Reservoir was named, funded his project with so many bond measures that according to Hundley, the San Francisco public joked that "his initials, M. M., stood for 'More Money.'"[104] O'Shaughnessy was a man who knew how to fund large public works projects through bond elections, the same way SMUD ultimately funded the UARP. Charles Gilman Hyde's influence straddled the state through his numerous reports, including his work on the water quality of the Owens River for Los Angeles in 1916. The group included the Consulting Engineer from Los Angeles, J. B. Lippincott. The same notorious Lippincott who in 1905 used his position at the Reclamation Service to help former mayor and former city engineer of Los Angeles, Fred Eaton, surreptitiously secure water rights along the Owens River. Lippincott subsequently left the Reclamation Service in 1907 and went to work for William Mulholland.[105] By the 1920s, Lippincott worked as a consulting engineer specializing in dams and irrigation and municipal water use; he also consulted on financial matters relating to engineering projects.[106] In 1901, Lippincott corresponded with Charles Silent of El Dorado County about a potential water and power project on the

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[104] Hundley, *The Great Thirst*, 200.

[105] Marc Reisner, *Cadillac Desert: The American West and its Disappearing Water* (New York: Penguin, 1993), 84.

[106] Donald C. Jackson, *Building the Ultimate Dam: John S. Eastwood and the Control of Water in the West* (Lawrence, Kansas: University of Kansas Press, 1995), 197.

South Fork American and Silver Creek.[107] Lippincott's report to Silent included stream-flow data, cost estimates, and potential reservoir sites.[108] Lippincott knew the Silver Creek watershed that Givan coveted for Sacramento. Givan had direct access to not only the finest hydro-engineering minds in the state, but also to men from San Francisco and Los Angeles with a wealth of experience managing the voting public, negotiating water rights, and navigating the complex political landscapes always associated with large public work projects. If Givan wanted Silver Creek water for Sacramento, he shared company with men who knew how to take contested water.

**The Sacramento River Filtration Plant**

In 1919, the City of Sacramento hired consulting engineer C. E. Grunsky, president of the California Academy of Sciences, to make a final determination on a clean water source. Grunsky previously coauthored a 1912 study with Albert Given for the City that studied flooding along the American River. On April 4, 1919, Grunsky recommended the construction of a filtration plant, as Hyde and company had in 1916.[109] The Sacramento Chamber of Commerce endorsed Grunsky's determination and the City Commission formally adopted the filtration plant idea on April 10.[110] City Ordinance No. 381called for a special election asking voters to incur a $1,800,000 debt for the construction of a filtration plant located on the Sacramento, near the confluence with the

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[107] Joseph B. Lippincott to Charles Silent, September 21, 1901, Inventory of the Joseph B. Lippincott Papers, 1882-1942, Water Resources Collections and Archives, University of California, Riverside.

[108] Lippincott to Charles Silent, September 21, 1901.

[109] Ward, *"...for the people,"* 8.

[110] Lord, *A Sacramento Saga*, 214.

American Rivers.[111] On June 26, city voters put the long delayed issue to rest, exceeding the necessary two-thirds requirement by 273 ballots, for a total vote of 10,187.[112] Charles Gilman Hyde would provide the design and the plant was projected to provide 30,000,000 gallons per day.[113] The City completed the plant in 1924.

The belief on the part of mountain water advocates that the City's growth in the next decade would outstrip the capacity of the filtration plant kept the mountain water issue alive. From 1910 to 1920, the City of Sacramento population increased from 29,282 to 44,696 thousand residents, and the Sacramento Valley saw a roughly 60 percent increase in population reaching 246,000 by 1920. Demographic expansion increased demand for irrigation, reclamation, flood control, clean water, and electricity.[114] As the filtration plant, beset by ongoing construction and financial problems, chugged towards completion, a severe drought in 1924 brought the American and Sacramento Rivers to record lows.[115]As predicted by Givan and others in their mountain water report from 1919, the new plant struggled to cleanse the muddy drought-stricken river water. Volume was also a problem, with the filtration plant running continuously at a 5-percent over

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[111] Shinn, ed., *Ordinances of the City of Sacramento*, 264-65.

[112] Lord, *A Sacramento Saga*, 214.

[113] "Sacramento to Have Municipal Filter Plant," in *Engineering News-Record* 83, no. 1 (September 1919), 535, https://archive.org/stream/engineeringnewsr83newy#page/674/mode/2up (accessed September 15, 2015.

[114] McGowan, *History of the Sacramento Valley*, 186.

[115] Ward, *"...for the People,"* 18.

capacity and overloaded to 50 to 60 percent during peak water use during the summer.[116] In light of the continuing water quality issues, proponents of mountain water sources continued to advocate for their cause, but the issue of hydroelectric power reemerged as an additional benefit of their proposal.

## Conclusion

Sacramento's filtration debate proved crucial for the creation of the Silver Creek Project idea and the eventual creation of SMUD. The discourse surrounding Sacramento's quest for clean water and its subsequent decision to build a filtration plant is important for understanding the development on the UARP for several reasons. The late nineteenth-century water quality issue in Sacramento drew the attention of elite members of the community once the issue threatened to stall city growth. That local shift combined with a national Progressive Era belief in government works and technical problem solving inspired action on the City's part. While more successful at addressing sanitation than water quality, the City took its first slow steps toward managing the development of large infrastructure projects. The local discourse surrounding clean water also took place within a larger statewide discourse. The City reached out to outside engineers like Foster, Hyde, and Grunsky, bringing them into contact with local engineers like Frank C. Miller and Albert Given, creating the opportunity to marry local water development ideas with the experience and expertise derived from projects around the state. Professional association with the victors of the battles for Owens Valley and

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[116] Kevin Curunchio, "*Turning Mud in to Liquid Gold: A History of Sacramento's Water Supply, 1849-1924*," *Sacramento History: Journal of the Sacramento County Historical Society* 6, No. 1-4 (2006), 277.

Hetch Hetchy water could have provided a template for Sacramento's exploitation of its hinterlands. While the filtration plant solution won the day in the short term, the mountain water idea remained popular with citizens, the Chamber of Commerce and City officials. By the 1920s, Silver Creek was a coherent idea with a physical location. The long arduous filtration debate also convinced key Silver Creek proponents that fulfilling their vision required a more efficient vehicle for winning political battles and obtaining financing, an idea that inspired the reorganization of the Sacramento Government in 1921, and the creation of the Sacramento Municipal Utility District in 1923. The Silver Creek Project developed out of the clean water fight and became a pillar of the City's water development agenda before the Silver Creek idea ultimately found a home within SMUD.

## Four: The Sacramento Municipal Utility District

### Legislation: Setting the Stage for SMUD

The first two decades of the twentieth century saw the largely unregulated evolution and expansion of electricity generation, hydroelectric projects, water works development, and a myriad of other municipal improvements, resulting in a menagerie of competing interests, inflated costs, and general mismanagement. Across the nation, municipal corruption along with corporate service failures also fueled the call for public ownership of utilities.[117] In Sacramento, the long-drawn-out clean water debate served as evidence for many that local city government was dysfunctional in its current form. Additionally, the protracted discourse surrounding the filtration plant illustrated the possible benefits of municipal utility ownership. Progressive Era politicians responded with a flurry of regulatory activity and reforms at the national, state, and local level. Public concern at the national level regarding resource management spurred the creation of the United States Forest Service in 1905 and the Eldorado National Forest Reserve in 1910, and the rapid and often chaotic expansion of hydroelectricity generation facilities across the nation inspired the Federal Water Power Act of 1920. California's heavy dependence on hydroelectric power made water and power issues inseparable.[118] Progressive Era political thought directly influenced SMUD's creation, and it provided the organization with the tools it needed to pursue the Silver Creek Project.

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[117] David Schap, *Municipal Ownership in the Electric Utility Industry: A Centennial View* (New York: Praeger, 1986), 22.

[118] Williams, *Energy and the Making of Modern California*, 248.

The federal government sought to coordinate hydroelectric projects and to encourage the orderly development of untapped water resources. The Federal Water Power Act of 1920 established the Federal Power Commission (FPC) and required permits for the construction of hydroelectric projects on navigable rivers. The Water Power Act attempted to untangle administrative hurdles to resource development that remained after the First World War ended. Permit delays and financial hardships joined labor and construction material shortages in stalling hydroelectric plant construction. New projects required approval form an array of agencies, including the "national wartime Fuel Administration, War Industries Board, Railroad Administration, and various Selective Service Boards in addition to the Forest Service."[119] The act mandated licenses for "the purpose of constructing, operating, and maintaining dams, water conduits, reservoirs, and powerhouses, transmission lines, or other project works necessary or convenient…for the development, transmission, and utilization of power across, along, from, or in any of the streams or other bodies of water over which Congress has jurisdiction."[120] Congress considered the Americana River and its tributaries navigable, ensuring that the Federal Government would have a say in any future Silver Creek development. The national legislation gave preferential treatment to municipalities for the acquisition of rights on potential hydroelectric sites, giving SMUD an advantage over private development concerns in the region like PG&E. The Water Power Act of 1920 required compliance with all state laws, strengthening the State of

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[119] Williams, *Energy and the Making of Modern California*, 245.

[120] Federal Power Act of 1920, 16 U.S.C. 791-828c; Chapter 285, June 10, 1920; 41 Stat. 1063.

California's hand when it came to regulating water related projects. As a condition for permitting, the act also required potential developers to submit a comprehensive development plan.

The State of California accelerated Progressive Era regulatory efforts to address many long-standing water rights and municipal utility issues. By 1919, California had 19 power companies operating 80 hydroelectric power plants producing electricity for 596 communities.[121] The early expansion of the hydroelectric industry in California created numerous conflicts with water rights and electricity rates, and companies often duplicated physical infrastructure in service areas. Progressive Governor Hiram Johnson, elected in 1911, proposed several reforms that shaped the development of water and power projects for decades. The reforms that Johnson requested of the legislature included "the protection of water-power sites from speculators."[122] On December 18, 1914, voters supported the Water Powers Act, and according to Hundley, "the public approved a new code asserting state sovereignty over water, giving municipal water use priority over agriculture and mining, and establishing a state water commission and charging it with eliminating litigation over water rights."[123] State controls slowly ended the first-come first-served era of water development. Johnson's reforms dramatically increased the number of irrigation districts and imbedded important state controls into water and electricity management, preparing the ground for the future growth of municipal utility

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[121] Andrew Henry Palmer, "Water Power in California," *Journal of Geography* 18, no. 2 (February 1919), 47.

[122] Robert Kelley, *Battling the Inland Sea: American Political Culture, Public Policy, & the Sacramento Valley, 1850-1886*, (Berkeley: University of California Press, 1989), 288.

[123]Hundley, *The Great Thirst*, 234.

districts statewide. The Progressive Era admiration for public ownership among state voters culminated in the California Municipal Utility Act of 1921, a key piece of state legislation necessary for the creation of SMUD in 1923.

The cultural discourse surrounding public ownership of utilities stretched back decades. Opponents asserted that municipal ownership was socialism and counter to free enterprise. Proponents of municipal utility ownership during the Progressive Era argued that private utilities failed to provide "cheap and efficient service," while enriching a small cadre of powerful owners.[124] Poor municipal performance and disgust with corporate abuses generated support for both municipal ownership and state regulation of electric utilities. [125] Locally, the long debate over the Sacramento River filtration project, the problem plagued construction of the facility, and dissatisfaction with local electricity providers combined to create support for a municipal utility district in Sacramento. By 1921, the *Bee* argued, "the policy of ultimate public ownership always should be adhered to, and jealously safeguarded."[126] The editorial went on to apply the philosophical issue to Sacramento's water problem, proclaiming "Sacramento should be up and doing, while there remain opportunities for obtaining desirable and available water rights in the Sierra Nevada still under Government control."[127] Looking out across the country, Sacramentans had many examples to evaluate. In 1921, the United States had 2,836 municipal electric systems, with 1,778 generating all of their own power, 77 generating

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[124] Williams, *Energy and the Making of Modern California*, 248.

[125] David Schap, *Municipal Ownership in the electric Utility Industry*, 22.

[126] *Sacramento Bee*, May 10, 1921.

[127] Ibid.

part, and 981 with distribution only systems.[128] With the passage of the California Municipal Utility Act of 1921, proponents of public utility ownership in Sacramento finally had a strong legal basis on which to move forward.

The California Municipal Utility Act of 1921 provided a framework for the creation of the Sacramento Municipal Utility District. Under Chapter 18 of the Statutes of 1921, the legislation, titled "An Act to provide for the organization, incorporation, and government of municipal utility districts, authorizing such districts to incur bonded indebtedness for the acquisition and construction of works and property, and to levy and collect taxes to pay the principal thereon," listed several important features.[129] First, the creation of the municipal utility district required approval from two thirds of the voters within the future territory of the proposed district. Voters would then elect five citizens to the board of directors, with each elected official representing one ward. The board of directors would then designate one member as the president, and appoint a general manager, an accountant, a secretary of the board directors, a treasurer, and an attorney.[130] The legislation shaped the organizational structure of SMUD, and when Sacramento voters created the District in 1923, Silver Creek advocates filled the positions.

The act legally empowered municipal utility district in several key ways. Districts could sue and be sued in return. The act granted municipal utilities the right to own property and to construct works within and without the district's territory, a necessary

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[128] Schap, *Municipal Ownership in the Electric Utility Industry*, 53.

[129] Municipal Utility Act of 1921, "Chapter 18," in *Statutes of California* (Berkeley: Bancroft-Whitney Company, 1921). 251.

[130] Municipal Utility Act of 1921, "Chapter 18," in *Statutes of California*, 251.

component for building a hydroelectric project in a distant area. Districts acquired the right of eminent domain "for the condemnation of private property for public use."[131] In later years, SMUD would use that provision in a fierce condemnation fight with PG&E. Municipal utilities could incur debt and issue bonds, although the act specified "no indebtedness shall be incurred exceeding the ordinary income and revenue of the district without the approval of a two-thirds vote of the electors."[132] In the years following SMUD's creation, the two-thirds voting provision stalked the Silver Creek Project, thwarting its development on several occasions. The act also provided language for legal annexation of areas outside the district's initial boundaries; a feature that SMUD used to grow its territory during the 1930s. Ultimately, the California Municipal Utility Act of 1921 gave believers in public ownership of utilities, Silver Creek hydroelectric power advocates, and weary political veterans of the long water filtration plant fight an organization to rally around. Many of the Sacramento's leading citizens were all three. Once voters created SMUD, the state legislation shaped the District's organizational structure and both empowered the District in some ways, and limited it in other ways.

**Politics: City Hall, Public Utility Ownership, and Silver Creek Water**

The City of Sacramento began showing interest in municipal ownership of electric distribution as the clean water debate slowly unfolded. As early as 1913, Sacramento Ordinance No.130 called for incurring a debt of $113,000 dollars for "the acquisition…by construction, Purchase, Condemnation or otherwise of a Distribution

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[131] Municipal Utility Act of 1921, "Chapter 18," in *Statutes of California*, 252.

[132] Ibid.

System for the purpose of conduction and distribution electrical energy throughout the corporate limits of the City of Sacramento."[133] That same year, Chamber of Commerce President Dan Carmichael spearheaded a citizen's committee that advocated a bond election for "pure water, sewers, levees, and a municipal lighting distribution system."[134] Carmichael served as Chamber of Commerce president off and on from 1909-1915 and as Mayor of Sacramento from 1917-1919. In May of 1921, Sacramento City Commissioner Carmichael and City Attorney Robert L. Shin lobbied for a city-owned hydroelectric project and urged the city to survey possible mountain locations. Carmichael, as City Commissioner, also worked for passage of the California Municipal Utility Act, illustrating the instrumental role that Sacramento's political elite played in SMUD's creation.[135] Public ownership of utilities existed within the local political discourse well before the Silver Creek idea developed, but the issues merged rapidly as proponents of both gained power.

The clean water fight not only paved the way for the creation of SMUD, the long decision process highlighted inefficiencies built into the city commission system of government. The Chamber of Commerce proposed a new city government consisting of a city manager and a city council. The Chairman of the Sacramento Chamber of Commerce in 1920, Albert Elkus, lobbied aggressively for the reform. Chamber of Commerce Secretary Henry Maddox found it impossible to "get unanimous action on the part of the

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[133] Shinn, ed., *Ordinances of the City of Sacramento,* 133.

[134] Ward, *"…for the people,"* 6-12.

[135] Ibid.

city commission in hastening building of schools and the filtration plant. This new plan would solve the problem as there would be an executive who would give orders and get action."[136] Albert Elkus and the Chamber of Commerce played an instrumental role in promoting the city manager system and recruiting Clyde L. Seavey for City Manager. Voters approved the new charter and on May 7, 1921, the new nine-member city council appointed Seavey, a member of the State Board of Control, to the position of City Manager.[137] On May 9, the *Sacramento Bee* ran an editorial cartoon that depicted Seavey riding a horse named City Council up to a car stuck in the mud that had "city affairs" emblazoned across the hood. In the mud surrounding the car were the words "incompetency, petty jealousies," and "high taxes."[138] Sacramentans were asserting themselves and expected solutions from the political class. First appointed to the State Board of Control by Hiram Johnson, Seavey also served as the President-Commissioner of the Railroad Commission, bringing an insider's understanding of the electric utility industry to his tenure as Sacramento City Manager. Seavey went on to become the president of the California Public Utilities Commission after serving Sacramento.[139] He ultimately became Chairman of the Federal Power Commission from September 30, 1937

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[136] Lord, *A Sacramento Saga*, 217.

[137] *Sacramento Bee*, May 7, 1921.

[138] *Sacramento Bee*, May 9, 1921.

[139] *San Jose Evening News*, December 30, 1922.

to December 31, 1939.[140] The new Sacramento City Manager Seavey just happened to be a Johnson era progressive who believed in public utility ownership and who brought electric utility experience with him into city government.

The same election that created the city manager position made Albert Elkus permanent Chairman of the Sacramento City Council, and on July 1, when the charter took effect, Elkus became mayor.[141] Within two years, Elkus would be SMUD's first President and Director, serving the District from 1923-1947.[142] Royal Miller eulogized Elkus in a 1950 speech, noting "Albert Elkus' interest in public power for Sacramento did not commence merely with the formation of this District. As early as 1897 he participated in a Chamber of Commerce report urging the City to construct its own electric plant."[143] The city council that made Elkus mayor reappointed Silver Creek water advocate Albert Givan to the position of City Engineer. At Seavey's urging, the new city council directed Givan to start exploring the development of hydroelectric sites on Silver Creek, but water rights remained an issue. The same month, according to Ward, City Attorney Robert L. Shinn "disclosed that Silver Creek in El Dorado County was under consideration by the City of Sacramento."[144] The local election of 1921 brought together a key group of citizens that set in motion events that took decades to bear fruit. Albert

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[140] Federal Energy Regulatory Commission, "Previous Chairman," FERC: Federal Energy Regulatory Commission, http://www.ferc.gov/about/com-mem/prev-chairmen.asp (accessed August 30, 2015).

[141] *Sacramento Bee*, May 7, 1921.

[142] Lord, *A Sacramento Saga*, 90.

[143] Royal Miller quoted in "Elkus Honored in Clock Ceremony," in *High Lines,* February 1950.

[144] Ward. *"...for the people"*, 11-12.

Elkus and Clyde Seavey embraced public utility ownership and worked toward the creation of a municipal utility district. Dan Carmichael and Robert L. Shinn focused the City's energy toward hydroelectric development. City Engineer Albert Givan finally had the backing to explore the technical requirements for a Silver Creek Project. The hopes embodied in the May 1921 election results reflected Progressive Era beliefs in reform, proactive governance, and public ownership. The Sacramento Chamber of Commerce, local print media, and area citizens sought relief from the ponderous pace of traditional Sacramento politics. Under the new political structure, the city took its first real steps toward obtaining publicly owned mountain water and electric power. Obtaining the rights to Silver Creek water became the pressing issue.

Sacramento was not alone in turning its attention to Silver Creek. The April 9, 1921 edition of the *Mountain Democrat* reported that F. H. Fowler, District Engineer for the U.S. Forest Service, acting on behalf of the Federal Power Commission, would hold public hearing at the county court house in Placerville on April 25. Pursuant to the Federal Water Power Act (41 Stat.1030) interested parties had to be notified that R. H. Hawley planned a hydroelectric project on Silver Creek. Western States Gas & Electric Company and the El Dorado Power Company also planned projects on the South Fork of the American River. Hawley, a former engineer with the California State Railroad commission, and the other developers represented exactly the kinds of private interests that Sacramento leaders hoped to head off by developing hydroelectric sites on Silver Creek. Hawley's proposal, filed in 1919, included "two storage reservoirs, on South Fork of Silver Creek and on Silver Creek, of 20,000 and 50,000 acre feet capacity,

respectively, together with three powerhouse."[145] Nevertheless, City Attorney Shinn informed the *Sacramento Union* that while private interests had filed for development rights to the site, the City believed it had priority as a municipality.[146] Sacramento still had yet to develop a hydroelectric power generation plan of its own. The City also lacked a publicly owned electric utility and had no ability to distribute power.

