


ARTICLE

“Killing Complaints with Courtesy”: The Role of Relationship Building in the Success of the Early U.S. Central Power Stations (1890–1938)

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Histories of electrification revolve around networks of power developed by “system builders.” These histories, though immensely important, explain the progress of electrification from the perspective of institutions or individuals, rather than through everyday relationships. While the industry pushed the idea that electricity was an obvious must-have for urbanites, vast resources in the 1920s and 1930s went toward cultivating “courteous” relationships among meter readers, electricians, repairmen, billing clerks, and customers. These relationships were pivotal to electrification, especially with complaints about high bills, malfunctioning meters, and “inadequate” wiring, which led to customer curtailment and threatened the prosperity of central power stations. This article expands the notion of who counts as critical actors in the success of electric grids and counters contemporary claims: namely, that grids fail because of bad consumer behavior. By emphasizing the role of everyday relationship-building in the evolution of electric utilities, this study contributes to a history of electricity that examines invisible and mundane networks to expose the relations beneath the grid.

Keywords: histories of electrification; utility-customer relations; US 20th; electrical grids

Introduction

On January 8, 1916, L. J. Wilhoite’s lecture to the Chattanooga (TN) Railway and Light Company salesmen filled the pages of *Electrical World*, the premier electricity industry journal of its time. The “sermon,” as the journal called it, given by a rising industry leader was a statement on the attitudes and behaviors he saw as necessary for the success of central

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power stations.¹ Often badgered by complaining customers and their grievances in an industry marked by tumultuous and opaque changes, utility men heard about high or inaccurate bills, faulty meters, and lights that were too dim. Wilhoite understood that every central station man would find it trying to listen to these same old complaints, as “entertaining as seeing the same moving-picture show several times during the same day,” but he did not mince words: the men needed to find it within themselves to “kill these complaints with courtesy.”² He told the men that they needed to develop a proper attitude toward customers with a “kick” (i.e., complaint). Servicemen should show real interest in users, resist negativity, and—when in doubt—agree with them. If workers found that “a customer’s complaint really does exasperate” them, such that they “can’t help feeling that such complaints are nuisances,” Wilhoite advised them to “seek employment in a line where you will never hear about ‘high bills.’”³

Like many other electrical commentators and leaders during the turbulent transitional years of the first four decades of U.S. electrification, Wilhoite recognized that good public relations and courteous interactions were key to a successful business.⁴ But just how critical were these efforts to the flourishing of electric utilities and their grids? When and why did “electrical men” come to believe them to be so?⁵ And what lengths did they go to in their quest to “kill complaints with courtesy”? For electrical men to have been so deeply obsessed over the minutia of interactions with ordinary users, the history of U.S. electrification had to have rested on far more precarious margins than these men would have readily admitted.

Formative histories of centralized power systems, including the relationships that were integral to their development, have been built on Thomas Hughes’ 1983 overarching Western account.⁶ Taken from the perspectives of engineers, politicians, investors, and other “systems builders,” these stories explain the progress of electrical grids through war- and Depression-era economic mobilization, national securitization, battles of ideas and egos, and technological momentum buoyed by increasing numbers of system builders.⁷ Historians like David Nye examine the broader sociocultural dynamics that central power stations leveraged, such as spurring electrical consciousness (and desires) through lavish showrooms and lighting

1. Within ten years, Wilhoite would go on to become chairman of the Chattanooga company. His article discussed in the opening paragraph is found in L. J. Wilhoite, “Killing Complaints with Courtesy,” *Electrical World*, January 8, 1916, 102-3.

2. Wilhoite, “Killing Complaints,” 102.

3. Ibid.

4. Good relations were paramount to businesses in the first decades of the twentieth century. Friedman, *Birth of a Salesman*. On monopolies, see Daniel Robert’s forthcoming book, *Courteous Capitalism*.

5. Industry leaders often called themselves “electrical men” throughout the first half of the 20th century. See for example, “Business Facts for Electrical Men,” *Electrical World*, December 15, 1928, p 3; also, “A Good Year for Electrical Men,” *Electrical World*, January 5, 1935, 21-4.

6. Hughes, *Networks of Power*. Hughes’s work is part of a lineage of histories examining the electric industry’s influential actors. See: Coleman, P. G., and E. of California, Ramsay, *Pyramids of Power*. For more recent histories, see Platt, *The Electric City*; also, Jonnes, *Empires of Light*.