Year after year, fewer suitable sites for hydroelectric development remained in California, with both private and public entities pursuing projects on Sierra rivers. City leaders, cognizant of the decades of debate surrounding the filtration plant, wasted little time in pursuing the Silver Creek project. In a May of 1921 article, the *Bee* lamented that "in California the potential power of her mountain streams and lakes might from the beginning have been a source of great annual revenue . . . thereby giving rise to vast improvement and development . . . materially lessoning the burden of taxation."[147] Men like Elkus, Seavey, and Givan agreed with the *Bee* whole-heartedly and did not want to remain idle while entities like PG&E and Great Western or Bay Area municipalities developed the best hydroelectric sites. The City applied to the State Water Commission for Silver Creek water on August 3, 1921, with a plan to appropriate 200,000 gallons of water, stored in three reservoirs, with three powerhouses for power generation. Hawley agreed to sell for $10,500, and the City took possession of Hawley's water rights and

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[145] *Mountain Democrat*, April 9, 1921.

[146] *Sacramento Union*, May 17, 1921.

[147] *Sacramento Bee*, May 12, 1921.

preliminary project data.[148] The election of 1921 brought like-minded leaders together in a new city government designed for action. The men elected believed in municipal ownership and they desired Silver Creek water and power. The City had the necessary water rights. All Sacramento needed was a viable development plan and a large amount of money. When city officials and community leaders evaluated their positions, the creation of a publicly owned municipal utility district stood out as an opportune solution for many of the areas issues.[149] A municipal utility district could serve as the political nexus for advocates of clean water, hydroelectric power, and public utility ownership.

**SMUD and the Election of 1923**

The citizens of Sacramento voted the Sacramento Municipal Utility District into existence on July 2, 1923. The *Bee* reminded voters that the election would determine if Sacramento would get a hydroelectric power project and who would lead its development.[150] The Silver Creek Project continued its slow conceptual shift form a quest for clean water into an electricity generation project. On July 3, 1923, a triumphant *Bee* declared, "Electric Power District Created; Citizens Club Director Ticket Wins."[151] The new Board of Directors included the Mayor of Sacramento, Albert Elkus, Judge C. E. McLaughlin, George L. Herndon, Robert L. Jones, and Ben Leonard. Out of approximately 36,000 registered voters, 7,700 voted. The votes of 6,378 citizens who

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[148] Ward, *"...for the people,"* 12.

[149] E. A. Combatalade and Royal Miller, "A History of Sacramento Municipal Utility District," (September 14, 1966), 2.

[150] *Sacramento Bee*, July 2, 1923.

[151] *Sacramento Bee*, July 3, 1923.

wanted a publicly owned utility system created SMUD, while 978 voters rejected the idea.[152] The new municipal utility district encompassed 73 square miles.[153] The SMUD Board of Directors appointed Albert Givan to the position of General Manager and Chief Engineer, a move that formally brought the Silver Creek idea into SMUD. The Board named Mayor Elkus president and Ray C. Oakley, the secretary to the city council became Secretary to the SMUD Board. The City loaned the services of attorney Robert L. Shinn and SMUD obtained office space within City Hall. The organization had the human resources it needed; however, the new public utility district lacked the financial ability to generate or distribute electricity, or to develop the Silver Creek Project.[154]

At the first meeting of the Board of Directors, SMUD took its initial steps towards obtaining an electrical distribution system. Judge C. E. McLaughlin motioned that SMUD request estimates from the State Railroad Commission for the value of Great Western Power Company and PG&E's distribution systems within SMUD's newly created boundaries. SMUD inquired with both Great Western and PG&E about purchasing their existing electrical distribution systems, but both companies rejected any attempt by SMUD to negotiate a sale. The lack of an electrical distribution system effectively slowed any progress on the Silver Creek Project, because SMUD based its initial operating plan on the purchase of a local system that would allow for the distribution of power generated on Silver Creek. Obtaining a distribution system would necessarily precede any

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[152] Ward, *"...for the People,"* 9.

[153] Combatalade and Miller, "A History of Sacramento Municipal Utility District," 2.

[154] Ward, *"...for the People,"* 13-15.

development of a generation system like the Silver Creek Project. Nevertheless, while early financial concerns stalked the young public utility, organizational planning and public discourse continued concerning the Silver Creek.[155]

**The Silver Creek Report of 1925**

The drought of 1923-24, and the corresponding historically low Sacramento River water levels, reinvigorated the debate about Sacramento's need for clean water.[156] Givan's 1925 report on Silver Creek, submitted to the Board of Directors in March, focused on water storage for a drinking supply for Sacramento. Givan added that stored water would be used for "the development of power incidentally during its transit from reservoirs in the mountains for the District area."[157] The Givan report recommended a reservoir at Union Valley with the potential to hold 165,000 acre-feet, and a reservoir at Ice House with the potential to hold 45,000 acre-feet. Givan believed the combined total capacity could provide water for 1,000,000 people with electric power generation potential "nine times above the prevailing demand figure."[158] The system called for a 150-foot dam at Ice House located on the South Fork of Silver Creek. A short tunnel would take water from Ice House to the North Fork of Silver Creek, and once there a 325-foot dam at Union Valley would create a reservoir. Water from Union Valley would then traverse 2,600 feet to the bottom of South Fork Canyon to powerhouses at Big Bend

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[155] Ward, *"...for the People,"* 13-15.

[156] Ibid., 14.

[157] Albert Givan, *Sacramento Municipal Utility District History up to 1938*, quoted in Ward, *"...for the people,"* 18.

[158] Ward, *"...for the people,"* 18.

and Brush Creek. Sacramento would then receive clean mountain water via a covered aqueduct with a capacity of 325 second-feet from the Brush Creek facility. Givan believed the sale of power generated by SMUD-owned power plants could finance the water project. The report contained two cost estimates. Givan structured the first plan to support a population of 250,000 people. The second plan included additional reservoir capacity and could service a population of 1,000,000 people. Both plans could deliver 70,000,000 gallons of water per day and generated excess power for sale. SMUD still had no distribution system, so the Directors approached PG&E and Great Western about developing the powerhouse sites on a lease basis, with SMUD reserving the right to purchase the operations after 25 years. Ward writes that in April of 1926, "both PG&E and Great Western responded to SMUD's proposal with an immediate and unqualified 'No!'"[159] With PG&E and Great Western's refusal to help SMUD develop a water and hydroelectric system, SMUD turned to bond elections to finance the development of the Silver Creek Project.

## Conclusion

The haphazard grab for water rights and powerhouse sites in the first decades of the twentieth century illustrated the need for federal regulation. In response, Congress passed the Federal Water Power Act of 1920 and created the Federal Power Commission. The new federal legislation gave priority to municipal development on waterways governed by federal law, an important development for Sacramento's quest to obtain water rights and powerhouse sites on creeks situated in the center of the Eldorado

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[159] Ward, *"...for the people,"* 18-20.

National Forest. The chaotic development of water and power projects also left many municipalities struggling to meet the needs of their citizens. The State of California, building on reforms initiated by Hiram Johnson, passed the Municipal Utility Act in 1921. The state legislation allowed cities to organize publicly owned utilities, and paved the way for the creation of SMUD. Once voted into existence, the provisions contained within the Municipal Utility Act empowered SMUD to pursue the organization's Silver Creek vision. Politics at the city level, specifically the clean water debate, illustrated the need for a city manager with executive authority to advance public works projects more efficiently. The clean water debate and the subsequent construction of the filtration plant also illustrated for Silver Creek proponents that a publicly owned utility was their best chance for advancing their agenda. The Sacramento City election of 1921 provided a powerful political platform for Albert Elkus and City Manager Clyde L. Seavey, both staunch proponents of Silver Creek development and municipal utility ownership.

With mountain water advocates in power, the City took concrete steps towards developing the Silver Creek project. The City acquired the necessary water rights and filed for permits with the federal government. SMUD's creation in 1923, and its subsequent staffing by ardent Silver Creek advocates, brought the Silver Creek idea into the organization at its inception. Albert Givan's official survey of the Silver Creek watershed, begun in 1924 and submitted in 1925, gave proponents a detailed plan to take before the public. Armed with the necessary water rights, a detailed survey, and a development plan, SMUD only needed project financing and a method of power distribution to proceed. With the Silver Creek Project rapidly heading towards fruition,

political opponents began to mobilize. Ultimately, a bond election to fund Silver Creek development proved to be SMUD's best hope for financing, but any bond election also served as the perfect bottleneck for opponents to stall momentum for the Silver Creek project.

# Five: The Silver Creek Elections

## Judge C. E. McLaughlin: Taking Silver Creek to the People

The City's acquisition of water rights in 1922, SMUD's creation in 1923, and Givan's thorough survey of the Silver Creek watershed in 1924 removed any doubts about the City's commitment to developing Silver Creek. In 1925, when SMUD leaders began discussing a bond election to finance the Silver Creek Project, opposition coalesced. The subsequent political battle played out in the headlines of local newspapers. SMUD President Judge C. E. McLaughlin vigorously defended SMUD's slowly unfolding Silver Creek plan in the pages of the *Sacramento Bee*. McLaughlin was a veteran of the clean water debates, where as a member of the Chamber of Commerce he worked on both filtration plant promotion and a mountain water solution. McLaughlin wanted to see all available sources of clean water developed for Sacramento. In his articles, he characterized critics of the Silver Creek Project as beholden to PG&E. A *Bee* editorial, supporting McLaughlin's position, labeled the political opponents "agencies and mouthpieces of the Pacific Gas and Electric."[160] He warned readers that time was running out, writing "The last chance to secure such a supply of water is the Silver Creek watershed."[161] His message to readers was clear, if Sacramento did not harness Silver Creek's water and power potential for the public, some other public or private entity eventually would. Finally, he promoted the benefits of the project using reports supplied

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[160] *Sacramento Bee*, October 15, 1925.

[161] *Sacramento Bee*, September 30, 1925.

by Albert Givan.[162] For many Sacramentans, McLaughlin's effort on the front pages of the *Bee* was their first exposure to the Silver Creek idea. During the 1920s, the Silver Creek idea went on trial in the court of public opinion several times. SMUD attempted to finance the Silver Creek Project with bond elections in 1927, 1929, and 1931.

McLaughlin and other Silver Creek advocates believed demand for water and power was only going to grow in the coming decade, incentivizing even more water and land acquisitions in the Sierra. During the 1920s, federal and state reclamation efforts expanded agricultural development across the Sacramento Valley, increasing the value of land and mountain water sources.[163] The growing value of Sacramento Valley agriculture also brought increased state and federal attention to flood control and irrigation issues in the valley, further increasing the political pressure on those who hoped to develop water projects. By the end of the 1920s, the Sacramento Valley Flood Control Project and the first political developments of the Central Valley Project began to take shape. The industrialization of agriculture, with the addition of tractors and modern dehydrators, coupled with the creation of grower's cooperatives and expanded automotive use, culminated in California's rise to national leader in agricultural production.[164] Norris Hundley observes that in California and Washington there was "an aggressive policy of seeking water on an even grander scale than before. Its proponents included private citizens, businesses, and governments on all levels—local, regional, state, federal—

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[162] *Sacramento Bee*, October 5, 1925.

[163] McGowan, *History of the Sacramento Valley*, 233-35.

[164] Ibid., 230-240.

sometimes working at cross purposes."[165] By 1929, California became a national leader in agricultural income.[166] Additionally, the population of Sacramento County grew from 91,029 in 1920 to 141,999 in 1930, while the City of Sacramento grew from 65,908 to 93,750 citizens during the same period.[167] The agricultural and demographic growth trend during the 1920s made water and electricity increasingly valuable commodities.

**Lost Elections: 1927, 1929, and 1931**

The complex public discourse and the ultimate loss of all three elections exposed the significant barriers that SMUD faced in moving the Silver Creek Project forward. SMUD had to either fund the development itself through bond initiatives or convince existing private utilities to finance the project. In 1926, PG&E and Great Western again refused SMUD's request for a cooperative water and power venture on Silver Creek.[168] In response to the intransigence of local private power interests, SMUD turned to Sacramento voters for funding, allowed under the California Municipal Utility Act of 1921. SMUD asked for approval to sell $11,600,000 in bonds. Despite the overwhelming voter approval that SMUD's creation received in 1923, voters were less enthusiastic about the Silver Creek idea. Once again, the *Union* expressed opposition to the Silver Creek Project, and urged its readers to vote no on the bond measure. One *Union* editor

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[165] Hundley, *The Great Thirst*, 202.

[166] Ibid., 202.

[167] California Department of Finance, "Historical Census Populations of Counties and Incorporated Cities in California, 1950-2010. http://www.dof.ca.gov/research/demographic/state_census_data_center/historical_census_1850-2010/view.php, (accessed September 20, 2015).

[168] Ward, *"...for the people,"* 21.

accused Silver Creek proponents of "talking glibly about 'free water'" and chastised proponents for attempting to rush the vote through.[169] The *Union* continued its assault by reminding voters that the City was still in debt for the filtration plant, completed in 1924. Furthermore, the paper decried the possibility of water rate and tax increases, expressed its opposition to the installation of water meters, and stated its preference for an "all in one comprehensive dam" and reservoir above Folsom on the lower American River.[170] In article after article, leading up to the September 27 election day, the paper cited a long list of grievances.

In the years leading up to the election, water quality in the Sacramento River continued to be an issue, so prospects for passage seemed reasonable. A panel of notable water experts hired by SMUD found the Sacramento River "undependable and unsanitary."[171] The grim portrayal of Sacramento's current water supply failed to sway enough voters. On September 27, 1927, the bond measure failed to obtain the two-thirds majority required by law, falling shy with 60 percent voter approval.[172] The *Bee* blamed the defeat on negative influence of corporate utility money.[173] The following day the *Bee* reported that local Sacramento Junior College instructor N. J. Brickley gave a speech at the Sacramento Hotel where he "condemned the apathy of the average voter… and cited

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[169] *Sacramento Union*, September 2, 1927.

[170] *Sacramento Union*, September 2, 1927; *Sacramento Union*, September 8, 1925.

[171] Ward, *"…for the people,"* 20.

[172] Ibid.

[173] *Sacramento Bee*, October 5, 1927.

the Silver Creek election."[174] Voters in 1927, many of whom probably recalled the repeated bond initiatives for the construction and expansion of the filtration plant, balked when SMUD asked them to incur debt for the Silver Creek water project.

Bonds for Silver Creek fared no better in October 1929. The campaigners in 1927 argued over engineering data and the merits of public versus private utility ownership, but the 1929 campaign rhetoric took new form. In 1929, money and water-quality played an important role in the election discourse. Each side utilized half-page paid advertisements to get their message to the voters. The Greater Sacramento Committee ran advertisements telling citizens not to fall for negative propaganda about Silver Creek, and the Sacramento Tax Payer Association ran full-page ads that told readers that a new dam at Folsom was more cost effective.[175] Proponents of the bond sale appealed to the authority of prominent citizens and professionals.[176] One day before the bond election, the *Bee* provided front-page space for an article by State Engineer Edward Hyatt, the highest engineering authority in the state.[177] Even recently arrived Rabbi Goldburg, new leader of B'nai Israel, informed the *Bee* that the poor condition of the local water shocked him, and the rabbi personally saw opposition leaders drinking bottled water around town. The writer also noted the "heads of the Roman Catholic and Protestant organizations

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[174] *Sacramento Bee*, October 6, 1927.

[175] *Sacramento Bee*, October 2, 1929; Sacramento *Bee*, October 9, 1929.

[176] *Sacramento Union*, October 7, 1929.

[177] *Sacramento Bee*, October 9, 1929.

having already endorsed the project."[178] Surprisingly, since the previous election the *Sacramento Union* changed its positon on Silver Creek. An editorial written by William H. Dodge, the newspaper's publisher and owner, informed readers "The *Sacramento Union* today declares its belief that the Silver Creek water bonds should be authorized by voters."[179] While prominent politicians, journalists, clergy, engineers, and executives provided public statements, mostly of support, the Silver Creek election also drew average citizens into the political contest.

Hoping to convince previously reluctant voters, Silver Creek campaigners engaged neighborhood groups, labor and civic organizations, and women. City Attorney Clifford Russell and SMUD's Albert Givan met with residents of North Sacramento who prioritized flood control measures over Silver Creek water. Both campaigns met with the Fruitridge Community Club, with advocates extolling the pure water of Silver Creek, while opponents engaged in a discussion about taxation.[180] The *Bee* targeted neighborhoods with tailored articles, such as, "Arcade in Need of Silver Creek Water as Wells Decline."[181] Many unions, including the Brotherhood of Locomotive Firemen and Engineers and the Bricklayers Union No. 6, endorsed the bond measure declaring the project necessary to "build up Sacramento."[182] The Southside Improvement Club and the West End Charity Club announced their support for the bond issue. Advocates also

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[178] *Sacramento Bee*, October 8, 1929.

[179] *Sacramento Union*, October 12, 1929.

[180] *Sacramento Bee*, October 8, 1929.

[181] *Sacramento Bee*, October 3, 1929.

[182] *Sacramento Bee*, October 5, 1929; *Sacramento Bee*, October 3, 1929.

constructed gender-specific messages aimed at female *Bee* readers. In an editorial titled, "To the Women of Sacramento - - Silver Creek," the *Bee* informed its female readers that "Sacramento River water is sewage water," and the paper framed the debate in terms of family health and child safety.[183] A half-page advertisement urged women to vote yes on the bond issue because the cost associated with laundering clothing with hard filtered water from the Sacramento River was an "indirect tax," and soft water from Silver Creek would save them thousands of dollars in the long run.[184] By addressing the geographical, social, and economic needs of subgroups within the city, Silver Creek advocates hoped to surmount the two-thirds vote requirement. In 1929, votes in favor of the bond initiative fell just short of the two-thirds threshold, with 62 percent of the voters supporting the measure.[185]

The Silver Creek campaign continued despite two failed bond elections. By 1931, cheap electric power and clean water reasserted itself as an electoral issue.[186] Another water crisis galvanized public support for pursuing the Silver Creek Project again.[187] A petition with 5,000 signatures indicated to Silver Creek Project advocates that public support remained strong.[188] Despite public opinion, the Sacramento Chamber of Commerce, a long-term Silver Creek Project supporter and SMUD ally, demurred after

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[183] *Sacramento Bee*, October 5, 1929; *Sacramento Bee*, October 3, 1929.

[184] Ibid.

[185] Ward, *"...for the people,"* 22.

[186] Lord, *A Sacramento Saga*, 229.

[187] Ward, *"...for the people,"* 22.

[188] *Sacramento Union*, December 3, 1931.

studying the prevailing political climate. The Chamber and SMUD leaders disagreed about whether the measure could surmount the two-thirds vote requirement. The Chamber had three primary issues with the timing of the election. First, the Chamber desired to see a contract finalized for leasing Silver Creek water to PG&E for power generation. Second, the Chamber worked diligently during 1930 and early 1931 to promote a $480,000 filtration plant bond that funded needed repairs and the construction of a sediment basin, and the organization wanted to test the basin before committing to another large water bond election.[189] Asking voters to authorize $12,600,000 in bonds for Silver Creek after recently struggling to pass filtration plant bonds seemed like a losing proposition. Finally, according to the *Union*, the Chamber hoped "to solve legal questions involved in the mountain water project."[190] Although many individuals within the organization supported the Silver Creek Project, the Chamber refused to provide funds for the election.[191]

SMUD leaders decided to move forward without the formal support of the Chamber of Commerce. Silver Creek proponents spent their campaign energy addressing the Chamber's concerns, attacking the poor quality of Sacramento River water, and promising a future full of clean Silver Creek water delivered at low rates.[192] On December 31, 1931, the third Silver Creek bond failed to overcome the two-thirds vote requirement, with 64 percent of the vote, the highest percentage yet attained by a Silver

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[189] Lord, *A Sacramento Saga*, 229.

[190] *Sacramento Union*, December 1, 1929.

[191] Lord, *A Sacramento Saga*, 230.

[192] *Sacramento Union*, Dec 2, 1929.

Creek bond vote. Losing by only 717 votes convinced SMUD leaders that the a significant majority of voters wanted the project built, so after the election SMUD negotiated with PG&E on a possible joint project for developing the Silver Creek watershed. Ward concludes that ultimately "This failure to reach satisfactory terms with PG&E made it evident to the District Directors that if SMUD were ever to secure a water supply from Silver Creek or to obtain low-cost power from any source, it would be necessary to either develop or to acquire a market of its own."[193] If SMUD wanted to develop as a utility, it could not remain at the mercy of PG&E. The Silver Creek bond election of 1931showed SMUD's leaders that their political coalition had limits, and unless something changed, in the short term, PG&E might be an insurmountable barrier.

## Conclusion

SMUD President C. E. McLaughlin's 1925 duel with Silver Creek opponents in the headlines of Sacramento's major newspapers took the Silver Creek project directly into the public arena. For SMUD, armed with the backing of legislation, water rights, and favorable engineering reports, the Silver Creek project appeared closer than ever to fruition, but the reality of an impending Silver Creek project galvanized opponents. With the public's approval needed for funding the Silver Creek project, local bond elections became the perfect bottleneck for opponents to defeat the project. The bond election of 1927 illustrated that private power interests would not sit idly by as SMUD attempted to develop competing projects. The election of 1929, illustrated that changing campaign tactics widened the discourse, but in fragile economic times opponents could offset

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[193] Ward, *"...for the people,"* 22.

SMUD's gains by tapping into fears of high taxes and municipal debt. By the election of 1931, campaign fatigue and other important local issues fractured the Silver Creek coalition, and growing Depression era economic uncertainty made citizens hesitant at the ballot box. The Silver Creek elections proved to be insurmountable barriers. It was an issue of timing. The Silver Creek idea survived three failed elections because the idea had always been flexible. The Silver Creek idea could be a quest for pure water, a municipally owned hydroelectric project, or both, depending on the timing and the audience.

Sacramento's small tax base during the 1920s made funding large projects difficult, forcing burdensome bond elections. The small tax base also made funding a filtration plant and a mountain water project at the same time politically and economically problematic, slowing down the development of both. Furthermore, during the 1920s and early 1930s, PG&E could outspend SMUD during bond elections. SMUD had almost everything it needed to move forward with the Silver Creek Project during the 1920s, but the two-thirds voter requirement for bond elections created an insurmountable political barrier. It would economic, demographic, technological, and social changes at the local, state, and national level, before the Silver Creek idea regained momentum.

# Six: SMUD and the Changing Times

## The Great Depression and the Silver Creek Project

The failed Silver Creek bond elections forced SMUD to look for alternative financing options. Out of catastrophe emerged opportunity, when the financial collapse of 1929 forced the United States Congress to pursue measures aimed at stimulating economic activity. In 1932, Herbert Hoover's administration chartered the Reconstruction Finance Corporation (RFC) with the initial aim at bolstering struggling banks. An amendment the same year allowed the government corporation to extend loans to states and municipalities, providing a possible source of financing for SMUD. In August of 1932, SMUD applied for a loan for $12,600,000 with the intention of financing the Silver Creek Project. While the RFC studied SMUD's request for Silver Creek funding, the national administration changed hands. President Franklin Delano Roosevelt and Congress established the Public Works Administration (PWA), which assumed responsibility for evaluating SMUD's request for Silver Creek funding. The SMUD Board of Directors applied for a new $15,700,000 loan in July of 1933, with the intention of developing Silver Creek as a water supply and power generation project.[194] What seemed like real progress for SMUD administrators ran into an old familiar barrier in the form of PG&E. SMUD qualified for an $11,700,000 loan and a possible $2,800,000 grant from the PWA, but first the District had to prove it could generate revenue. PG&E was the only possible buyer for power generated by SMUD. Several months of negotiations

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[194] Ward, *"...for the people,"* 33-34.

between SMUD and PG&E failed to yield a breakthrough, and SMUD subsequently abandoned the grant. In 1937, SMUD obtained another grant, but an agreement with PG&E never materialized.[195] PG&E created an almost impenetrable wall for SMUD, but times were changing. The Great Depression created deep cultural animosity towards private enterprise, incentivized new large public works projects such as the Central Valley Project, and sparked renewed interest in public utility ownership at the municipal level.

## The Central Valley Project and SMUD

In 1931, California State Engineer Edward Hyatt released a statewide water development plan, initially coined the "State Water Plan," that consisted of dams, powerhouses, and canals. The portion of Hyatt's plan of particular interest to Sacramento area residents called for a "major reservoir on the Sacramento River," a project that offered flood protection, improved navigation, salt water intrusion abatement, irrigation for farms, and fresh water and power for cities.[196] Hyatt's plan proposed to generate revenue through water and power sales. The proposal reached the California legislature in 1933 as the Central Valley Project (CVP). The bill had a wide range of supporters, including the League of Municipalities.[197] The federal government, hoping to repair economic damage related to the Great Depression, encouraged the project on the condition that the plan included public power generation. PG&E opposed the plan

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[195] Ward, *"...for the people,"* 33-35.

[196] Hundley, *The Great Thirst*, 242.

[197] Ibid., 251.

because of the public power provision, hoping to thwart competition. PG&E gathered 85,000 signatures and forced a referendum on December 19, 1933. The referendum almost succeeded in defeating the CVP, falling shy by 33,000 votes out of approximately 900,000 votes cast.[198] Sacramento voters had much to gain with the construction of the CVP, and the voters in Sacramento County, by a margin of 8 to 1, supported the project.[199] PG&E's aggressive challenge to the federally backed state project provided another example of just how far PG&E would go to prevent competition, and it explained why SMUD struggled to outmaneuver the utility goliath.

Born in the depths of the depression, the CVP would create jobs and strengthen one of the nation's largest agricultural economies, making the project quite important to the federal government. Defaults on bonds by irrigations districts were commonplace and with the Depression stifling economic activity, the state opted to forego the sale of bonds. Instead, state leaders negotiated with Washington.[200] In 1935, President Roosevelt made emergency finds available under the Emergency Relief Appropriation Act of 1935, and by 1937, the Reclamation Bureau had taken over responsibility for the CVP.[201] Hundley notes "The Federal takeover assured realization of the Central Valley Project, but its completion came slowly, piecemeal."[202] Construction began on the CVP in 1933 and by 1944 power was on the market. By the late 1950s when the UARP began construction,

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[198] Ward, *"...for the people,"* 25; Hundley, *The Great Thirst*, 251.

[199] Ward, *"for the people,"* 25.

[200] Ibid., 25.

[201] Hundley, *The Great Thirst*, 252.

[202] Ibid., 252.

the project included Shasta and Keswick dams on the Sacramento River, and the Folsom dam on the America River.[203] The promise of clean water and power generated by the state had the potential to solve many of Sacramento's long standing problems. If the large CVP dams safely regulated the flows of the Sacramento and American Rivers, provided water and supplied energy for valley cities, why would SMUD need to develop the Silver Creek watershed at all?

**Annexations and the Electoral Victory of 1934**

The statewide referendum on the CVP in 1933 made cheap power seem imminent which helped to arrest a trend in declining public utility ownership in California. After an initial surge in the early 1920s, about the time Sacramento citizens created SMUD, public utilities started losing ground to private companies like PG&E.[204] David Schap observes that "investor-owned power networks during the 1920s had absorbed over 1,000 of the municipals in their expanding path," but by the 1930s, the appeal of municipal ownership had returned.[205] For many citizens, the ineffectiveness of state and federal legislative initiatives, and the creation of "constitutionally powerless" regulatory commissions during the 1920s failed to reign in the excesses of the private utility industry.[206] Additionally, service failures on the part of investor-owned utilities did little to inspire public confidence. Finally, the stock market crash of 1929 dramatically reduced the capital that private utility firms had available for the acquisition of public utility assets.

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[203] Hundley, *The Great Thirst*, 255.

[204] Schap, *Municipal Ownership in the Electric Utility Industry*, 77.

[205] Ibid., 77.

[206] Ibid., 78.

The result, according to Schap was that "residents of many small communities turned to city government to take up the slack in investment," a process that played out across Sacramento County.[207] The CVP arrived on the heels of a public shift in attitude towards public utility ownership. In the rural and outlying areas of Sacramento County, private utility firms saw little profit in extending their service out to a sparse customer base, creating incentive for outlying areas join with SMUD.

The national economic climate and the public's growing dissatisfaction with local utility companies, mostly just PG&E after the utility giant absorbed Great Wester Power Company in 1927, provided an opportunity for SMUD to expand its service area. The prospect of cheap government-generated power inspired the creation of new utility districts across the state, but many areas in Sacramento County sought to join SMUD. First Rio Linda in February 1934, then the communities of Citrus Heights, Elk Grove, Elverta, Herald, and Bryte in Yolo County, followed suit.[208] The close margins in the previous Silver Creek elections coupled with the recent annexation requests convinced SMUD leaders that the time was right to ask voters to support a $12,000,000 bond issue.[209] On April 7, SMUD received formal requests for annexation, and in a special election on June 23, 1934, outlying areas voted 6 to 1 in favor of joining SMUD.[210] The vote expanded SMUD to 650 square miles and encompassed almost the entire

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[207] Schap, *Municipal Ownership in the Electric Utility Industry*, 78-79.

[208] Ward, *"...for the people,"* 26.

[209] Combatalade and Miller, "A History of Sacramento Municipal Utility District," 3.

[210] Ward, *"...for the people,"* 27.

Sacramento County and a small area of Placer County.[211] SMUD now had a larger electorate, one that joined SMUD specifically to seek cheap electric power. Combatalade and Miller observe that "With the annexation of the new area and the assurance of more water from the Central Valley dams, the emphasis changed from the District's supplying clean water to also going into the electric power business. The question then was, how should this be done?"[212] While SMUD was working with the WPA in Washington trying to fund the Silver Creek Project, SMUD's expansion from 73 square miles to 650 square miles handed the district a large voting block that wanted cheap electricity and freedom from PG&E.

Feeling empowered by the annexation vote, on June 28, 1934, SMUD requested that the State Railroad Commission reevaluate the value of PG&E's electric infrastructure within the recently expanded district.[213] The Municipal Utility District Act of 1921 granted SMUD the right of eminent domain; however, PG&E did not intend to relinquish its property without a fight, and it had the resources to make the battle costly and protracted. SMUD's newly expanded voter base rapidly changed the political calculus in Sacramento County, giving it a fighting chance at the ballot box against its opponents. SMUD hired two outside engineering firms to advise the organization, Burns and McDonnell of Kansas City and Ford, Bacon, & Davis out of New York.[214] According

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[211] Jas. E. McCaffrey, General Manager and Chief Engineer to Department Heads, July 2, 1946, "Synopsis of what had gone on before," Sacramento Municipal Utility District unpublished memorandum.

[212] Combatalade and Miller, "A History of Sacramento Municipal Utility District," 3.

[213] Ward, *"...for the people,"* 27.

[214] Ibid., 29.

to McCaffrey, SMUD leaders directed the firms to "make a study of and report on the construction of a complete publicly-owned power system."[215] Both firms found SMUD's proposal "sound and profitable" and free from tax liability, but the reports were not without controversy.[216] SMUD accused PG&E of exerting pressure on Ford, Bacon & Davis, marring the credibility of the firm's report. SMUD used both firm's reports as the basis to move forward on a $12,000,000 bond election, scheduled for November 6, 1934.[217]

The 1934 bond election pitted many of the same foes who squared off during the 1927, 1929, and 1931 elections. Tax leagues, often funded by private utility interests, opposed the bond offer, while the local newspapers, many politicians, engineers, unions, and local civic groups supported the measure. The *Bee* and *Union* provided space for advocates and opponents, but the papers reserved their headlines and editorials for bond boosters. In the largest opposition piece, PG&E attempted to remind voters of its value to the community with a paid two-page advertisement in the *Bee* on October 27, 1934. Penned by PG&E Vice President and General Manager, P. M. Downing, the electric utility company made several compelling arguments against SMUD's bond initiative. Downing reminded readers that PG&E owned sixty-three powerhouses attached to an integrated network, while SMUD proposed to supply electricity with a small steam-powered plant. The ad also claimed that Sacramento stood to earn $500,000 in taxes from

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[215] McCaffrey, "Synopsis of what has gone on before," 2.

[216] *Sacramento Bee*, October 25, 1934.

[217] McCaffrey, "Synopsis of what has gone on before," 2.

PG&E's presence, and that tax revenue would be lost because of SMUD's tax-exempt status. Finally, Downing informed readers that PG&E had 750 employees and numerous stockholders in the local community.[218] By 1934, PG&E found itself on the losing side of recently changing social, political, and economic trends. The Great Depression pulled people off the political sidelines and many formed negative opinions about corporate entities. SMUD's expansion of its voter base meant that PG&E was making its political case to a new group of voters, a group that generally disliked PG&E and desired cheaper electricity rates.

With its new expanded electorate, SMUD President Royal Miller called upon voters to pass the bond initiative. The proposition SMUD put forth asked:

> Shall Sacramento Municipal Utility District incur a bonded debt in the sum of Twelve Million ($12,000,000) Dollars for the acquisition and construction by said District of a certain revenue-producing municipal utility improvement, to-wit: works, or parts of works, within or without, or partly within and partly without, said District, for supplying the inhabitants of said District and any municipality therein with light, power and heat, including lands, structures, rights, machinery, apparatus, rights of way, lines conduits and other property necessary therefor?[219]

On November 6, 1934, voters within SMUD's service borders passed the measure, with 32,036 in favor and 13,902 against, surpassing the required two-thirds threshold with approximately 70 percent of the vote.[220] The Great Depression made challenging corporations like PG&E in the realm of public opinion possible and the expanded voter base gave SMUD its first substantial election-day victory since its founding. The victory

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[218] *Sacramento Bee* October 27, 1934.

[219] Ward, *"...for the people,"* 32; McCaffrey, "Synopsis on what has gone on before." 2.

[220] McCaffrey, "Synopsis on what has gone on before," 2.

celebration surrounding SMUD's successful $12,000,000 bond election was short lived. PG&E might have lost the bond election, but the capable organization had not surrendered. PG&E came very close to defeating the CVP in 1933; the loss of a local bond election would do little to stop PG&E's efforts to thwart SMUD in 1934. PG&E challenged the validity of the bonds in court.

**Bond Litigation and Condemnation Battle: 1935 - 1946**

SMUD sought court validation for its bonds on January 2, 1935.[221] An unaffiliated private citizen challenged the validity of the bonds. SMUD attorney Robert L. Shinn and consulting council Stephen W. Downey began the long process of arguing the bond issue through the Superior Court system. Years later Downey recalled, "You don't expect those suits to be contested unless there's something really questionable about what's been done. But this was contested, and undoubtedly the man who contested it and his attorney were paid by P.G. & E. I'm satisfied of that. You couldn't prove it."[222] The arguments against validating the bonds were largely technical according to Downey and on August 29, 1935, Judge J. O. Moncur ruled in SMUD's favor, declaring the bonds valid.[223] PG&E continued to appeal and refile suits, using a wide range of arguments to keep SMUD in the courts. The issue found its way to the U. S. Supreme Court, which

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[221] Ward, *"...for the people,"* 35.

[222] Stephen W. Downey, interview by Willa Klug Baum, *Stephen W. Downey: California water and power attorney: oral history transcript/ and related materials, 1956-1957* (Berkeley: Regional Cultural History Project, University of California, Berkley, 1957), 133.

[223] Downey, *Stephen W. Downey: California Water and Power Attorney*, 133, Ward, *"...for the people,"* 36.

refused to hear the case on February 14, 1938.[224] SMUD began selling bonds on April 14, 1938, closing out three years of costly court battles. While the protracted legal fight wound its way through the court system over several years, SMUD used the time to study its electrical distribution needs, and its conclusion set the stage for the next round of court battles.

In 1938, James McCaffrey became SMUD's General Manager and Chief Engineer and Albert Givan transitioned into semi-retirement as consulting engineer. McCaffrey was an electric utility man at his core. At PG&E, he worked as a surveyor, groundman, lineman, and supervisor and his work at the California Railroad Commission involved him setting gas and electric rates.[225] SMUD hired McCaffrey to build a power system, not a water project. McCaffrey recalled that during the years of bond litigation "the District thoroughly re-examined all phases of the problem . . . and had concluded that because of the existing duplication in electric facilities throughout the District resulting from ancient competition by the private companies, it would be infeasible, uneconomic and dangerous to attempt construction that would be in effect a third distribution system."[226] SMUD determined that the only choice was to force PG&E to sell its local electrical distribution system. PG&E refused to sell at any price.[227] Subsequently, in May of 1938, SMUD asked the State Railroad Commission to set a

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[224] Ward, *"...for the people,"* 37.

[225] Ibid., 42.

[226] McCaffrey, "Synopsis of what had gone on before," 2.

[227] Ibid., 2.

purchase price for PG&E's electrical distribution infrastructure.[228] The Commission's proceeding lasted four years, a period during which the commission created detailed maps and itemized lists of every piece of PG&E property within the area SMUD wished to purchase.[229] In November of 1942, the Commission ruled that SMUD should pay PG&E $11,632,000 for the system, which included $1,032,000 in damages.[230] McCaffrey observes that "There was never the faintest hope of any such acceptance, the condemnation suit was filed in January of 1943."[231] SMUD had one final hurdle to overcome before it could realize its new vision of becoming an operational electric utility company.

PG&E challenged SMUD in the courts over the condemnation proceedings. The new litigation lasted for two years.[232] PG&E argued that the descriptions of the properties listed were insufficient and not in compliance with state law. The company also argued that SMUD was not legally entitled to condemn properties outside of its service area. Finally, PG&E argued against the constitutionality of the valuation proceeding.[233] SMUD attorneys Stephen Downing and Martin McDonough challenged each point before the court. On January 2, 1945, the courts ruled in SMUD's favor and PG&E immediately

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[228] Ward, "…for the people," 38.

[229] McCaffrey, "Synopsis of what has gone on before," 3.

[230] Ward, *"...for the people,"* 38.

[231] McCaffrey, "Synopsis of what has gone on before," 4.

[232] Ward, *"...for the people,"* 43.

[233] McCaffrey, "Synopsis of what has gone on before," 4.

appealed."[234] SMUD attempted to work out a solution with PG&E executives. SMUD had several reasons for wanting to strike a deal to end the litigation. First, the proceedings were expensive and continuing additions to the current electrical system were increasing the purchase cost every year, both things that hurt SMUD. Second, SMUD wanted to move beyond the hostility and tensions that went so deep as to require the intervention of local deputies and National Guardsmen. PG&E had no incentive to strike a deal, the litigation hindered SMUD's transformation into a competitor, and PG&E continued to generate substantial income from operating the local distribution system in the interim. McCaffrey recalled "we found no considerable enthusiasm on the part of the Company to end the litigation."[235] The condemnation issue ended on January 22, 1946, when the Third District Court of Appeal backed the Sacramento Superior Court's earlier decision.[236] PG&E agreed to turn over its system to SMUD on December 31, 1946 for the price determined in the initial Railroad Commission ruling.[237] The end of litigation paved the way for SMUD to begin operation as publicly owned electric utility.

## Conclusion

The 1930s served as the fulcrum over which SMUD tipped towards a future of power generation. The Great Depression provided a brief opportunity to fund the Silver Creek Project through the WPA, but SMUD's dependence on PG&E for power distribution thwarted any progress. Importantly for SMUD, though, the Depression also

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[234] Ward, *"...for the people,"* 43.

[235] McCaffrey, "Synopsis of what has gone on before," 5.

[236] Ward, *"...for the people,"* 44.

[237] Ibid., 45.

changed American culture in ways favorable to the publicly owned organization. Growing public resentment towards private utility corporations renewed interest in publicly owned utilities. In the Sacramento region, PG&E lost voter sympathy while SMUD gained it. During the same period, the promise of cheap power embodied in the proposed CVP acted as a catalyst for outlying areas to join with SMUD, dramatically expanding the District's service area. The increase in SMUD's voter base resulted in SMUD's first bond victory in 1934. PG&E's staunch opposition to the CVP illustrated the raw power that PG&E could bring to bear when threatened with competition. Ironically, PG&E's opposition to SMUD's bond sale and the protracted litigation from 1935 to 1938 gave SMUD the time to explore its options. SMUD decided to condemn PG&E's Sacramento distribution system, setting off another round of intense litigation from 1938-1946. Ultimately, SMUD emerged as a viable electric utility with a growing customer base and its own distribution system. SMUD never abandoned hopes for the Silver Creek Project during the 1930s, but in the short term, surviving and growing as an organization, and reorienting towards electric distribution took precedence. Local, state, and national events during the 1930s deeply influenced SMUD's development, creating the conditions necessary for the Silver Creek Project's ultimate transformation into the UARP.

## Seven: The Silver Creek Project Becomes the Upper American River Project

### SMUD Goes Into the Power Business

The Sacramento Municipal Utility District began formal operations as an electric utility on December 31, 1946. The newly minted public utility rapidly organized, drawing upon the experience of many long-term SMUD officers. Many of the men that led the Silver Creek fight during the 1920s and the litigation battles with PG&E during the 1930s remained with the organization. The organization also absorbed many former PG&E workers who previously serviced the company's Sacramento distribution system. James E. McCaffrey remained as General Manager and Chief Engineer, and Albert Givan retained his role as consulting engineer. Royal Miller continued as President of Board of Directors and Donald E. Wachhorst as Vice-President. SMUD's expansion in 1946 also brought in new faces that would help to oversee the execution of the Upper American River Project in the coming years, including Paul E. Shaad, future General Manager and Chief Engineer.[238] The vison for Silver Creek survived for decades within the public utility because believers formed the backbone of the organization, but at the beginning of SMUD's formal entrance into the electric utility industry in 1946, stability and profitable operation took precedent. The Silver Creek idea would have to survive a little longer.

Given such a small window between SMUD's fateful condemnation victory over PG&E, and its takeover of the power distribution of Sacramento County, obtaining money became an immediate priority. The District needed the money for equipment

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[238] Ward, *"…for the people,"* 46-48.

repairs, payroll, and expansion of the system. The PG&E distribution network was an amalgam of old PG&E and Great Western equipment that needed modernizing, and during the recent years of condemnation litigation PG&E opted not to spend money maintaining a system that they were likely to lose.[239] SMUD also estimated it needed approximately 400 employees to provide adequate service for existing customers.[240] Roughly 200 PG&E employees elected to transfer to SMUD, retaining their wages, but many unfilled positions remained.[241] Without adequate revenue, SMUD would struggle to attract qualified department heads, and older PG&E employee, with their vast experience in electric utilities, would elect to remain with the private utility to protect their pensions.[242] To fund its rapid expansion, SMUD sold the remainder of its bonds that the 1938 court ruling declared valid, netting the utility $15,725,000, in addition, SMUD approached the Rural Electrification Administration for federal loans designed to bring electricity to rural areas.[243] Sacramento's post war population boom made expansion of the electrical distribution system a priority. Fortunately, the District's recent annexation of rural Sacramento communities made it eligible for REA money. Between 1948 and 1959, the REA loaned SMUD $23,239,000, which the utility used to expand service into rural areas.[244] As service reached new users, electricity demands increased accordingly.