7. Hughes, *Networks of Power*; Ramsay, *Pyramids of Power*; Platt, *The Electric City*. For Britain, see Coleman, “Security of Supply” (unpublished). For histories of nonwestern grids, see Straeten, “Measuring Progress in Megawatt” and Silver, “Disrupted Infrastructures” on sub-Saharan Africa; also, Kale, *Electrifying India*. In these accounts, early “system builders” were often colonial powers who used large-scale infrastructure to legitimize their authority and control and built grids unevenly.

exhibits and mobilizing vast networks of salespeople during the postwar booms.⁸ Reckoning with what Ruth Schwartz Cowan termed "outside in" studies on electric power networks,⁹ these histories shed light on companies' "agents of diffusion" who worked tirelessly to persuade consumers (often "the housewife") to "live better electrically" by leveraging notions of cleanliness, safety, comfort, and convenience.^{10,11} Although rich in newfound angles, these histories by and large rely on a historical misconception: that profitable urban centralized grid systems could have emerged as self-sustaining, as opposed to rural networks, which were seen as needing more substantial support and intervention.¹² Considering the influence of Hughes and his proposition that large sociotechnical systems like electric grids carry intrinsic forces that keep them growing, the presumption of a self-evident commercial demand for centralized grid services is hard to avoid.

In contesting the inevitability of all electrical grids, this paper emphasizes everyday experiences with and reservations toward electrical living over fifty years, while following work that questions the user–designer dichotomy.¹³ In doing so, it explores physical infrastructures and social experiences as being dynamically "co-produced" and extends a small but growing strand of scholarship on the everyday history of electrification, which in the United States primarily focuses on rural areas and the New Deal era.^{14,15} By arguing that American grid networks were far from inevitable, I reveal how users', or rather nonusers', resistance to electrification manifested and became legible across a vast network of low-level workers and managers.¹⁶ To this end, this paper traces the power of customer complaints and the

8. Kline, "Agents of Modernity"; Nye, *Electrifying America*; Rose, *Cities of Light and Heat*. Also, see Kline for rural electrification. For more recent scholarship, see Spinak, "Not Quite So Freely as Air," which looks at the transnational electric politics between Canada and the United States.

9. Cowan, "The Consumption Junction," 262.

10. For the United States, see Rose, *Cities of Light and Heat*. For Britain, see Gooday, *Domesticating Electricity*.

11. Cowan, *More Work for Mother*; Gooday and Harrison Moore, "Networks of Power?"; Harrison Moore and Sandwell, *In a New Light*. For a more thorough discussion on these complexities, the tensions in accounting for women's agency, and the deepening of gendered commitments to simply sell goods, see Rutherford, *Selling Mrs. Consumer*, and Goldstein, *Creating Consumers*.

12. Hausman, *The Electricity City* (Book Review), 793; Hirsh, "Shedding New Light." Hausman wrote that the industry's story was "actually one of slow, and far from investable, progress." For more work contradicting long-held assumptions on rural electrification, see Hirsh.

13. Although the term "grid" did not appear in *Electrical World* until 1935, "gridiron" was used as early as the 1880s to describe the lines crisscrossing American cities. See "Electric 'Grid' for Russia," *Electrical World*, June 22, 1935, p 47; "The Massachusetts Legislature and Electric Railway Wires in Boston," *Electrical World*, March 16, 1889, 164–5. In this paper, I lean on a Science and Technology Studies (STS) understanding of the grid by eschewing the notion that it is strictly a series of large-scale networks at a national level, noting that it also operates at the level of township and geographically limited centralized networks.

14. Jasanoff, "The Idiom of Co-Production."

15. Glaser, *Electrifying the Rural American West*; Kline, "Agents of Modernity"; Montaña, *Electrifying Mexico*; Rovang, "The Grid Comes Home"; Tobey, *Technology as Freedom*. In Glaser's *Electrifying the Rural*, native and rural peoples' cultural practices dictated and shaped appliance purchases. Outside the United States, Diana Montaña's recent book similarly shows how local contexts and people have made the Mexican grid its own rather than a story in which a technology traveled from industrialized Euro-American urban centers to other communities.

16. Forty, *Objects of Desire*, 11; Kline, "Resisting Development," 328. Lie and Sørensen, *Making Technology Our Own?* Historians of technology have argued that resistance to technological change is not just performative, it has material consequences. On "non-users," see Wyatt, "Non-users Also Matter." In the case of utility

resulting “courteous” labor that frontline “agents of diffusion” (e.g., meter readers, electricians, repairmen, billing clerks) had to perform.¹⁷ Ultimately, I show that by training and conditioning users to speak out during electrical problems, the industry achieved a level of customer satisfaction and electrical reliance that enabled the symbolic and material success of their systems.