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[239] Ward, *"...for the people*," 48.

[240] McCaffrey, "Synopsis of what has gone on before," 6.

[241] *Sacramento Bee*, December 26, 1946.

[242] McCaffrey, "Synopsis of what has gone on before," 7.

[243] Ward, *"...for the people,"* 46-51.

[244] Ibid., 52.

SMUD needed power to sell its customers and the Silver Creek idea remained in mind as the young organization explored its options.

**Growing Demand for Electricity**

SMUD began operations with 65,219 paying customers in 1946, with a peak electrical demand of approximately 68,200 kilowatts.[245] By 1955, SMUD had 122,769 customers with a peak demand of 192,740 kilowatts, a 12.8 percent increase over 1954.[246] The war encouraged growth in agriculture across the valley and the neighborhoods around Sacramento's military bases greatly expanded.[247] SMUD's service area contained both agricultural communities and areas with a recently expanded military population. While the Sacramento Valley did not match San Francisco and Los Angeles in growth, the population still grew rapidly, especially after 1950. Approximately 27,000 civilians with an annual payroll of $120,000,000 worked at Mather and McClellan fields, and military personal assigned to the area brought an additional $36,000,000 into the area with their wages.[248] Other large employers established themselves in the region after the war. The Aerojet aerospace company began operation in 1953, and by 1958, the organization had over 15,000 employees. The Campbell Soup plant employed 1,450 people, and Proctor and Gamble hired another 250 people.[249] Reginal agricultural growth meant that Libby McNeill & Libby, Bercut Richards Packing Company, and the

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[245] Combatalade and Miller, "A history of Sacramento Municipal Utility District," 7.

[246] Sacramento Municipal Utility District, "SMUD and its area," *Annual Report 1953*, 5-9.

[247] McGowan, *History of the Sacramento Valley*, 322.

[248] Ibid., 326.

[249] Ibid.

California Packing Corp all had food-processing plants in the area, along with Pacific Fruit Company and Continental Can Company facilities.[250] Sacramento City and California state government also expanded in post-war years, drawing thousands of job seekers to the region. Outlying communities, especially along the recently completed highways, including Carmichael, Fair Oaks, Orangevale, Folsom, and Roseville, all saw housing booms to accommodate the region's growing work force.[251] Between 1940 and 1950, Sacramento County grew from 105,427 people to 275,760.[252] By 1958, the *Bee* declared with an air of excitement that the "metropolitan area is currently estimated at 451,000" while the City's population grew to roughly 160,000.[253] Housing, military bases, businesses, government, and agriculture combined to create an accelerating demand for electricity in the 1950s.

During the late 1940s and 1950s, SMUD actively participated in the shaping of local culture to increase power consumption within its boundaries. SMUD's revenue came from selling power, so sales and marketing grew into a vital component of the organization. Illustrating the trend that swept the nation, Williams notes that "The wartime emergency meant the abandonment of sales promotions . . . but postwar planning quickly reestablished the 'grow-and-build' strategy adopted over the years by power

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[250] Sacramento Municipal Utility District, "SMUD and its area," 5-9.

[251] McGowan, *History of the Sacramento Valley*, 326.

[252] *Sacramento Bee*, July 7, 1950.

[253] *Sacramento Bee*, December 16, 1958.

companies."[254] SMUD used multiple public relations avenues to encourage its customers to buy electric appliances. In 1950, SMUD advertising representative Bill Duncan served as the master of ceremonies at the 1st Annual North Sacramento Electric Show where he and Mayor Henry Miller, Jr., crowned Michel Lee "Little Miss Electricity."[255] Ten local appliance stores and the Sacramento Valley Electric League sponsored the event and SMUD supplied "home economists" to demonstrate electric cooking.[256] Three such events took place within the District's boundaries that year. The 1952 Sacramento Electric Home Show at Memorial Auditorium, "produced for the purpose of stimulating appliance sales," had fifty exhibitors, fifty-nine booths, and seven home economics demonstrations.[257] The Sacramento Valley Electric League, an organization with deep ties to SMUD, held the event. One SMUD advertising campaign in 1953 aimed to convince "housewives that may be troubled by weather worries," that electric dryers were "better than sunshine."[258] SMUD timed their local campaigns to parallel national promotional efforts by electric appliance manufacturers.[259] In one electric dryer campaign, advertisements would appear in the *Sacramento Bee* and the *Union* and five radio stations were to play one hundred radio spots. SMUD also created handouts for

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[254] Williams, *Energy and the Making of California*, 280.

[255] Bill Duncan, "Covering the Cover," *High* Lines, January 1951, inside cover.

[256] Duncan, "Covering the Cover."

[257] "The 1952 Sacramento Electrical Home Show," *High Lines*, June 1952, 7.

[258] Doug Johnson, "Promotional Activity," *High Lines*, September 1953.

[259] Ibid.

appliance stores and SMUD offices.[260] Average yearly residential power consumption in December of 1946 was 1735-kilowatt hours, and by June 30, 1954, the average household used 2576-kilowatt hours annually.[261] By actively encouraging the electrification of Sacramento culture, SMUD hoped to profit through the sale of power, but obtaining that power became problematic as population growth and per capita use outpaced the available supply of power.

Despite SMUD's contentious relationship with PG&E, the newly operational publicly owned utility had no choice but to purchase power form its nemesis. On April 9, 1946, SMUD contracted to purchase PG&E power exclusively until June 30, 1954.[262] Then on December 11, 1952, SMUD signed a 40-year contract with the U.S. Bureau of Reclamation to buy power from the Central Valley Project. The District expected CVP power to begin on July 1, 1954, the day the PG&E contract expired.[263] SMUD would be the primary recipient of power generated at Shasta, Keswick, Folsom, and Nimbus Dams, providing a savings of 20 percent.[264] The CVP would "wheel" power to SMUD's distribution system across PG&E lines, for a price, since a direct connection between CVP power plants and District substations did not exist.[265] Federal legislation capped the

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[260] Ibid.

[261] *Sacramento Union* excerpt reprinted in *High Lines*, July 1954, 2.

[262] SMUD Employee Association, "'Direct Service' vs 'Wheeling,'" in *High Lines*, December 1953, 10.

[263] Combatalade and Miller, "A History of Sacramento Municipal Utility District," 7.

[264] Sacramento Municipal Utility District, "SMUD and its area," 9.

[265] SMUD Employee Association, "Direct Service" vs "Wheeling," in *High Lines*, December 1953, 10.

CVP contract at 290,000 kilowatts, but SMUD planners calculated that by 1960, CVP power alone would be insufficient.[266] Projections in population growth meant demand would continue to outpace available sources in the future. SMUD recognized that generating its own power would likely be part of the solution.[267] In the interterm, in 1955 SMUD contracted with PG&E for 300,000 kilowatts to take effect in 1960 at times when peak demand exceeded the federally imposed CVP kilowatt limit.[268] SMUD needed power from Silver Creek.

**The Frank E. Bonner Report: Designing the UARP**

Litigation during the 1930s and early 1940s, and SMUD's takeover of PG&E's electrical distribution system in the late 1940s, meant that the Silver Creek idea remained dormant, and inaction on the part of SMUD threatened the possible future development. As SMUD found its footing as an organization, the utility's leadership reviewed its options for the future. Ward notes that "There was always, with Albert Givan, a nagging reluctance to relinquish Sacramento's water rights on Silver Creek," but SMUD's preoccupation with other aspects of the organization's operations and pressure from the State Engineer to either utilize the water rights or relinquish them meant that "the District abandoned its filings on Silver Creek."[269] Givan opposed giving up SMUD's rights to Silver Creek water. SMUD attorney Martin McDonough recalled that "Bert served the

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[266] Combatalade and Miller, "A History of Sacramento Municipal Utility District," 7.

[267] SMUD Employee Association, "Recent Organizational Changes," in *High Lines*, December 1954, 10.

[268] Combatalade and Miller, "A History of Sacramento Municipal Utility District," 7.

[269] Ward, *"...for the people,"* 63.

function of keeping our minds on the whole picture. He was persistent—always nice—but persistent."[270] SMUD refiled with the state for Silver Creek water rights on February 12, 1948, and on July 29, 1948, SMUD filed for permits for the Middle Fork and the Rubicon River, expanding the scope of Givan's original vision.[271] After languishing for the better part of two decades, and coming close to total abandonment with SMUD's brief forfeiture of the water rights, the Silver Creek idea reemerged as post-war demand for electricity made it clear that SMUD needed to generate its own power.

In 1948, SMUD hired Frank E. Bonner to transform the Silver Creek idea into a viable hydroelectricity plan. SMUD directed Bonner to Survey the South Fork of the American River and to modernize Givan's Silver Creek Project using the latest data and newest construction methods.[272] Bonner, from San Francisco, began his career as an engineer with the Forest Service in 1909. In 1928, he authored a *Report to the Federal Power Commission on the Water Powers of California*, a work that showed he was familiar with the American River water shed. Bonner's 1928 report noted "The City of Sacramento contemplates full development of the Silver Creek for a municipal water supply," and he determined that "considerable power will be produced."[273] Bonner went on to become the Executive Secretary of the Federal Power Commission during the Hoover administration. When SMUD hired him, Bonner was a nationally recognized

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[270] Ibid., 63.

[271] Ward, *"...for the people,"* 63-64.

[272] Combatalade and Miller, "A History of Sacramento Municipal Utility District," 7.

[273] Frank E. Bonner, *Report to the Federal Power Commission on the Water Powers of California*, (Federal Power Commission, Washington. D.C: United States Government Printing Officer, 1928), 98.

hydroelectric authority and he had SMUD's full confidence.[274] Bonner's updated Silver Creek plan greatly expanded the physical design of Givan's original Silver Creek Project. On September 15, 1955, Bonner submitted "A Report on the Upper American River Project" to the SMUD Board of Directors.[275] The Silver Creek Project had become the UARP.

Bonner's plan included multiple dams, reservoirs, tunnels, and four powerhouses and had a price tag of $85,000,000. The designed offered SMUD 206,000 kilowatts of power.[276] Bonner's report noted "The development plan is similar to that originally conceived by Mr. Givan but many changes of detail have been adopted to conform with the latest design practices and to attain maximum economy in construction and operation costs."[277] The report called for the diversion of the upper Rubicon and stated that the use of tunnels would save on maintenance costs and would encounter fewer problems in the winter. The report also found "no unusual physical or construction difficulties."[278] Bonner also addressed operational and economic benefits of the project. He found that the quality and price of the power generated would meet SMUD's specified needs and be cheaper than other available sources. Additionally, he noted that ownership of the power generation sources would stabilize SMUD's rates. Finally, he observed that storage

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[274] Joe Mattimoe, "Sacramento Municipal Utility District: Upper American River Project" unpublished SMUD memorandum (November 27, 1959).

[275] Frank E. Bonner, "Report for Sacramento Municipal Utility District on Upper American River Project" (September 15, 1955), 2.

[276] Ward, *"...for the people,"* 66.

[277] Bonner, "Report for Sacramento Municipal Utility District on Upper American River Project," 2.

[278] Ibid.

releases from UARP reservoirs would enhance river flows during traditionally dry months and thus "provide basis for construction by the City of Sacramento of a new municipal water supply plant."[279] Bonner's plan provided SMUD with the energy it needed, rate payers got the cheap electricity that they demanded, and the City of Sacramento would finally see the mountain water it coveted fort so long.

In August of 1955, SMUD hired a panel of prominent engineers to evaluate Bonner's plan. The board of industry experts included John S. Longwell, former general manager and chief engineer of the East Bay Municipal Utility District, I. C. Steel, former PG&E vice president and chief engineer, and Chester Marliave, former chief geologist of the State Division of Water Resources.[280] The consulting engineers concluded that "The Upper American River Project, as proposed in the Bonner Report of September 15, 1955, is well conceived, carefully designed, and . . . will, in the opinion of this Board, provide the best and cheapest source of power for the Sacramento Municipal Utility District."[281] SMUD had a plan, designed and then reviewed by the nation's top authorities. Now the UARP needed money for construction.

**The Bond Election of 1955: SMUD Asks for $85,000,000**

SMUD needed $85,000,000 for the development of power generation facilities at sites on the Silver Creek, Rubicon, and the South Fork American River. In 1955, SMUD leadership could still draw upon the political experience of men like Royal Miller and

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[279] Bonner, "Report for Sacramento Municipal Utility District on Upper American River Project," 57.

[280] *Sacramento Bee*, August 2, 1955.

[281] John S. Longwell, I. C. Steele and Chester Marliave, "Sacramento Municipal Utility District: Upper American River Project, Board of Engineers, November 15, 1955" (November 15, 1955), k-6.

other veterans of the 1920s and 30s bond elections, and the organizations political acumen as an organization had grown considerably. SMUD's deep pool of politically experienced officers skillfully managed the1955 bond election. AB1879, sponsored by Assemblymen Gordon A. Fleury and Roy J. Nielsen of Sacramento County, granted SMUD the ability to offer revenue bonds paid for by profits generated by electricity sales rather than general obligation bonds. Governor Goodwin J. Knight promptly signed the bill.[282] By utilizing revenue bonds, SMUD defeated anti-tax and debt arguments from the start, and District representatives made sure to emphasize the tax-free nature of the proposal at every public meeting.[283] Furthermore, revenue bonds passed with a majority vote and did not have the two-thirds vote requirement that doomed SMUD's Silver Creek election efforts in the 1920s. SMUD defused most technical criticisms of the project in advance by hiring Longwell, Steele, and Marliave to review Bonner's plan well in advance of the election.[284] The utility also hired the financial firms, Stone and Youngberg and Blyth and Co., Inc. to review financial aspects of the project.[285] The utility's hiring of "two of the nation's most reputable bond houses" worked to preempt opposition arguments based on financial grounds.[286] Proponents also used SMUD's recent record of rate reductions and quality service to lend credibility to their position. Finally, in light of the obvious regional growth, the need for more power was clear to most area citizens. By

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[282] *Sacramento Bee*, June 24, 1955.

[283] *Sacramento Bee*, December 2, 1955.

[284] *Sacramento Bee*, August 2, 1955.

[285] *Sacramento Bee*, December 2, 1955.

[286] Ibid.

the 1950s, SMUD's politically experienced leadership had harnessed the lessons from past electoral defeats by heading off opposition. SMUD's proactive political maneuvering left potential bond measure opponents with few political, economic, or technical arguments.

As in previous decades, SMUD again collaborated with the *Sacramento Bee* at election time. Mirroring the successful tactics from the 1934 bond election, SMUD reached out to service organizations and citizen's clubs.[287] In each meeting, SMUD representatives made the case for funding the UARP. James K. Carr, SMUD's Assistant General Manager, told the Rotary Club that the election was Sacramento's "last chance to ensure a water and power supply."[288] Carr also met with the Mt. Ralston Fish Planting Club at the Golden Empire Lodge in the Masonic Temple.[289] The director of public relations for SMUD, E. A. Combatalade met with the Southside Improvement Club. Organized labor supported the measure with the Sacramento Labor Council arguing that water and power were essential for local growth, and growth was essential for jobs, the organization's chief concern.[290] The Sacramento County Board of Supervisors also declared the proposed UARP necessary for industrial growth.[291] The *Bee*, doing its part, ran stories about PG&E's intention to raise rates on municipalities that owned their own

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[287] *Sacramento Bee*, November 15, 1955.

[288] *Sacramento Bee*, November 10, 1955; Sacramento *Bee*, November 16, 1955.

[289] *Sacramento Bee*, November 15, 1955.

[290] *Sacramento Bee*, November 16, 1955.

[291] *Sacramento Bee*, November 30, 1955.

electrical distribution systems.[292] The *Bee* declared SMUD's plan a "gilt edged proposition."[293] Surprisingly, little organized opposition appeared.[294] On December 7, 1955, the $85,000,000 bond measure passed by an 8 to 1 margin, with 41,399 supporting, and 5,174 citizens rejecting the proposal.[295] SMUD had the money to build the UARP.

## Conclusion

When SMUD became a functioning electric utility in 1946, it appeared that the Silver Creek idea might fade away, but changing demographic and economic conditions in the Sacramento region created the necessary conditions for its revival. Albert Givan and a core group of long time Silver Creek Project believers remained at SMUD's helm, keeping the idea alive within the organization. The times, however, required that SMUD spend its energy on repairing and expanding their recently acquired distribution system. SMUD's initially precarious position required that it purchase power from PG&E, but the District subsequently secured a power contract for CVP electricity. It was not long before the post-war population increase and economic growth within the District's boundaries created additional demand for electricity. Additionally, the organization's own electricity marketing played an important role in expanding the region's electricity consumption. By the early 1950s, demographic and power consumption trends made it clear to SMUD's leadership that by the 1960s demand would outstrip the availability of power from of PG&E and the CVP. In 1955, Frank E. Bonner submitted an updated version of Givan's

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[292] *Sacramento Bee*, October 17, 1955.

[293] *Sacramento Bee*, November 22, 1955.

[294] *Sacramento Bee*, December 2, 1955.

[295] *Sacramento Bee*, December 7, 1955.

original Silver Creek Project, and the repurposed and expanded plan reemerged as the Upper American River Project. To finance the UARP, SMUD proceeded to carefully stage manage an $85,000,000 revenue bond election set for late 1955. Ratepayers demonstrated their strong desire for cheap and reliable electricity by enthusiastically endorsing the bond measure at the ballot box. SMUD's history from 1946 to 1955 played a critical role in transforming the Silver Creek Project into the UARP.

## Eight: Negotiations: Voices of Opposition and Support

### State Water Rights and Federal Licenses

The successful $85,000,000 revenue bond measure brought SMUD's mountain project within reach for the first time in the organization's history. Despite the new revenue stream, important hurdles remained. SMUD still needed state water rights permits and a Federal Power Commission license, and each requirement presented different challenges.[296] Illustrating the complexities facing SMUD, Ward observes "twenty-nine different political entities, organizations, and individuals registered protest with the newly created California State Water Rights Board against SMUD's application to appropriate waters of the American River and its tributaries."[297] On July 5, 1956, the California State Water Rights Board had taken over responsibility for evaluating SMUD's water rights application from the State Water Resource Board, an entity that had given SMUD's plan conditional approval.[298] In its first two years of its existence, the State Water Right Board reviewed 822 filings, about half of which incurred protests over fish and wildlife.[299] Without state water rights, SMUD could not obtain a license from the FPC. Hearings before the State Water Rights Board began on November 27, 1956, and James K. Carr from SMUD represented the District. SMUD's initial water permit request

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[296] James McCaffrey, "A Note from the General Manager on the Status of the Upper American River Project," *High Lines*, June 1956, 1.

[297] Ward, *"...for the people,"* 68.

[298] Fish and Game Commission, *Forty-Fifth Biennial Report, 1956-1958*, (State of California, Department of Fish and Game, 1970), 40.

[299] Fish and Game Commission, *Forty-Fifth Biennial Report, 1956-1958*, 40.

covered power generation, irrigation, and municipal water use, so to expedite SMUD's application, the board evaluated the power component of the application alone. Since non-consumptive power generation returned water to the river channels after it passed through SMUD's turbines, water use for power generation would conflict little with the other applicants downstream. The State Water Rights Board granted SMUD water rights for diversion and storage on Silver Creek, the South Fork of Silver Creek, the South Fork of the American River, and for "tributaries of the Middle Fork of the American."[300] California state water permits 10703, 10704, and 10705, cleared the way for a license from the Federal Power Commission.[301]

SMUD first filed its application with the Federal Power Commission on July 28, 1955, several months before the revenue bond election. SMUD's efforts to acquire state water rights and federal licensing ran concurrently during 1956 and 1957. A license from the Federal Power Commission required SMUD to have state water rights, support among regional groups affected by the project, and reports from local, state, and federal agencies that the construction of the UARP might affect.[302] While SMUD worked on acquiring state water rights, it simultaneously endeavored to satisfy the FPC requirements, a process that involved lengthy negotiations and deal making with a wide array of groups with diverse interests. Ward observes that "As a result of these negotiations, agreements were reached with the U. S. Department of the Interior and

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[300] Ward, *"...for the people,"* 68.

[301] Ibid., 69.

[302] Clyde H. Spencer quoted in Ward, *"...for the people,"* 68.

Agriculture (U.S. Forest Service), the State Department of Fish and Game, the El Dorado County and Placer County Boards of Supervisors, the Georgetown Divide Public Utility District, and the City of Sacramento.[303] The FPC granted SMUD a 50-year license for Project 2101 on August 28, 1957.[304]

The large number of negotiations and compromises surrounding SMUD's efforts to obtain state water rights and federal licensing directly shaped the physical design of the UARP and the operational management of the project in the years that followed. Negotiation influenced local politics in Placer, El Dorado, and Sacramento Counties, and the political compromises directly shaped the land in various ways. Each agreement largely depended on the interests of the parties involved, and mostly centered on obtaining concessions from SMUD in one form or another. Examining the complex negotiations surrounding the state and federal authorization for SMUD's long-awaited hydroelectric project helps to explain the UARP's place in the region's recreational and political culture.

**The City of Sacramento**

The City of Sacramento wanted clean water from the UARP, even after SMUD's long transition towards power generation over the previous two decades. The City traded its support for SMUD's help in acquiring mountain water. On January 30, 1957, Sacramento City Manager Bartley W, Cavanaugh testified to the State Water Rights Board, arguing that water obtained from SMUD's UARP plan was crucial for the city's

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[303] Ward, *"…for the people,"* 68-69.

[304] Ibid., 70.

growth.[305] The UARP's ability to increase American River water flows during traditionally dry times was critical to the city's goal of obtaining more water. Cavanaugh informed the board that the city had acquired a new filtration plant site on the American River by Sacramento State College, a location designed to take advantage of the increase in year-round water flow facilitated by the Folsom dam and the UARP.[306] Cavanaugh also expressed concern that the Bureau of Reclamation earmarked Folsom water for irrigation, making UARP water even more critical to the city.[307] By June of 1957, SMUD, the City of Sacramento, and the U.S. Bureau of Reclamation reached a three-way agreement that provided Sacramento with water from Folsom Dam and the UARP. SMUD gave the City of Sacramento its municipal water rights, with Royal Miller stating to the *Bee* that "the city is the best agency to distribute that water."[308] SMUD now thought of itself purely in terms of power generation.[309] SMUD's negotiations with the City had several lasting effects. First, SMUD gained an ally before the water rights board. Second, the District reaffirmed its commitment to power generation rather than water resource development by parting with its consumptive rights. Finally, the regularized water flow promised from the UARP storage reservoirs shaped Sacramento's cityscape by helping to make the filtration plant on the American River viable.

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[305] *Sacramento Bee*, January 30, 1957.

[306] Ibid.

[307] Ibid.

[308] *Sacramento Bee*, June 29, 1957.

[309] Ibid.

**California Department of Fish and Game**

SMUD had to satisfy state agencies as a precondition for water rights and power permits. SMUD General Manager James McCaffrey and Seth Gordon, director of the California Department of Fish and Game (DFG), announced on May 4, 1956, that the organizations had reached an agreement, one that included several important provisions concerning SMUD's management of sections of the upper American River watershed. As a condition of its federal license, SMUD would ensure proper water levels for trout by following a schedule of releases from its reservoirs. SMUD officials, DFG, the federal fish and wildlife and forest services all cooperated in developing the water release plan. Additionally, SMUD agreed to ensure open access to its properties barring safety, operational, or security concerns. SMUD also accepted a DFG request that dam operations keep reservoir fluctuations to a minimum during recreational seasons.[310] The DFG, like the city of Sacramento, was also pleased with the idea of increased flow in the lower American River. Hailing a three-way agreement between the DFG, the U. S. Bureau of Reclamation, and SMUD, Lucian B. Vandegrift deputy attorney general for the DFG stated that from Folsom dam to the Sacramento River "the [American] river never will be dried up to the point where recreation and fish use would be eliminated."[311] The state water rights board and the federal government each received the agreement. In a letter to the *Bee* editor, one transplant from Southern California expressed support for the agreement because "The dry river beds of Los Angeles should serve as a constant

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[310] *Sacramento Bee*, May 4, 1956.

[311] *Sacramento Bee*, October 16, 1957.

reminder of what can happen without proper planning."[312] Through negotiation and compromise, SMUD continued to inch closer to obtaining the permits it needed to begin construction.

**Outdoor Enthusiasts and Preservationists**

Groups concerned with outdoor recreation and the environment voiced their positions about the UARP to both regional newspapers and the water rights commission. The *Bee* reported that Harold C. Bradley of Berkeley represented the position of the Sierra Club before the water rights board. The Sierra Club desired to preserve as much wilderness area as possible.[313] The El Dorado Rod and Gun Club expressed a similar opinion, but limited its concerns to SMUD's plan to construct UARP facilities in the Desolation Wilderness Area. In the *Mountain Democrat,* the Rod and Gun Club "went on record as opposed to any development…in portions of the Desolation Valley Wild area."[314] The club offered a competing vison for the land and challenged SMUD's plan as "contrary to the intent of the farsighted men who established the area."[315] Additionally, the club argued that SMUD's project would damage the natural aesthetic of the region, allow easy public access, and set a precedent for future development in wilderness areas.[316] As a compromise, SMUD subsequently modified the Rubicon section of its

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[312] *Sacramento Bee*, October 26, 1957.

[313] *Sacramento Bee*, March 2, 1956.

[314] *Mountain Democrat*, May 10, 1956.

[315] Ibid.

[316] *Mountain Democrat*, May 19, 1956.

development plan to limit access to the Desolation Wilderness.[317] Not all recreation organization opposed SMUD's plans. The Associated Sportsmen of California issued a statement to "heartily endorse" the UARP in response to SMUD's "recognition of the importance of fish life and recreation in the development of water and power projects."[318] Some groups saw SMUD's commitment to recreational development of the UARP as a boon for their utilitarian outlook; one that saw increased water flows for trout-filled streams and the creation of new reservoirs for boating and camping. For others, the UARP represented a threat to their preservationist vision of wilderness. The public discourse surrounding the environmental and aesthetic future of the UARP directly shaped the final design of the project.

**El Dorado County**

The licenses needed for developing the UARP also hinged on support from hinterlands counties where SMUD planned to construct the project. The opposition in El Dorado County fought on two fronts, one focused on Georgetown and the other centered on the county seat in Placerville. The County Board of Supervisors filed a formal protest with the FPC in October of 1955, arguing that SMUD had failed to meet with the county about its plan to construct the UARP.[319] County Supervisor Eugene A. Chappie, El Dorado County Supervisor from 1950 to 1965, who would also go on to be a California State Assemblyman and United States Congressman, initially led the opposition in El

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[317] Ward, *"...for the people,"* 69.

[318] *Mountain Democrat*, April 5, 1956.

[319] *Mountain Democrat*, October 20, 1955.

Dorado County. The county's formal opposition brought SMUD to the negotiating table. On April 4, 1956, SMUD's James K. Carr outlined the benefits of the UARP for the Board of Supervisors, including wages for local workers, the purchase of local supplies, the revenue from recreation, and the possibility of deal that would supply Georgetown with water.[320] Over the course of several meetings, El Dorado County explained that in the South Fork Service Area the county's primary concern was water for future growth. As negotiations continued, Carr used SMUD's commitment to recreational development and promises of water for Georgetown to get Chappie and his fellow board members to support SMUD's proposal.

Chappie had been quite vocal about how state and federal agencies treated El Dorado County during the development of the Folsom Dam project, located at the intersection of Placer, Sacramento, and El Dorado Counties. Chappie charged that his county lost 1,200-acres of taxable grazing land while the "taxable developments" went to the other counties.[321] Additionally, the state's slow development of Folsom's recreational facilities meant that the county continued to lose money. Gene Saxby, chairperson of the county recreation committee, told the *Mountain Democrat* "we don't want another Folsom . . . nothing had been planned for recreation."[322] As a result, when SMUD

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[320] James K. Carr, *Relation of Upper American River Project, Sacramento Municipal Utility District to El Dorado County water development*, Statement by James K. Carr, Assistent General Managers Sacramento Municipal Utility District Before the Board of Supervisors of El Dorado County, Placerville, California, April 4, 1956 (Placeville, California: Sacramento Municipal Utility District, 1956), Inventory of the John Stalker Longwell Papers, bulk 1910-1960, Water Resources Collections and Archives, University of California, Riverside.

[321] *Mountain Democrat*, March 22, 1956.

[322] *Mountain Democrat*, October 11, 1956.

informed El Dorado County that the UARP would have a recreation plan from the start, Chappie and others appeared receptive. El Dorado County elected to drop its protest with the FPC after SMUD agreed to allow the county to access water from the future Slab Creek Reservoir and White Rock penstock.[323] The previously skeptical Chappie told the *Mountain Democrat* that SMUD's plan was a "Golden opportunity for us to get in on the ground floor" determining who would manage the development of recreation in the UARP.[324] Negotiation between El Dorado County and SMUD yielded a tenuous agreement, one that dramatically favored the Georgetown Divide, the area that Chappie represented and worked his ranch.

When Supervisor Jack Caswell proposed that the board delay signing the agreement with SMUD, Chappie expressed "considerable annoyance at the thought."[325] A deal between the Georgetown Divide Public Utility District (GDPUD) and SMUD was at stake, and delays might scuttle the deal.[326] Chappie's hostility to delaying an agreement that he previously opposed might suggest that behind the scenes SMUD negotiators were exerting pressure; using recreational development and water from UARP facilities as carrots and the possible the cancelation of the GDPUD agreement as a stick. Ward explains the stakes for SMUD, noting that "SMUD needed works on the Middle Fork of the American River and at Loon Lake, owned by the Georgetown Divide

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[323] *Mountain Democrat*, July 4, 1957.

[324] *Mountain Democrat*, April 3, 1958.

[325] *Mountain Democrat*, July 4, 1957.

[326] Ibid.

Public Utility District which held water rights there."[327] SMUD negotiated a deal to purchase GDPUD's Rubicon water rights and its Loon Lake infrastructure in exchange for $3,977,000, payed in annual payments of $97,000 over forty-one years. A more cost-effective project closer to Georgetown would replace the distant 75-year old water works, originally constructed for mining operations. The Georgetown utility district planned to use the money to finance a reservoir and water works at Stumpy Meadows, doubling the area's water supply. At the signing celebration SMUD President Royal Miller told the crowd "you are going to get a dam and a ditch and it isn't going to cost you anything—we are going to pay for it…without this contract our project would have been difficult, if indeed at all feasible."[328] Chappie's transition from UARP opponent to supporter was complete when he served as master of ceremonies at the event.

Chappie was personally invested in the outcome the GDPUD negotiations. Many years later Eugene Chappie sounded less sanguine about events surrounding the UARP negotiations. Chappie accused SMUD of believing "'Geez, El Dorado County is in total disarray.' And they slid in the back door. I fought those mothers for ten years without any assistance."[329] Chappie consoled himself, remembering, "During the course of that fandango, I did protect the Georgetown Divide."[330] He was personally acquainted with the problems of Georgetown's ancient water system. He recalled the poor condition of

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[327] Ward, *"...for the people,"* 69.

[328] *Mountain Democrat*, April 25, 1957.

[329] Eugene A. Chappie, *Interview with Eugene Chappie*, Oral History Interview, Conducted in 1990 by Donald B. Seney, California State University, Sacramento, for the California State Archives, State Government Oral History Program, 35.

[330] Chappie, *Interview with Eugene Chappie*, 35.

the water works that GDPUD sold SMUD, remembering "we farmers in Cool would take our labor force and go up there and work on the ditch [that brought water to Georgetown], and in the Spring we would go up and stuff mattresses in the cracks in the dam."[331] Interestingly, Chappie added, "we farmers bought the rights and held them in trust—I mortgaged the ranch again for that—for the day when PUD [Placer Utility District] in its negotiations with SMUD had money to reimburse us, and they did. So at that point we're fat; real fat, the only area in the county that has a good firm water supply."[332] GDPUD's sale of its water rights and dilapidated facilities relieved Chappie of both the physical burden maintaining those facilities, but the sale also paid him back and secured a water supply for his ranch in Cool, located a few miles from Georgetown. To what degree, if any, Chappie steered negotiations with SMUD to the detriment of the South Fork Service area remains unknown. One thing is clear; James Carr expressed to county officials that SMUD would not offer the South Fork Service area a deal similar to the one Georgetown received.[333] It is conceivable that SMUD incentivized Chappie's conversion into a UARP supporter by proposing the one deal that happened to net SMUD important water rights while also benefiting their previously staunch opponent. SMUD's negotiations with El Dorado County over the UARP penetrated to the heart of local politics as the municipal organization from Sacramento reached out and negotiated its way towards control of hinterlands resources. The construction of Stumpy Meadows

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[331] Chappie, *Interview with Eugene Chappie*, 36.

[332] Ibid.

[333] *Mountain Democrat*, February 23, 1956.

reservoir was a byproduct of SMUD's negotiations, and it exemplifies one of the many peripheral ways the UARP shaped the land.

**Assembly District 6: Francis C. Lindsay and the Shadow of PG&E**

Francis C. Lindsay (R-Loomis), acting in his capacity as Assembly District Six representative, worked diligently to thwart SMUD's construction of the UARP. In 1951, Lindsay approached Placer and El Dorado Counties about a bi-county water and power project on the upper American River watersheds. Lindsay planned to obtain funding through revenue bonds secured by selling power to PG&E.[334] Lindsay later married his vison for the upper American River to the developing State Water Plan. On March 22, 1956, El Dorado County water committee chairman Ed Smith told the *Mountain Democrat* that "Unless the Lindsay plan for development of the American River is adopted . . . our assemblyman is going to scrap with us right along."[335] Over the next year, Lindsay proved Smith right. A month later, Lindsay submitted a bill that would have denied water rights to any project that did not conform to the State Water Plan.[336] The resolution did not mention SMUD by name, but Assemblyman Patrick D. McGee, a member of the committee, expressed his belief that the bill targeted SMUD.[337] The committee stated that the resolution could force SMUD to change its plans, to which

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[334] *Mountain Democrat*, April 5, 1951.

[335] *Mountain Democrat*, March 22, 1956.

[336] *Sacramento Bee*, March 9, 1956.

[337] Ibid.

Lindsay responded, "That's right…so as to get the fullest development of the basin."[338] There were no SMUD representatives at the meeting. A few weeks later, Lindsey attempted to assuage outraged constituents, claiming that he was "misinterpreted" and he was not against the SMUD plan in principal, but he wanted the UARP to conform to the state plan.[339] James Carr from SMUD responded by calling the resolution an unnecessary delay.[340]

In January of 1957, Lindsay submitted AB170 to the legislature in another attempt to coerce SMUD. The bill provided $20,000,000 to SMUD to assist with compliance with the State Water Plan. The bill would have made the project a joint state-SMUD initiative, and language in the bill gave the state clear priority in the proposed relationship.[341] Lindsay stated his bill was necessary because SMUD "proposed to develop only 85% of the potential."[342] A *Bee* editorial called it "one of the oddest bills introduced at the session," and noted that SMUD did not request the money and the UARP already complied with state requirement.[343] Lindsay's motives remained unclear, and his bill irritated those who stood to benefit from the UARP. Lindsay's unsolicited offer got the attention of Eugene Chappie. The frustrated El Dorado Supervisor stated bluntly "I'm getting pushed out of shape at this continuing nonsense…Lindsay hasn't

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[338] Ibid.

[339] *Mountain Democrat*, March 15, 1956.

[340] Ibid.

[341] *Mountain Democrat*, February 21, 1957.

[342] Ibid.

[343] *Sacramento Bee*, February 7, 1957.

contacted us within the last four years."[344] The Board of Supervisors passed a unanimous resolution demanding that representatives in the state legislature consult with El Dorado County officials before submitting water-related initiatives.[345] Chappie argued that Lindsay's resolution would add ten years to the development time of the UARP, and his blatant interference with El Dorado County's agreement with SMUD threatened the Georgetown Divide deal. Chappie told the *Mountain Democrat* that Lindsay's preference for the State Water Plan would "give the Northside [Georgetown area] considerably less than has been offered it in the SMUD program."[346] Lindsay's legislation aimed to slow the UARP's progress or to force SMUD into a subordinate relationship with the state in the development of the upper American River.

In May of 1957, Lindsay submitted AB1707, requesting $157,000 to use for a "feasibility study" on the Stumpy Meadows reservoir proposed by the GDPUD. El Dorado County board members and PDPUD officials, according to the *Mountain Democrat*, were "indignant over the proposal," and "they interpreted it as another attempt by Lindsay to 'throw a monkey wrench' into the Sacramento Municipal Utility District's $85,000,000 Upper American River project."[347] The GDPUD and SMUD had an agreement signed and Lindsay's study would only interfere.[348] The El Dorado Board of Supervisors voted unanimously to condemn the bill. State Senator Swift Berry informed

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[344] Ibid.

[345] *Sacramento Bee*, Feb 5, 1957.

[346] *Mountain Democrat*, February 21, 1957.

[347] *Mountain Democrat*, May 2, 1957.

[348] Ibid.

the El Dorado board that he would oppose the bill. Swift also informed the board that it was unlikely the bill would make it out of committee, and if the bill did arrive on the floor, Swift would make Lindsay justify the bill.[349] What drove Lindsay's repeated efforts to sabotage the UARP?

Lindsey's other legislative activity at the time provides insight into his opposition to SMUD's UARP. In January of 1957, Lindsay sponsored AB100, a bill that provided $25,190,000 for preliminary work on the Oroville Dam; a key part of a proposed state-owned and operated Feather River Project (FRP).[350] The system appeared to be a state owned version of SMUD's UARP. It was at the same time that Lindsay also sponsored AB170 that contained the $20,000,000 bait aimed at coercing SMUD into a partnership that placed the state in the dominate position. Interestingly, Lindsay rejected an amendment to AB100 that gave publicly owned utilities preference for power generated by the Feather River Project.[351] During the debates on AB100 Assemblyman Jesse M. Unruh (D) of Los Angeles cornered Lindsay, asking "Is the feasibility of this project based on the sale of power to the Pacific Gas and Electric Company?"[352] Lindsay admitted, "Frankly, yes. The only valid offer for the project's power has come from the PG&E and it is the only agency presently capable of accepting it."[353] Lindsay attempted

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[349] *Mountain Democrat*, May 30, 1957.

[350] *Sacramento Bee*, February 11, 1957.

[351] *Sacramento Bee*, January 23, 1957.

[352] Ibid.

[353] Ibid.

to design the power generation component of the proposed state project in a way that only PG&E could benefit.

In May 1957, AB2995, a bill crafted by Lindsay but sponsored by Assemblyman Belotti (R-Humboldt), died in committee. Lindsay designed AB2995 to regulate rates for electricity generated by state water projects.[354] The bill required that hydroelectric power produced by state projects like the one Lindsay sponsored at Oroville "be based on the cost of competitive thermal power, including taxes."[355] Lindsay attempted to make the bill appear as if the state water resources board backed the legislation by having them draft the initial bill, which he subsequently altered. Director Harvey O. Banks issued a statement saying "This is not our bill," and he disclosed that Lindsay asked the agency to write the bill, but "some of the language we proposed was stricken out."[356] Lindsay's attempt to mask his agenda by having Belotti sponsor the bill and his attempted manipulation of the bill's language fooled no one. Assemblyman William A. Munnell (D-Los Angeles) noted that the bill has been "so worded that only the Pacific Gas and Electric Company could qualify to handle virtually all state produced power."[357] Its provisions, he noted, would fix rates statewide in a ways that prevented the generation of cheap power. Assemblyman Lowery flatly called the bill a "PG&E turkey."[358] Assemblyman Belotti disavowed the bill. In the same month, Lindsay submitted AB104,

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[354] *Sacramento Bee*, May 22, 1957.

[355] *Sacramento Bee*, May 31, 1957.

[356] *Sacramento Bee*, May 22, 1957.

[357] Ibid.

[358] Ibid.

a water bill that would let the state set water rates across the state. SMUD opposed AB104, and viewed the water price bill as a potential threat to the UARP.[359] Lindsay appeared to want state control over power and water rates so that he could fix rates in a manner that removed the competitive advantage held by publicly owned utilities. PG&E had everything to gain by legislation that removed the ability for publicly owned municipalities to obtain and sell cheap power.

In May of 1957, Lindsay did get AB1698 passed which created the Placer County Water Agency, ostensibly so Placer County would have a local agency to direct work on the proposed Auburn dam.[360] Interestingly, AB1698 contained a provision that prevented the agency from selling power at retail prices.[361] The provision in Lindsay's bill directly prohibited Placer County from competing with PG&E, who operated as a wholesaler, but also a retailer. Additionally, PG&E was the retailer best positioned to distribute power generated in Placer County.

By trying to deny water rights to projects like SMUD's UARP, Lindsay hoped to derail the project, thus freeing up the upper American River watersheds for state development. With AB170 Lindsay attempted to maneuver SMUD into the positon of junior partner in a state-dominated UARP, after which Lindsay would likely attempt to regulate away SMUD's pricing advantage over PG&E with additional legislation. Lindsay again tried to slow progress on the UARP with AB1707, hoping to delay

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[359] *Sacramento Bee*, May 31, 1957.

[360] *Sacramento Bee*, May 30, 1957.

[361] Ibid.

SMUD's deal with GDPUD. Lindsay's opposition to the inclusion of a public power preference in AB100 illustrates his intention of funneling taxpayer funded FRP power to PG&E. Lindsay then intended to use AB2995, the power-pricing bill, and AB104, the water-pricing bill, to regulate away any competitive advantage that publicly owned utilities might have over PG&E with their access to cheap power. Finally, the Placer County Water Agency's retail power sale prohibition woven into AB1698 shows just how committed Lindsay was to removing potential competitors to PG&E, even his own county. Lindsay's public rhetoric feigned a commitment to the State Water Plan, but his legislative record appears deeply connected to PG&E interests, making SMUD's UARP a prime target.

**Placer County**

Placer County based its opposition to the UARP on the plan's diversion of water from the Middle Fork of the American to the South Fork where SMUD planned to use the water to generate power. Placer County had its eyes set on a state or federally developed dam in the Auburn Ravine above Folsom Lake. Any water diverted from the Middle Fork would mean less water for power generation at the planned Auburn dam downstream. Paul J. Lunardi, the mayor of Roseville, was a staunch advocate of the Auburn Dam project. Lunardi also worked hard as mayor to obtain power from the CVP, chafing under Roseville's dependence on PG&E for power.[362] What Lunardi did not want was state

[362] *Sacramento Bee*, March 29, 1956.

control of the region's water resources, placing him at odds with Francis C. Lindsay.[363] Lunardi believed that the federal government should build the Auburn dam.

In January of 1956, Lunardi filed to run as the Democratic candidate for the state assembly in the sixth district.[364] He initially voiced skepticism about the UARP, stating "The case of Owens Valley will always be remembered by the mountain counties," but SMUD rapidly won him over.[365] In March, Lunardi appeared with SMUD's James Carr at the Grange Hall in Georgetown to meet with citizens about the PDPUD contract with SMUD.[366] The *Mountain Democrat* reported in March of 1956 that Lunardi "gave his personal endorsement," to the UARP, and a few days later another article referred to him as a "staunch advocate."[367] The *Bee* endorsed Lunardi in October, and in a partisan shot at Francis Lindsay the editorial board wrote that "Lunardi has enunciated a broad, statesman like program of comprehensive resource development . . . a sharp contrast to the narrow obstructionist tactics which have been used in the past."[368] Lunardi lost his election bid, 27,260 to Lindsay's 28,555 votes, but he won majorities in both El Dorado and Placer Counties, the counties with a direct connection to the proposed UARP.[369]

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[363] *Mountain Democrat*, May 31, 1956.

[364] *Sacramento Bee*, January 12, 1956.

[365] *Mountain Democrat*, April 5, 1956.

[366] *Mountain Democrat*, March 1, 1956.

[367] *Mountain Democrat*, March 22, 1956; *Mountain Democrat*, March 31, 1956.

[368] *Sacramento Bee*, October 26, 1956.

[369] *Sacramento Bee* November 8, 1956.

In 1958, Lunardi defeated Lindsay for the sixth assembly district seat with 56.4% of the vote, and interestingly, Eugene Chappie won election for the seat in 1964.[370] The political battle surrounding the UARP brought SMUD's allies into power right as the project began construction. By July of 1957, the Placer County Board of Supervisors agreed to drop protests with the FPC against the UARP in exchange for "SMUD assistance in seeking the Auburn Dam Project."[371] Additionally, the deal required SMUD to surrender "three water and power filings it holds at the proposed dam site."[372] Despite the central role the Auburn dam played in Placer County politics and in negotiations with SMUD, the Auburn dam never materialized. SMUD's deal with Placer County was the last hurdle to obtaining the necessary water rights and power license for the UARP.

## Conclusion

The negotiations and agreements that swirled around the UARP influenced the final form and operation of the UARP. The people, geography, resources, and politics encompassing the project were inseparable. SMUD's negotiations were critical for meeting both the state and the federal government's requirements that those affected by the UARP have a voice and their grievances addressed. Compromises with environmental regulatory agencies and civic groups meant that the SMUD satisfied the federal government that the "people's land" in the Eldorado National Forest would be utilized with maximum benefit for people with minimal intrusion upon the wilderness.

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[370] Join California, "Election History of the State of California," http://www.joincalifornia.com/election/1964-11-03 (accessed October 10, 2015).

[371] *Sacramento Bee*, July 2. 1957.

[372] Ibid.

Additionally, SMUD committed to making recreational development a principal part of the UARP. The City of Sacramento finally obtained mountain water, El Dorado County got a new reservoir and a major recreational development, and Placer County obtained water and power rights and some political backing for the Auburn Dam. Fish and Game obtained trout-friendly commitments from SMUD to manage the UARP waters in an environmentally responsible way. Outdoor clubs imposed some concessions that limited the UARP's footprint in the Desolation Wilderness, but no group argued in favor of complete preservation like Yosemite received. The state granted SMUD the necessary water rights on April 30, 1957, and the FPC granted a license for power generation on August 28, 1957. Wasting no time after decades of effort, SMUD set September 28, 1957 for the UARP ground breaking.

# Nine: Building a Staircase of Power

## Breaking Ground

The September 28, 1957 groundbreaking ceremony on the steps of the El Dorado County courthouse marked the beginning of the physical construction of the Sacramento Municipal Utility District's Upper American River Project. The celebration included a luncheon, notable speakers, a parade and a water-ski demonstration on Jenkins Lake. The event drew a thousand people, including local, state, and federal officials, the California Governor, two U.S. Senators, and four U.S. Congressmen. Representatives of all the major negotiating parties were on hand. Leading figures from the Eldorado National Forest, the Department of Fish and Game, the El Dorado Irrigation District, Georgetown Divide Public Utility District, and the Michigan-California Lumber Company attended.[373] The Placer and El Dorado County boards of supervisors attended the celebration, including of course, Eugene Chappie. Interestingly, Assemblyman Francis Lindsay also arrived to watch as the UARP idea transformed from an aging idea into a young construction project. James K. Carr, SMUD's lead negotiator, and soon to be Undersecretary of the Interior, served as the master of ceremonies. SMUD President of the Board of Directors Royal Miller officially broke ground by shattering a bottle of American River water on the blade of a festively decorated bulldozer. SMUD's James McCaffrey informed the crowed that the building the UARP would take 1,200,000 days of labor, require 9,353 tons of steel, excavate 3,394,600 cubic yards of rock fill for dams,

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[373] *Mountain Democrat*, October 3, 1957.

and need 256,200 cubic yards of concrete.[374] The project would also bore 23 miles of tunnels, erect 64 miles or transmission lines to link the UARP to the SMUD distribution system, and build 90 miles of access roads. The physical aspects of the UARP's construction were impressive, but the UARP also represented a rare success story in a political landscape littered with failed water and power projects.

The event carried a philosophical air, as speakers expressed their views about the meaning of the impending project. California Governor Goodwin Knight told the crown "we live in an era which is determined to conserve and regulate water for its use by the people."[375] Knight's perspective drew upon an aging environmental conception that hailed the subjugation of nature for human benefit. The publicly owned UARP, constructed in the middle of the people's National Forest, exemplified the best possible use of the land. California Senator William F. Knowland (R) hailed the "mutually enlightened cooperation" involve in the UARP deal, adding "Reasonable men in our rural and urban centers, north and south, must diligently and promptly seek areas of agreement."[376] Congressman Clair Engle (D) noted that the UARP "shows that cooperation between areas of water and power surplus and areas of need is entirely possible."[377] For Knowland and Engle, the UARP served as roadmap through the partisan bickering that plagued California water politics. Albert Givan was also at the

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[374] *Sacramento Bee*, September 28, 1957.

[375] Ibid.

[376] Ibid.

[377] Ibid.

groundbreaking ceremony.[378] For Albert Givan, the Silver Creek and UARP projects had always been about Sacramento owning its own water and power sources.

**Before the UARP: Ice House, Union Valley, and Loon Lake**

Located along the South Fork of Silver Creek, the Ice House area, situated in the Eldorado National Forest, had a long history of use by locals. Gold mining, hunting, fishing, logging, and cattle grazing all preceded SMUD's arrival in the Ice House area. In the 1850s, Scottish immigrant John McFarland Pearson brought blocks of ice down from Silver Creek, selling them at his "Silver Creek Ice Depot" in Placerville.[379] Hauling ice was a three-day round trip according to one local source. Pearson's operation soon became the Pearson Soda Works. The ice blocks obtained from "Pearson's little ice house on Silver Creek" were stored in an old mining tunnel behind his soda shop. As gold fever spread across the Sierra, new uses for the Ice House area emerged. In about 1887, Benjamin Dorsey Mason constructed a mining ditch "that ran from 'Ice House Silver' about one mile below Ice House."[380] Mason also had a second ditch in the area known locally as the "Big Silver Creek or Ice House Ditch."[381] As the Gold Rush era waned, cattlemen, loggers, and the federal government entered the area. In 1910, Congress established the Eldorado National Forest, encompassing the Ice House area. The need to supply soldiers during WWI convinced the government to allow stock grazing within national forests boundaries. Cattleman J. D. Granlees of Sloughouse had a stock ranch on

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[378] *Sacramento Bee*, September 28, 1957.

[379] *Mountain Democrat*, October 12, 1978.

[380] Starns, *Wealth from Gold Rush Waters*, 205.

[381] Ibid.

Silver Creek.[382] Cattleman often quarreled with the Forest Service about the quality of the original Ice House road and who was to blame for the damage.[383] By 1953, the Forest Service reported that within the Eldorado National Forest, ranchers held "63 grazing permits on mountain meadow areas grazing 8,423 head of cattle and 1,800 sheep."[384] The forests around Ice House also supplied timber, with the Weber sawmill located on "Ice House hill."[385] By the time SMUD began building Ice House reservoir in 1958, the Michigan-California Lumber owned significant parcels of land that SMUD needed for its recreation plan.[386] The history of the Ice House illustrates its utilitarian existence within the local culture, and the land's history of use helps to explain why no movement materialized to preserve the area. SMUD's project registered as one more use, albeit on a large scale, for a well-worn land.

Located 22 miles northeast of Placerville, the Union Valley served much the same purpose as the Ice House for locals. Initially, gold brought local whites to Union Valley, then ranching and logging in later years. As early as 1851, James Wesley Summerfield camped in Union Valley as part of a company of men hunting the rumored "Gold Lake."[387] Wesley and his men continued up Silver Creek but they left behind the name

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[382] *Mountain Democrat*, December 15, 1923.

[383] *Mountain Democrat*, March 10, 1923.

[384] *Mountain Democrat*, January 29, 1953.

[385] *Mountain Democrat*, July 8, 1927.

[386] *Mountain Democrat*, November 27, 1958.

[387] Charles Elmer Upton, *Pioneers of El Dorado* (Placerville, California Charles Elmer Upton, Publisher, 1906), 151-53.

Union Valley, "because at that spot they communed and held services."[388] A brief note in the *Mountain Democrat* in March of 1878, noted that E. Woodford was in town after "satisfactory trapping" in the Union Valley during the winter.[389] In 1886, the paper advised locals that a Union Valley miner was town and in March of 1887, a miner named George visited town to escape eleven-foot snowdrifts in the valley.[390] Frank and John Wagner quit gold mining in 1917 and entered the beef and dairy cattle business. Frank's daughter, Loretta Wagner Smith remembered that "by taking their cattle to Union Valley, they were able to make butter in the summer time."[391] Mining slowly gave way to ranching in Union Valley as locals reconceived new uses for the land.

In 1951, a writer for the *Sacramento Bee*, called for the development of Union Valley by SMUD or the CVP. The journalist noted the presence of cattle ranchers in the summertime, but "otherwise the valley lays peacefully undeveloped."[392] The same writer argued aesthetics in justifying the utilization of the valley, opining that "Union Valley is not in the class of scenery spoiling developments. It lies well below the magnificent glaciated Desolation Valley wilderness area."[393] Once development of the valley began, SMUD sparred intensely with the Michigan-California Lumber Company over timberland around the future banks of the proposed Union Valley Reservoir. Latrobe

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[388] Upton, *Pioneers of El Dorado*, 151.

[389] *Mountain Democrat*, March 16, 1878.

[390] *Mountain Democrat*, July 3, 1886; *Mountain Democrat*, March 12, 1887.

[391] Betty Yohalem, "I remember…": Stories and Pictures of El Dorado County pioneer families (Placerville: El Dorado Chamber of Commerce, 1977), 140.

[392] *Sacramento Bee*, July 11, 1953.

[393] Ibid.

cattleman Rufus Swift and Sloughouse cattleman J. D. Granlees also owned land in the valley.[394] The 10-acre Big Silver Creek 4-H camp, an organization for which Swift was a long time benefactor, sat in the path of the Union Valley construction.[395] Ultimately, SMUD brought condemnation suits against all three holdouts.[396] The Union Valley's long history of human use and its second-class status in the hierarchy of local beauty meant that utilitarian interests motivated the valley's only defenders.

The Loon Lake reservoir that SMUD created began life as three separate mountain lakes, named Loon, Bixby, and Pleasant. SMUD was not the first organization to manipulate the local hydrology by damming Gerle Creek at Loon Lake. During the latter half of the 1800s, water from high elevation sources gained in importance and miners and water speculators constructed ditches and flumes to carry much needed water to distant mining operations. Mining needs made Loon Lake's water valuable enough for the Mt. Gregory Water and Mining Company to claim the right to dam Loon on May 6, 1872.[397] In 1872, the California Water Company also claimed water rights to Loon Lake and Rubicon River water. The California Water Company planned to use the water to supply the company's mines and the rest would be sold to local ranchers and to the residents of Sacramento.[398] By 1874, a dam forced the merging of Loon and Pleasant

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[394] *Sacramento Bee*, July 16, 1959.

[395] *Sacramento Bee*, July 19, 1959.

[396] *Sacramento Bee*, January 16, 1960.

[397] Starns, *Wealth from Gold Rush Waters*, 137.

[398] Ibid., 137, 162.

Lakes, creating a large reservoir.[399] The dam, constructed by "a large force of Chinese who dug and blasted out ditches and tunnels," served as a key part of the ditch and flume system that evolved into the waterworks that served Georgetown in the twentieth century.[400] In an 1873 report for the California Water Company, Amos Bowman noted that a ditch system could divert water from the Rubicon River to Gerle Creek, an idea similar to the works SMUD built 90 years later. Bowman also devised a preliminary plan to transport water to Sacramento via Reamer's American River Ditch and a pipeline. Bowman informed the water company that "Development means profit," an often repeated idea in the regional water discourse.[401] Men like Albert Givan could look back to Gold Rush era hydrological manipulation at Loon Lake and envision how they might create a more modern version of Bowman's plan. By the end of the 1870s, an enlarged dam, 22 feet high and 405 feet long, expanded the reservoir considerably.[402]

In 1907, the Loon Lake Water and Power Company obtained the water system, and in 1912, it merged with the California-Nevada Electric Power Company, to form the Truckee River General Electric Company. In 1934, the Georgetown Divide Water Company obtained the system from the Sierra Pacific Power Company, and the new

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[399] Starns, *Wealth from Gold Rush Waters*, 162.

[400] Ibid.

[401] Ibid., 162.

[402] Ibid., 166.

owners enlarged the Loon Lake Dam again.[403] In 1952, GDPUD obtained the water rights and the physical system from the Georgetown Divide Water Company for $100,000.[404] The aging water works connected with Loon Lake went up dramatically in value when it became apparent that water from Loon Lake and the Rubicon River watershed was a critical component of SMUD's UARP design. Five years later, PDPUD made its deal with SMUD, trading the rights to Loon Lake for the money needed to construct Stumpy Meadows reservoir. SMUD encountered little opposition to its plan to double the size of Loon Lake reservoir, because for a century, the local Euromerican culture primarily viewed the area as an exploitable water resource.

**Construction: 1957- 1971**

The shear ambition of the Upper American River Project required SMUD to contract out the final design and construction management of the project. SMUD existed to distribute power in Sacramento, not to build dams, tunnels, and roads in the Sierra. On July 5, 1957, SMUD contracted with the Bechtel Corporation of San Francisco for preliminary engineering, final design, and construction management. SMUD's McCaffrey told the *Bee* that "We feel the Bechtel Corporation is particularly well staffed to handle this important phase of our project."[405] The head of Bechtel's hydroelectric division, M. L. Dickenson, had experience working on San Francisco's Hetch Hetchy project and with the Tennessee Valley Authority. Bechtel assigned D. S. Culver to head

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[403] Linton A. Brown, *Sixteen Summers on the Ditch: Memories of South Fork and Gerle Creek Ditches and Old Loon Lake Dam, El Dorado County, California* (Red Bluff, CA: Linton A, Brown, February 2003), 6.

[404] Brown, *Sixteen Summers on the Ditch*, 6.

[405] *Sacramento Bee*, July 25, 1957.

the UARP project, while SMUD retained Frank E. Bonner as consulting engineer.[406] SMUD hired the former regional director of the U. S. Bureau of Reclamation, Clyde H. Spencer, as its project manager.[407] Bechtel had a long history that included a diverse array of engineering projects. The corporation built dams for PG&E in the 1920s, the Hoover Dam in the 1930s, and its Marinship and Calship subsidiaries built ships for the country's war effort in the 1940s; combined, the two companies built 467 cargo ships, 78 tankers and oilers, and 15 liberty ships.[408] When SMUD hired Bechtel, the firm had completed 2,000 projects across the globe, giving them operating experience in 40 U.S. states and 30 foreign countries.[409] While the UARP was not a major project for the Bechtel Corporation, SMUD's relationship with the globe-spanning company eventually went beyond constructing the UARP, when in the 1960s both Bechtel and SMUD moved into nuclear energy. The Bechtel Corporation would go on to design and manage the construction of SMUD's Rancho Seco nuclear power plant in the late 1960s and early 1970s.

Bechtel designers updated aspects of Bonners UARP plan as engineers saw opportunities to expand the project's water storage and power generating capacity.[410] In July of 1958, SMUD announced that Gibbons and Reed out of Salt Lake City would

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[406] Ibid.

[407] *Sacramento Bee*, September 5, 1957.

[408] Bechtel Corporation, "1950-1979: Building infrastructure and industry," http://www.bechtel.com/about-us/history/building-infrastructure-industry/ (accessed 10/11/2015).

[409] Ibid.

[410] Ward, *"...for the people,"* 67.

construct Ice House dam for $2,176,340.[411] SMUD also contacted with Marin Rock and Asphalt Company to supply 300,000 tons of "concrete aggregate and filter material."[412] The Collins Electrical Company won the bid to construct a five-mile electrical transmission line between Jaybird Power Plant and Union Valley for $314,587.[413] Land clearing for the dam and reservoir at Ice House began in 1958.[414] To finance the first phase of construction, in January of 1959, SMUD sold $25,000,000 worth of Upper American River Project Series A revenue bonds.[415] Looking ahead to the second phase of construction, on March 17, 1960, SMUD filed for an application with the FPC for the White Rock portion of the UARP on the South Fork American River, an area not initially covered by FPC license from 1957.[416]

The first stage of phase one of the UARP construction plan included Ice House Dam, Junction Dam, the Jaybird Powerhouse, a tunnel connecting Junction to Jaybird, transmission lines, and access roads.[417] Completed in 1959, the Ice House component of the UARP consisted of one rock fill impervious core dam and two dikes. Located on the South Fork of the Silver Creek at 5,454 feet elevation, the dam and dikes created the Ice House Reservoir. The California Division of Safety of Dams lists Ice House dam as 150

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[411] *Sacramento Bee*, July 31, 1958.

[412] *Sacramento Bee*, July 31, 1958.

[413] Ibid.

[414] Ward, *"…for the people,"* 72.

[415] Ibid., 71.

[416] Herbert Blinder, "White Rock Seeks Power License foe White Rock Division," *High Lines*, February 1960.

[417] *Mountain Democrat*, October 31, 1957.

feet high, 1,440 feet long, and the reservoir as 37,120 acre-feet, with a surface area of 678 acres.[418] Downstream from Ice House reservoir, at 4,468 feet elevation, SMUD completed the Junction Dam in 1962. Situated at the confluence of the Silver Creek and the South Fork Silver Creek, Junction Dam is a concrete arch dam, 168 feet high and 550 feet long. The Junction reservoir holds 3,250 acre-feet of water and has a surface area of 64 acres.[419] From Junction reservoir, engineers bored a 14-foot tunnel 4.1 miles through solid rock to Jaybird Powerhouse located farther down the canyon.[420] Built by 140 men from the Frazier-Davis construction firm, the Jaybird tunnel emerges from the Silver Creek Canyon wall where the water enters a penstock.[421] The water drops through a 1,527-foot penstock, gaining velocity, where it spins turbines located inside Jaybird Powerhouse. To access the Silver Creek Canyon floor, the Piombo Constructing Company out of San Carlos blasted a zigzagged road down the face of the canyon wall.[422] Starting in July of 1959, the Pacific Bridge Company built the Jaybird Powerhouse building and penstock while General Electric handled the installation of the power generation equipment.[423] The powerhouse began operation with two generators capable

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[418] Division of Safety of Dams, "Dams within the Jurisdiction of the State of California," State of California, Department of Water Resources, http://www.water.ca.gov/damsafety/docs/Jurisdictional2014.pdf (Accessed 10/11/2015). Exact specifications on dams and reservoirs varied slightly from source to source, so I opted to use the preceding list for all dam and reservoir specification within the UARP.

[419] Ibid.

[420] Mattimoe, "Sacramento Municipal Utility District: Upper American River Project," 4.

[421] *Sacramento Bee*, July 12, 1959.

[422] Johnson, "More on the UARP," in *High Lines*, June 1959.

[423] SMUD Employee Association, "American River Project," *High Lines*, April - May 1960, 9.

of generating 133,000 kilowatts of power.[424] Ironically, PG&E supplied the project's power during construction. On May 1, 1961, the *Bee* announced "The first power from the Upper American River Project 60 miles away northeast of Sacramento was transmitted into the Sacramento Municipal Utility District system today."[425] The Hedge substation at Florin Road received power from the UARP, bringing SMUD into the hydroelectric power generation business.

The same day that Jaybird Powerhouse delivered its first electricity, SMUD's UARP project manager, Clyde H. Spencer, told the *Bee* "Presently under construction are the 430 foot high earthfill Union Valley Dam, Camino Powerhouse, four mile Camino tunnel and 17,000-foot Robbs Peak tunnel."[426] Spencer added that "Starting this summer will be the Union Valley Powerhouse, Loon Lake Dam, Gerle Creek and Robbs tunnel diversion dams and a number of miles of road."[427] Improved roads were an important part of accessing the UARP's remote work sites. A cooperative agreement between the Forest Service, SMUD, the Michigan-California Lumber Company and El Dorado County created the first eleven miles of improved road leading into the Union Valley area. SMUD built seven miles of road and surfaced the entire length with crushed rock, and the Michigan-California Lumber Company purchased the trees along the length and built four miles of road. The Forest Service built all weather bridges over Silver Creek, the South Fork Silver Creek, Jones Fork, and Tells Creak, while El Dorado County

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[424] *Sacramento Bee*, May 1, 1961.

[425] Ibid.

[426] Ibid.

[427] Ibid.

agreed to include the new road into the county system.[428] Interagency cooperation in road building and recreational facility construction was an important aspect of the UARP that merited less press than the dams, powerhouses, and reservoirs. Quality roads to each construction site allowed contractors and heavy equipment to come and go, and the road network left behind after SMUD completed the UARP served as a foundation for building the region into a recreational destination.

The loosely phased construction schedule meant that work on many projects took place simultaneously. By summer of 1961, SMUD expected to have an average of 1,000 men working on UARP projects.[429] The Gibbons & Reed Company and J. A. Jones Company, working a joint contract for $1,800,000, completed Camino Dam just downstream from Jaybird Powerhouse in 1961.[430] The Camino Dam is a variable radius arch-dam made of concrete and measuring 110 feet high and 469 feet long, and the dam forms a 275-acre-foot afterbay for water released from Jaybird Powerhouse.[431] From the Camino diversion dam, the Walsh Construction Company from San Francisco bored a roughly 25,000-foot tunnel to the Camino Powerhouse site situated on the South Fork American River. Walsh won the contract for the Camino tunnel with a bid of

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[428] *Sacramento Bee*, November 30, 1960.

[429] *Sacramento Bee*, March 16, 1961.

[430] *Sacramento Bee*, November 19, 1959.

[431] Division of Safety of Dams, "Dams Within the Jurisdiction of the State of California," State of California, Department of Water Resources, http://www.water.ca.gov/damsafety/docs/Jurisdictional2014.pdf (accessed October 17, 2015).

$6,387,880.[432] The same year, Western Knapp Engineering Company began the initial work on Camino Powerhouse, bidding $890,000 for the contract.[433] General Electric supplied and installed the power generators and transformers under contract for $1,033,094.[434] Contractors completed the Comino Powerhouse in 1963, bringing 72,000 kilowatts of power online for SMUD.[435]

In 1960, SMUD received permission from the FPC to scrap its plan for the Sawmill Dam and reservoir on Sawmill creek.[436] In Sawmill's place, SMUD opted for a diversion dam on Gerle Creek and a diversion dam on the South Fork Rubicon, both connected by a canal. The new design shortened the length of Robbs Peak tunnel by 5,000 feet, saving approximate $1,000,000 in construction costs.[437] The new design created the 1,200-acre-feet Gerle creek reservoir, the 1.8-mile Gerle Creek canal, and the 50-acre-feet Robbs Peak forebay. The Gibbons & Reed Company won the bid to build all three features for $2,230,000.[438] Constriction on the 13-foot diameter Robbs Peak tunnel was already underway. The Guy H. James Construction Company of Oklahoma

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[432] *Sacramento Bee*, September 17, 1959; Dough Johnson, "Railroads of the American River Project," *High Lines*, 1960, 1.

[433] *Sacramento Bee*, August 13, 1961.

[434] *Sacramento Bee*, June 2, 1960, *Sacramento Bee*, July 21, 1960.

[435] Sacramento Municipal Utility District, *Annual Report 1963* (Sacramento: Sacramento Municipal Utility District, 1963).

[436] *Sacramento Bee*, July 7, 1960.

[437] Ibid.

[438] *Mountain Democrat*, July 13, 1961.

contracted to build the 17,000-foot tunnel for $3,607,200.[439] Other than access roads, the construction in the Gerle Creek area was the first significant UARP work in the Rubicon watershed.[440] In October of 1961, SMUD filed a condemnation suit against PG&E to acquire 83.73 acres at the site of the new Gerle Creek Reservoir.[441] Completed in 1962, the Gerle Creek dam measures 58 feet high, is 395 feet long, and has a surface area of 50 acres.[442] Gibbons & Reed completed the new canal in 1962, much of which paralleled the old Gerle Creek Ditch first constructed by the California Water Company in the early 1870s.[443] The Robbs Peak forebay dam, completed in 1963, is 44 feet high, 275 feet long, and has a surface area of 2 acres.[444] The Gerle Creek Reservoir, the canal, Robbs Forebay, and Robbs tunnel all serve to transfer water from the Rubicon watershed to the Silver Creek watershed where it arrives at the Union Valley Reservoir.

The upper Rubicon watershed began development shortly after work completed on the lower Gerle Creek, with the exception of Loon Lake Dam, which had been under construction since 1961. The Loon Lake Dam and dike, the Buck Island Dam, the Rubicon Dam, and the Loon-Buck tunnel are the highest elevation structures in the

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[439] *Sacramento Bee*, May 5, 1960.

[440] *Mountain Democrat*, July 13, 1961.

[441] *Sacramento Bee*, October 5, 1961.

[442] Division of Safety of Dams, "Dams Within the Jurisdiction of the State of California," State of California, Department of Water Resources, http://www.water.ca.gov/damsafety/docs/Jurisdictional2014.pdf (accessed October 17, 2015).

[443] Brown, *Sixteen Summers on the Ditch*, 23.

[444] Division of Safety of Dams, "Dams Within the Jurisdiction of the State of California," State of California, Department of Water Resources, http://www.water.ca.gov/damsafety/docs/Jurisdictional2014.pdf (accessed October 17, 2015).

UARP, situated at an elevation of between 6,400 and 6,500 feet. In 1961, SMUD contracted A.T and A.F. Olson of Sacramento, for $216,000, to complete a road into the Loon Lake area so construction could begin. Engineers placed the access road to the upper Rubicon area at the bottom of the empty Loon Lake reservoir so water would cover the road once contractors completed their work.[445] The Kaiser and Raymond International of Oakland contracted to build the Loon Lake Dam and auxiliary dike for $7,425,499.[446] Engineers informed bidders that the project required 1 million cubic feet of excavation.[447] The dam, situated on Gerle Creek, is 108 feet high and 2,290 feet long, and the reservoir has a capacity of 76,500 acre-feet and a surface area of 1,450 acres.[448] Feeding into Loon Lake are Buck Island and Rubicon Reservoirs. Paul Hardman Inc., of Orange County, contracted for $3,199,914, constructed one gravity dam at Buck Island Lake, turning the lake into a reservoir, and one on the Rubicon River, creating the Rubicon Reservoir.[449] The Buck Island Dam, located on the Little Rubicon, is 18 feet high and 290 feet long, with a capacity of 1,070 acre-feet and a surface area of 5.35 acres.[450] The Rubicon Dam, situated on the Rubicon River, is 36 feet high and 635 feet long, with a capacity of 1,450

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[445] *Sacramento Bee*, July 17, 1962.

[446] *Sacramento Bee*, July 19, 1961.

[447] Ibid.

[448] Division of Safety of Dams, "Dams Within the Jurisdiction of the State of California," State of California, Department of Water Resources, http://www.water.ca.gov/damsafety/docs/Jurisdictional2014.pdf (accessed October 17, 2015).

[449] *Sacramento Bee*, July 17, 1962.

[450] Division of Safety of Dams, "Dams Within the Jurisdiction of the State of California," State of California, Department of Water Resources, http://www.water.ca.gov/damsafety/docs/Jurisdictional2014.pdf (accessed October 17, 2015).

acre-feet and a surface area of 108 acres.[451] Hardman Inc. also built the 8,500-foot Loon-Buck tunnel that transferred water from Buck Island Reservoir to Loon Lake, and a smaller unnamed tunnel from the Rubicon Reservoir to Buck Island. Workers completed the dams at Loon Lake, Buck Island, and the Rubicon, as well as both tunnels by 1963. Remote sites and heavy winter snows provided special challenged for UARP builders in the upper Rubicon.

Construction of the Union Valley Dam on Silver Creek began in 1961, built by Peter Kiewit & Son of Omaha for a bid of $13,500,000.[452] The Union Valley Dam and reservoir are the largest components of the UARP. Numerous other contractors handled support work that ranged from metal fabrication, electronics installation, and transportation. In 1959, SMUD received permission from the FPC to expand the Union Valley Reservoir from 181,000 acre-feet to 270,000 acre-feet.[453] The larger reservoir threatened to inundate local logging and ranching operations, sparking several legal battles. The redesign had other consequences, Kiewit and Son later sued SMUD in 1964 claiming the project enlargement created cost overruns.[454] SMUD hired Huber and Michener for $912,000 to clear the reservoir land and to sell the timber.[455] Henry S Pimenthal and Son of Camino purchase 3,000,000 board feet of timber and Glenbrook

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[451] Division of Safety of Dams, "Dams Within the Jurisdiction of the State of California," State of California, Department of Water Resources, http://www.water.ca.gov/damsafety/docs/Jurisdictional2014.pdf (accessed October 17, 2015).

[452] *Sacramento Bee*, July 9, 1959.

[453] Ibid.

[454] *Sacramento Bee*, May 1, 1964.

[455] *Sacramento Bee*, August 13, 1961.

Lumber Company of Sacramento bought another 216,000 board feet.[456] The Donald M. Drake Company of Portland, Oregon, built the powerhouse building under contact for $1,572,000, and Chicago Bridge and Iron Company of San Francisco contracted to fabricate and install the penstock for $374,759.[457] The Pennsylvania Transformer Division of McGraw Edison of Canonsburg, PA, installed a three phase 35,000 kva transformer and the Westinghouse Electric Corporation of Sacramento installed the "main control and battery switchboard" under contract for $53,374.64.[458] Kiewit and Son completed Union Valley Dam in 1963. According to the California Division of Safety of Dams, the completed Union Valley Dam is 453 feet high and 1,800 feet long, and Union Valley Reservoir holds 230,000 acre-feet of water and has a surface area of 2,575 acres.[459] The Union Valley Powerhouse went on line in 1963, and contributed 33,000 kilowatts of power, adding to Camino and Jaybird's power generation. At the dedication ceremony, SMUD mounted a memorial plaque on the Union Valley Dam honoring the recently passed Albert Givan.

As the UARP construction plan moved forward, SMUD continued to support its project in other ways. The decision to enlarge aspects of the UARP meant that the original construction budget needed revision. Project engineers believed they could dramatically increase the power generation capacity of the entire project, justifying

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[456] *Sacramento Bee*, July 21, 1960.

[457] Ibid.

[458] *Sacramento Bee*, October 6, 1960.

[459] Division of Safety of Dams, "Dams Within the Jurisdiction of the State of California," State of California, Department of Water Resources, http://www.water.ca.gov/damsafety/docs/Jurisdictional2014.pdf (accessed October 17, 2015).

additional expenditures.[460] SMUD returned to the voters of the District, proposing a $100,000,000 revenue bond to finance additional UARP construction. SMUD argued that population increases and electricity use were exceeding projections and the best solution was to expand the UARP while construction was ongoing. On May 15, 1963, the Districts voter agreed and the bond measure passed by a 6-1 margin.[461] SMUD also constructed its permanent headquarters for the UARP above Pollock Pines, at Fresh Pond. SMUD contracted with Briggs and Weston Construction Company of Placerville for $317,156 to build shops, warehouses, and administrative offices.[462] SMUD undertook other UARP related construction with its completion of the Chili Bar Dam and powerhouse on the South Fork American River. In a deal with PG&E, SMUD agreed to construct the Chili Bar Dam and powerhouse in exchange for PG&E's abandonment of its American River Powerhouse, making room for SMUD's White Rock Powerhouse. The FPC sanctioned the deal and granted a joint operating license for the Chili Bar Powerhouse. SMUD would transfer title to the Chili Bar project when the White Rock Powerhouse began operation.[463] SMUD contractors completed the $4,210,000 Chili Bar gravity dam and powerhouse in 1964 and in March 1965, SMUD turned the hydroelectric project over to PG&E.[464] Like the construction of Stumpy Meadows reservoir,

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[460] Ward, *"…for the people,"* 74.

[461] *Sacramento Bee*, May 15, 1863.

[462] *Sacramento Bee*, June 6, 1963.

[463] *Sacramento Bee*, September 6, 1962.

[464] *Sacramento Bee*, March 19, 1965.

construction of the Chili Bar Dam and reservoir illustrated the ancillary costs of developing the UARP, monetarily and environmentally.

Contractors completed the first phase of the UARP by 1964 for approximately $110,000,000, and SMUD expected the second phase to cost another $100,000,000.[465] The second phase began with Robbs Peak Powerhouse, located on the Tells Creek arm of the Union Valley reservoir. During 1963, the J. A. Jones Company began construction of Robbs Peak Powerhouse building and penstock footings; contracted for $2,224,425.[466] SMUD ordered turbines from General Electric Company's San Francisco office for $366,803.[467] The Kaiser Steel Corporation of Oakland fabricated the penstock for $500,588[468] The Japanese firm Hitachi of New York supplied a gantry crane for $77,536.[469] The James Leffel Company of Ohio contracted for the "delivery of the turbine and appurtenant works" for $738,253.12.[470] Collins Electrical Company of San Juaquin County built transmission lines from Robbs Peak Powerhouse to the Union Valley Powerhouse, connecting the unit to SMUD's network.[471] In 1965, Wismer and Becker of Sacramento, contracted for $664,112, installed the turbines and completed

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[465] *Sacramento Bee*, July 26, 1964.

[466] *Sacramento Bee*, October 1963.

[467] *Sacramento Bee*, September 5, 1963.

[468] *Sacramento Bee*, November 22, 1963.

[469] Ibid.

[470] *Sacramento Bee*, July 11, 1963.

[471] *Sacramento Bee*, June 19, 1964.

electrical work.[472] Robbs Peak Powerhouse, which the *Bee* labeled "the first unit of the second phase," began operating in late 1965, adding 25,000 kilowatts to SMUD's power generation capacity.[473] Water from the Rubicon watershed moves through the Robbs Peak tunnel to the Robbs Peak Powerhouse and after generating power, the water then enters Union Valley Reservoir where it continues to generate power at plants farther downstream.

At lower elevation, construction began on the Slab and Brush Creek Dams, and a tunnel and powerhouse at White Rock. Workers began the White Rock tunnel in 1964 and Slab Creek Dam in 1965. SMUD contracted with Walsh Construction Company for $12,469,140 to bore the roughly five-mile 24-foot diameter tunnel from Slab Creek Dam to the White Rock Powerhouse site.[474] Walsh also won the contract to build Slab Creek Dam, bidding $6,631,510.[475] Completed in 1967, Slab Creek Dam sits on the South Fork American River, approximately two miles north of the town of Camino. The completed dam measures 233 feet high and 810 feet long, with a storage capacity of 16,600 acre-feet and a surface area of 249 acres.[476] Slab Creek and the White Rock tunnel serve the White Rock Powerhouse located to the north of Placerville. In 1965, the J. A. Jones Construction Company began the first phase of the White Rock Powerhouse, a job that

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[472] *Sacramento Bee*, March 4, 1965.

[473] *Sacramento Bee*, October 15, 1965.

[474] *Sacramento Bee*, October 17, 1964.

[475] *Mountain Democrat*, April 22, 1965.

[476] Division of Safety of Dams, "Dams Within the Jurisdiction of the State of California," State of California, Department of Water Resources, http://www.water.ca.gov/damsafety/docs/Jurisdictional2014.pdf (accessed October 17, 2015).

required major excavation, including redirecting the river.[477] Chicago Bridge and Iron Company won the bid for penstock and steel tunnel liners for $714,480.[478] In a controversial move, the SMUD board of directors voted 3 to 2 in favor of accepting bids from Japanese firms for turbines and generators. Tokyo Shibura Electric Company won the contract for $1,310,526 and supplied two 140,000 horsepower turbines, and Hitachi New York, Ltd. contracted to supply two generators.[479] Interestingly, in December of 1966, a fire at a warehouse in Diamond Springs destroyed the Japanese generators and insulators.[480] Insurance covered the $2 million loss and SMUD immediately reordered the equipment without going to bid, but the losses threatened to delay the project for one year.[481] White Rock Powerhouse began operation in early 1968, adding 200,000 kilowatts of power generation to the UARP.

Addling new water storage and power generation capacity to existing systems marked the closing years of UARP construction. In 1968, the Dravo Corporation of Burlingame, Washington contracted with SMUD to build the Brush Creek Dam and tunnel for $5.8 million.[482] Located on Brush Creek, 12 miles north of Pollock Pines, the Brush Creek Dam addition to the UARP is a concrete arch dam, 213 feet high and 780

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[477] *Sacramento Bee*, May 6, 1965.

[478] *Sacramento Bee*, July 14, 1964.

[479] *Sacramento Bee*, June 23, 1964.

[480] *Sacramento Bee*, December 20, 1966.

[481] *Sacramento Bee*, February 4, 1967.

[482] *Sacramento Bee*, October 18, 1968.

feet long, with a storage capacity of 1,530 acre-feet and a surface area of 22 acres.[483] The Brush Creek tunnel, started in 1969, is 14-feet in diameter and roughly 5,000 feet long, and transfers water from Brush Creek reservoir to the penstock above the Camino Powerhouse.[484] The increased water supply allowed for the addition of a 75,000-kilowatt generator at the Camino Powerhouse. Unfortunately, on February 25, 1970, the counter-weight of a 100-ton crane crushed 34-year old Dravo employee Olen E. Shepard at the Brush Creek construction site.[485] Contractors completed the Brush Creek Dam in 1970.

The completion of the Loon Lake Powerhouse represented the close of an important era for SMUD and the USRP. In 1965, the Gates and Fox Company of Placerville, California contracted for $857,080, began exploratory drilling for the subterranean Loon Lake Powerhouse.[486] In 1966, Walsh Construction Company, the same firm that built Slab Creek Dam and the Camino and White Rock tunnels, won the Loon Lake Powerhouse bid for $10,372,410.[487] Planners expected the project to move 500,000 cubic yards of solid rock. The work included enlargement of the 10-foot diameter penstock tunnel, and the boring of an 18-foot diameter tailrace tunnel 20,200 feet to Gerle Creek reservoir.[488] Additionally, crews bored a 17-foot diameter access

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[483] Division of Safety of Dams, "Dams Within the Jurisdiction of the State of California," State of California, Department of Water Resources, http://www.water.ca.gov/damsafety/docs/Jurisdictional2014.pdf (accessed October 17, 2015).

[484] *Sacramento Bee*, June 11, 1969.

[485] *Mountain Democrat*, February 26, 1970.

[486] *Mountain Democrat*, June 24, 1965, *Sacramento Bee*, August 5, 1965.

[487] *Mountain Democrat*, September 22, 1966.

[488] Ibid.

tunnel at an angle of 48 degrees 1,600-feet to the subterranean powerhouse location, known as the machine hall.[489] The machine hall is 86 feet wide, 114 feet long and 120 feet high, and is located 1,200 feet below the west end of Loon Lake Reservoir.[490] The subterranean work was dangerous and in 1,968, a falling boulder, estimated at, "800 to 900 pounds," killed a 51-year old Walsh employee named Eugene Sebe Dobbs.[491] The design specifications for the tailrace tunnel allowed it to transport heavy power generating equipment to the machine hall.[492] A West German firm, contracted for $147,110, installed an elevator in the access tunnel to allow crews to reach the machine hall.[493] In 1969, the Dravo Corporation won a $7 million dollar contract for the installation of power generation equipment and finish work at the powerhouse.[494] In 1970, a steel cable fell down an 1100-foot access shaft, killing a 34-year old Dravo employee named Robby Gene Mitchell.[495] Dobbs, Shepard, and Mitchell's deaths during the construction highlight the UARP's human cost.

Despite heavy winters and remote working conditions, contractors completed the Loon Lake Powerhouse in 1971, adding 78,000 kilowatts to the UARP's output. SMUD's 1971 annual report triumphantly reported that the UARP had an installed capacity of

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[489] *Mountain Democrat*, September 22, 1967.

[490] *Mountain Democrat*, September 22, 1966; *Mountain Democrat*, July 13, 1969.

[491] *Mountain Democrat*, November 2, 1968; *Mountain Democrat*, November 7, 1968.

[492] *Mountain Democrat*, August 1, 1968.

[493] *Sacramento Bee*, September 22, 1967.

[494] *Mountain Democrat*, July 13, 1969.

[495] *Mountain Democrat*, August 27, 1970.

628,000 kW, and "During 1971 this project generated 1.7 billion kWh, or 42.6% of the District's requirements."[496] The *Mountain Democrat*, in its June 24, 1971 edition noted that "250 invited dignitaries and other guests," all unnamed in the article, arrived at Loon Lake for the unveiling of a plaque commemorating the completion of the SMUD's Upper American River Project.[497] Unlike the multi-page article the *Mountain Democrat* devoted to the UARP groundbreaking ceremony in 1956, the paper briefly mentioned the dedication ceremony on page twenty. There were no speeches by governors and senators and no parades or water-ski shows. The times had changed.

## Conclusion

The September 26, 1957 inauguration of the UARP was the culmination of several decades of effort on the part of an elite group of citizens committed to harnessing the Sierra's resources on behalf of the City of Sacramento. The Bechtel Corporation's design and management of the UARP's construction meant that the San Francisco-based engineering giant was responsible for executing SMUD's vision. Economic activity in El Dorado County expanded as an array of firms hired by Bechtel arrived in the area to fulfill lucrative contracts. Social costs also accrued with the influx of new workers and their families into the communities nearest the UARP construction sites, with Pollock Pines residents blaming SMUD for the increase in attendance at the local school.[498] Local workers accepted a variety of occupational hazards, including the risk of death, to bring

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[496] Sacramento Municipal Utility District, "Power Supplies," *Annual Report 1971* (Sacramento: Sacramento Municipal Utility District, 1971).

[497] *Mountain Democrat*, June 24, 1971.

[498] *Mountain Democrat*, November 27, 1958.

the UARP into existence. On March 23, 1971, an explosion at the White Rock Powerhouse killed SMUD employees Harry Samuel Seibert and Arie Van Der Hoeven, illustrating again that the UARP had a price tag that went beyond revenue bonds.[499] The true price of the UARP was, and is, impossible to calculate. The UARP generated power, provided water, made money, and expanded the region's recreational opportunities significantly, but the UARP permanently altered the topography of the region as well. The construction of the UARP directly inspired the creation of the Crystal Basin Recreation Area, with its numerous campgrounds, picnic areas, parking lots, restrooms, boat launch facilities, and docks, built around SMUD's trout and salmon stocked reservoirs. Ultimately, the value of the UARP remains largely subjective. Understanding the UARP's complex story, with its many mutually influencing connections, can help society determine the true social, economic, and environmental price of SMUD's Upper American River Project.

[499] Ward, *"…for the people,"* 96.

# Ten: Conclusion

## In the Shadow of the Cooling Towers: Rancho Seco and the UARP

Throughout the 1960s, SMUD leaders believed that by the 1970s the District's demand for electricity would exceed the UARPs power generation capacity. By 1967, SMUD had chosen Rancho Seco, near Sloughhouse, for the site of its new 800,000-kilowatt nuclear power station, and the District selected the Bechtel Corporation as the "architect-engineer" for the project.[500] In 1968, SMUD purchased its first batch of nuclear fuel, paying $1.8 million to Allied Chemical Corp. of New York for uranium fuel processing.[501] In 1968, the Atomic Energy Commission approved SMUD's application to build a nuclear power plant. In 1969, the same year SMUD contracted Dravo to build Brush Creek Dam, the company won a $14,608,995 joint-venture bid with C. H. Leavett Company to develop Rancho Seco.[502] Contractors completed the Rancho Seco plant in 1973, and SMUD commissioned the facility in April 1975. What once took decades, now took years. Rancho Seco's development path from conception to creation made UARP's long development history seem archaic. The UARP slowly slid into Rancho Seco's shadow as nuclear energy generation grabbed local and national headlines during the 1960s and 1970s. The nuclear power plant's fall from grace during the 1980s illustrates how culture intersects with power development at the local level. The growth of environmental movements during the 1960s and 1970s created new opposition groups

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[500] *Sacramento Bee*, December 27, 1967.

[501] *Sacramento Bee*, July 26, 1968.

[502] *Sacramento Bee*, April 1969.

that did not exist when SMUD constructed the UARP. The Sierra Club no longer stood alone when confronting projects. When organized opposition to Rancho Seco gained momentum in the wake of several potentially dangerous operational failures, SMUD responded by altering its power development priorities, and Rancho Seco was subsequently shut down.[503] The Silver Creek Project, the Upper American River Project, and the Rancho Seco Nuclear Generating Station were cultural products, each with a story that reflected their times.

**Jones Fork Powerhouse and the SOFAR: The 1980s**

The cultural changes during the 1960s and 1970s meant that individuals and small groups learned to assert themselves through activism, the press, the electoral process, and the courts in ways not fully utilized during SMUD's development of the UARP. By the 1980s, SMUD had to fight for modest expansions within the already established UARP system. In 1979, SMUD proposed the Jones Fork Powerhouse, located on the Jones Fork Silver Creek arm of the Union Valley reservoir. The project included a 10-megawatt powerhouse, a 6,900-foot steel penstock, and a 2,700-foot tunnel leading from Ice House reservoir.[504] The project required workers to clear 37.2 acres of forest and to construct an intake for the tunnel that required draining Ice House reservoir.[505] A variety of groups proposed the new construction. SMUD considered the Jones Fork project to be a simple expansion of the UARP, with Jeff Marx of SMUD stating "This project isn't a real big

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[503] Christopher Castaneda, "Recalling Rancho Seco: Voicing a Nuclear Past," in *River City and Valley Life: An Environmental History of the Sacramento Region* (Pittsburg: University of Pittsburg Press, 2013), 238.

[504] *Mountain Democrat*, October 24, 1980.

[505] *Mountain Democrat*, March 17, 1982.

deal."[506] But by the 1980s, regional stakeholders challenged that assumption. Opposition to Jones Fork Powerhouse included the individual "concerned citizen" Kent Calvert, Residents for Affordable Power, and El Dorado County officials.[507] Calvert's suit expressed "concern for endangered species" and noted that bald eagles and peregrine falcons nested in the area during winter.[508] SMUD countered by pointing out that a detailed Environmental Impact Report (EIR) existed and SMUD had agreed to halt construction in December of each year for the benefit of birds nesting in the area.[509] The Residents for Affordable Power and El Dorado County wanted SMUD's support for the El Dorado Irrigation District's South Fork American River Project (SOFAR). When SMUD rescinded an offer to purchase power form the proposed SOFAR project, some El Dorado County officials threatened to condemn the land SMUD needed to construct Jones Fork. SMUD's experience with Jones Fork Powerhouse illustrates the difficulties encountered in an era of citizen lawsuits, environmental impact requirements, and assertive local governments, factors largely absent when SMUD developed the UARP.

The failure of the SOFAR project further explains how crucial timing was in the successful completion of the UARP. Proposed in 1967, the El Dorado Irrigation District (EID) set out to construct a series of small dams, reservoirs, and powerhouses along the upper South Fork American River. In 1981, El Dorado County Supervisor Joseph V.

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[506] *Mountain Democrat*, November 28, 1979.

[507] *Mountain Democrat*, March 17, 1982.

[508] Ibid.

[509] Ibid.

Flynn accused state agencies of bowing to pressure from environmental groups.[510] A sampling of SOFAR opponents included the Sierra Club, the California Department of Water Resources, the American River Recreation Association, and the Concerned Citizens for Rural Resources.[511] Flynn also blamed the lawyers of "rafters-cum-environmentalists" for unnecessarily delaying the project.[512] Eugene Chappie agreed with Flynn, asserting that rafters "single handedly killed the SOFAR."[513] By 1983, Senator Alan Cranston counted as a SOFAR opponent, and advocates accused him of pandering to the Friends of the River environmental organization.[514] Writing in 2000, Joseph Flynn was still angry about the defeat of the SOFAR project, claiming that environmental groups "fought to destroy the project. They protested the license and harassed the Authority and investors in court, at hearings, and in the media."[515] Although obviously partisan, Flynn's perspective still highlights the power that SOFAR's opposition was able to bring to bear during the 1980s. SMUD constructed the UARP prior to the major cultural changes that lead to the creation of the modern environmentalist movement and the District's struggle building the Jones Fork Powerhouse and EID's failure to get the SOFAR project built exemplify the role timing played in the UARP's successful development.

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[510] *Mountain Democrat*, January 28, 1981.

[511] *Mountain Democrat*, March 19, 1982.

[512] Ibid.

[513] Chappie, *Interview with Eugene Chappie*, 36.

[514] *Mountain Democrat*, December 5, 1983.

[515] *Mountain Democrat*, August 28, 2000.

## Age of Opposition: The UARP's 50-Year FERC Relicensing

The Federal Power Commission license issued to SMUD in 1957 was good for 50 years. As 2007 approached, SMUD set out to address potential opposition that might hinder its license renewal with the Federal Energy Regulatory Commission. Had they existed in the 1950s, the array of opponents SMUD faced during relicensing might have derailed the UARP. Since the 1950s, government agencies had grown in number and political power, and the environmental and recreational advocacy groups of the 2000s had reached an unprecedented level of organization and political experience. Since the UARP already physically existed, potential relicensing opponents focuses on obtaining a range of concessions. El Dorado County agencies saw the 50-year relicensing as an opportunity to right perceived wrongs committed by SMUD during negotiations in the 1950s. Seeking water and money for their growing region, El Dorado County agencies tasked with water and utility management formed a coalition in an effort to speak with one voice. In 2005, the El Dorado agencies agreed to support SMUD's relicensing bid in exchange for access to SMUD facilities for water distribution (although water still had to be purchased or rights had to be acquired), and monetary payments for the "mitigation of adverse impacts."[516] SMUD agreed to pay El Dorado County $1 million within 10 days of the agreement, $1.6 million within ten days of SMUD's successful relicensing, and

[516] El Dorado Water and Power Authority, "El Dorado Intra-County Coordination Agreement" (2005), https://www.edcgov.us/waterandpower/water_power_pdf/ED_Intra-County_Coordination_Agrmnt_Final_091605.pdf (accessed 10/20/2015).

annual payments of $590,000.[517] At the 50 year mark, money for UARP related expenses and access to water trumped other concerns for El Dorado County.

SMUD had much less success negotiating with state and federal agencies, local advocacy groups, and concerned individuals because opposition concerns often related to management of the rivers within the UARP. The broad coalition of opponents argued that SMUD's plan failed to address environmental and recreational concerns. Relicensing opponents designed a competing plan, termed the Agency/NGO Plan, to challenge the plan SMUD submitted with its relicensing applications. A Friends of the River report claimed that the alternate plan was "supported by all federal and state resource agencies, conservation, whitewater boating, and angling interests."[518] Support for the alternative plan came from the California Departments of Fish Game and Park and Recreation, the State Water Resources Control Board, as well as federal agencies, including the U.S. Forest Service, Bureau of Land Management, Fish and Wildlife, and the National Park Service. Local alternative plan supporters included the American River Recreation Association, American White Water, California Outdoors, Friends of the River, and private boater Hilde Schweitzer and angler Chris Shutes.[519]

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[517] El Dorado Water and Power Authority, "Fact Sheet: El Dorado Water and Power Authority and Sacramento Municipal Utility District Proposed Cooperation Agreement" (2005) https://www.edcgov.us/waterandpower/water_power_pdf/Fact_Sheet_9-09-05.pdf (accessed on 10/20/2015)

[518] Julie Leimbach and Steven L. Evens, *Hydropower Relicensing on the Upper American River Project: A Comparison of SMUD's License Application with the Agency/NGO Alternative,* Friends of the River, April 26, 2006, http://www.friendsoftheriver.org/site/DocServer/UARP_Comparison_Report_.pdf?docID=141 (accessed October 20, 2015).

[519] Leimbach and Evens, *Hydropower Relicensing on the Upper American River Project*.

Opponents argued that the UARP's original operating plan was negotiated in 1957, prior to most environmental laws.[520] In the 50 years since the FPC licensed the UARP, it had become clear to observers that water releases designed for efficient and profitable hydroelectric generation did little to create healthy river habitat or white water rafting opportunities. Ironically, the promise of smooth and well-regulated flows that SMUD used to entice support from organizations in the 1950s now posed a problem. Environmentalists, along with agencies responsible for fish and wildlife, now called for increased water levels in all streams and rivers, and "pulsed releases" that mimicked seasonal storms. Pulsed releases, according to the alternative plan, would help wildlife by revegetating river shorelines, moving silt off fish spawning beds, and deepening the river channels for cold-water fish. Whitewater rafters called for "reliable and predictable" river flows below Slab Creek Dam, arguing that their recreational activity brought $33,000,000 into the local economy.[521] The Forest Service wanted higher reservoir levels during the summer and increased spending on recreational infrastructure in the Crystal Basin Recreation Area. The conditions imposed by the Agency/NGO Alternative would create a 7.9% reduction in generation capacity. SMUD resisted many of the proposed license conditions because decreased revenue from power generation and increased spending on recreation infrastructure would mean higher rates for district ratepayers.

After long and complex negotiations that attempted to strike a balance between "environmental protection and power generation," SMUD announced on July 24, 2014

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[520] *Sacramento Bee*, November 12, 2006.

[521] Leimbach and Evens, *Hydropower Relicensing on the Upper American River Project*.

that FERC granted SMUD a new 50-year license for the "continued operation of the Upper American River Project (UARP)."[522] SMUD agreed to pulsed water releases, increased river flows, to renovate and construct campsites, and to numerous other operational changes.[523] Over 50 years, opposition to SMUD's work in the UARP changed character. Money and water continued to be contentious issues, but by the 1980s, environmental concerns had the ability to make or break a project. By the 2000s, environmental concerns within mainstream American culture and government environmental regulation had completely redefined Sacramento's relationship with its hinterlands. The relicensing effort imposed a social responsibility upon SMUD to manage the UARP for all citizens, even if they resided outside the utility district. Additionally, SMUD's social responsibility extends to stewardship of the environment. In 2003, SMUD's Board of Directors adopted a resolution declaring "Environmental leadership is a core value of SMUD."[524] By contrasting SMUD's 50-year licensing experience with its experience developing the UARP during the 1950s, the role that cultural change over time played in defining the relationship between a metropolis and its hinterlands becomes clear.

**Summary: Mountain Water, the Silver Creek Project, and the UARP**

The Gold Rush Era imparted to Northern Californians the technical ability and the cultural confidence to manipulate the hydrology of the Sierra. Gold miner's efforts to

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[522] SMUD, "SMUD receives new 50-year license from FERC." https://www.smud.org/en/about-smud/news-media/news-releases/2014/2014-07-24-UARP-relicensing.htm (accessed October 20, 2015).

[523] SMUD, "SMUD receives new 50-year license from FERC."

[524] SMUD, "Core Values," https://www.smud.org/assets/documents/pdf/SD-7.pdf (accessed October 20, 2015).

reshape Sierra watersheds for profitable gold extraction left behind the foundational water-works that the region's early hydroelectric pioneers quickly put to use. Men like Eugene De Sabla, founder of PG&E, and Horacio Gates Livermore, builder of the Folsom Power House, tapped their Gold Rush experience to create an indigenous Northern California hydroelectric industry that dramatically influenced regional culture and lead directly to the electrification of Sacramento. At the turn of the century, a California-wide culture of electrification fueled rapid growth in early electricity markets, creating a continuously expanding demand for more power. The Sierra's particular suitability for hydroelectric development, the region's expanding power markets, and Sacramento's growing water needs combined to incentivize a new rush to exploit mountain resources. This thesis demonstrates that the UARP traces its history back to an indigenously developed idea that sought to harness the water and power potential contained within the Northern Sierra's watersheds for the benefit of the City of Sacramento.

The City of Sacramento's quest for clean water initiated a local discourse that resulted in the development and refinement of a general scheme to obtain mountain water. Sacramento's water quality debate, and the proposed solutions, brought the potential of the Sierra watersheds to a wider audience. Over many years, the protracted debate brought together mountain water advocates like engineer Albert Givan, businessperson Royal Miller, and Judge C. E. McLaughlin, creating a nucleus around which the mountain water idea subsequently evolved. Investigations into a mountain water source for Sacramento, and the high cost associated with the idea, made the

addition of profitable hydroelectric development a likely requirement for any project. Investigations into possible water sources lead directly to the creation of the Silver Creek Project idea, credited in most sources to Albert Givan. Furthermore, the political difficulties the city encountered during its attempts to find a water quality solution also served to fuel the discourse surrounding the municipal ownership of water and power infrastructure. Many citizens came to believe that the current city government was too dysfunctional to execute large public works projects, leading to the reorganization of the city government and making the creation of SMUD attractive to elite citizens and average voters. Sacramento's long delayed decision to build a filtration plant on the Sacramento River failed to kill the mountain water idea as local water demand quickly outstripped the plant's capacity. Ultimately, Sacramento's water quality debate during the first decades of the twentieth century was instrumental in bringing the mountain water idea into the wider Sacramento discourse, and the Silver Creek Project was the direct result of efforts to refine the mountain water idea.

Silver Creek Project advocates received a timely boost from state and federal legislation in the form of the Federal Water Power Act of 1920 and the California Municipal Utility Act of 1921. With the election of 1921, Silver Creek proponents became the dominant force at city hall and Sacramento quickly obtained the water rights to Silver Creek. In 1923, Silver Creek believers were instrumental in successfully lobbying for the creation of the Sacramento Municipal Utility District. The Silver Creek Project idea moved into the new public utility when Givan, Miller, and McLaughlin became part of its core group of officials. SMUD's initial attempt to develop the Silver

Creek watershed met intense opposition from PG&E. SMUD hoped to fund the project through bond elections in 1927, 1929, and 1931. Each Silver Creek Project bond election fell short by a small margin. During the 1930s, events at the state and national level continued to influence local events. The proposal of the Central Valley Project and the promise of cheap power incentivized outlying communities to join SMUD's service area. Furthermore, the Great Depression renewed interest in public utility ownership and increased suspicion of large corporate utilities. In 1934, SMUD sought funding to construct or purchase a power distribution network. The expanded electorate, one that largely resented PG&E, helped SMUD with a bond election victory. PG&E tied SMUD up in court until 1938 when the court deemed the bonds valid. In 1938, SMUD began condemnation proceeding against PG&E's Sacramento distribution system. This work demonstrates how state and federal legislation facilitated the creation of SMUD, which in turn provided a formal political platform for the Silver Creek Project. Additionally, events in the 1930s, like the Great Depression and the proposal of the CVP, played important roles in the transformation of SMUD into an aspiring electric utility.

SMUD's acquisition of PG&E's distribution network in 1946 had the short-term effect of temporarily sidelining the Silver Creek Project; however, the District's formal entry into the electrical distribution business made acquiring power a key organizational necessity. The dramatic post-Second World War population boom in the Sacramento Valley, combined with SMUD's marketing efforts to increase local per-capita electricity use, substantially increased demand for electivity by the early 1950s. When it became apparent to SMUD leaders that the by the 1960s, the District's power needs could not be

met by purchasing power form PG&E and the CVP, the aging Silver Creek Project retuned to relevance. In 1955, Frank E. Bonner submitted a revised version of Albert Givan's original Silver Creek Project, modernizing it, expanding it, and renaming it the Upper American River Project. At the end of 1955, SMUD sought permission from voters to sell $85,000,000 in revenue bonds. SMUD's decades of bond election experience payed dividends at election time and the measure passed overwhelmingly. This paper demonstrates the contingent nature of the UARP's development by illustrating how SMUD's timely entry into the power distribution business, growing local demand for electricity, and insufficient local power supply options all created a window of opportunity for the Silver Creek Project to be transformed into the Upper American River Project. Furthermore, after decades, the Silver Creek idea remained alive within SMUD because key advocates, including Albert Givan and Royal Miller, remained involved with the District.

The construction of SMUD's "Stairway of Power" in the Sierra Nevada transferred the mountain water/Silver Creek/UARP idea onto the land. Authorizing the water rights and power licenses for the project required significant negotiations with state and federal government agencies, but also with regional stakeholders like the City of Sacramento, El Dorado and Placer counties, and civic groups. Negotiations shaped the final form and operation of the UARP, even creating two non-UARP reservoirs as payment for support for the project. With water rights and power licenses, SMUD set out to build the UARP in 1958. The Bechtel Corporation revised Bonner's UARP plan and set to work hiring contractors and managing the construction. At the end of the next

decade, Bechtel figured prominently in SMUD's entry into nuclear power generation, a relationship forged during the UARP years. Constructed between 1958 and 1971, the dams, powerhouses, reservoirs, tunnels, transmission lines, and access roads of the UARP reshaped the land, repurposing the environment to serve the Sacramento region. The individual histories of Ice House, Union Valley, and Loon Lake help to explain the region's utilitarian role in local culture. Subsequently, few locals materialized to defend the land on preservationist merits. The UARP's recreational benefits, first used as a carrot for skeptical mountain communities, became a reality with the creation of the Crystal Basin Recreation Area. Finally, the human cost in lives associated with the UARP adds its own moral tax to the project. This paper demonstrates that events surrounding the construction of the UARP, including the intense negotiations with numerous parties, shaped the final form and function of the hydroelectric project. A comprehensive history of a local project can help society assess the true value of a public work by considering the human experiences alongside environmental costs.

This work explains the history of the Upper American River Project. I have argued that the UARP is a historically contingent public work that began as an idea created by a distinctly local culture, but over time, social, economic, technological, and political factors at the local, state, and national level played important roles in determining the UARP's ultimate purpose and final design. As I reviewed the source material, I found a common thread leading back to the nineteenth century. The evidence showed that the city of Sacramento was indeed in a mutually constitutive relationship with its hinterlands. SMUD's UARP shaped the politics, economy, social patterns, and

physical geography of El Dorado County. The Silver Creek idea first restructured Sacramento politically, and the power and water extracted from El Dorado and Placer Counties via the UARP helped Sacramento expand across the valley. Within the UARP's story, I saw how human modification of the environment incentivized more changes, as development created new possibilities for further environmental manipulation. Additionally, studying the history of the UARP illustrated how attempts to control water created new social and political hierarchies that evolved over time. Finally, I learned that the Upper American River Project's existence was highly contingent upon unique perspectives and pivotal moments in time, and by examining those historical variables, one can gain valuable insight about a city, its people, and the environment.

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