These contingencies and the dynamics of customer interaction and satisfaction speak broadly to the history of modern business. Business historians have argued that at the turn of the twentieth century when the American way of life was being radically transformed by industrialization and mass production, people had to be “converted into a national market” through marketing schemes that pit smaller, local companies against emerging behemoths.¹⁸ Large companies relied on powerful tactics that went beyond words and symbols adjusting business models and products along the way.¹⁹ These practices became paramount to their success. Similarly, there were always contingencies in the development of energy services, not only for electricity but also for coal and gas. Thus, an important question remains: if the spread of electric grids and their services was not inevitable, what alternative energy futures might have been? We might, after all, have ended up with gas refrigerators.²⁰

Indeed, we continue to live in a mixed energy economy in the present. In contemporary sub-Saharan Africa (SSA), although electric utilities and centralized power stations have existed in many cities for more than a century, households and businesses continue to rely heavily on charcoal, wood, kerosene, and diesel in their everyday lives, despite grid connections. Distinct cultural and political dynamics notwithstanding, looking at contemporary grid services in SSA, which are characterized by frequent black and brown outages, forces us to reckon with the historical rise of electrical reliance in Western contexts—imagining that it could have gone differently. While it is both entwined with and like other energy histories, the historical development of electrification deserves particular attention. After all, centralized grid services require a high level of continuous and coordinated use to function at such large and technologically complex scales, which implies a unique set of everyday, relational dynamics.

To understand the importance of cultivating the “right” relationships for the success of early twentieth-century American grids, this paper examines everyday interactions with ordinary users as mediated by both industry workers and the physical networks themselves (from household appliances and wiring to distribution transformers and conductors). This paper traces the lengths that electrical men went to before and during the Great Depression to produce satisfied users, which enabled the production of unconscious, unconstrained

services like electric grid access, the distinction between users and nonusers is complicated by the fact that many can still be utility customers, but not use the service frequently.

17. By frontline utility workers I mean employees who interacted with customers regularly, or as one industry commentator put it in 1909, “The men who are known,” who are “the clerks, solicitors, collectors, meter readers, and troublemen,” the employees “who see the customers in the office, or meet them in their homes, who represent the company.” Kennedy, “Courtesy as a Commercial Asset,” *Electrical World*, August 5, 1909, 328.

18. Strasser, *Satisfaction Guaranteed*, 7.

19. Richard, *New and Improved*.

20. Cowan, “The Roads Not Taken.”

consumption.²¹ I argue that only by confronting consumer dissatisfaction was it possible for good grids to be built. "Good grids" here serve as a symbolic and physical manifestation of the reliable and frictionless system, benchmarks against which other systems and histories have been judged. Problematic services reveal the forgotten history of reliable grid systems: infrastructure built not on the logic of mere cost recovery but instead on the continuous and laborious practice of relationship building and practices that (re)shaped these ideal electrical relationships.

Dire Conditions of Central Power Stations

A cursory look at the history of omnipresent grid systems in the United States reveals that central power stations are challenged by the politics of expansion, the economics of cost recovery, and the fears of diminishing returns amid larger societal transformations.²² From 1890 to 1920, industry leaders were caught between the management of corporate debt and the accumulation of new wealth, and they bet large on an electrified society. The first three decades of uncertain development were marked by the realization that their largest user base, the domestic user, could offer central stations safeguards against rapid depreciations of their expensive assets, difficulties in securing cheap financing to scale their business, and precariousness of their operating margins when powerful holding companies siphoned earnings.²³ While the hope was that domestic consumers could provide stable revenue, this would require years of manipulation to reach the level and type of consumption, or load, that utility operators believed they needed to guarantee financial success. Not all utilities would find it.

Within their first four decades of operation, countless new central stations across the United States went bankrupt or came close, while some private companies avoided bankruptcy by becoming municipally operated.^{24,25} The panics of 1893 and 1907 doomed many

21. Of course, women played a vital role in shaping the industry's practices; however, men made up most of the electric industry's frontline workforce and manager positions during the first six decades of electrification, except for office clerks and home economist positions, and during wartime labor shortages. See for example, "How Problems of Depleted Personnel are Being Met," *Electrical World*, May 5, 1942, 119-21; for women electrical laborers in manufacturing plants, see Schatz, *The Electrical Worker*; for discrimination charges brought against utilities during the civil rights movement, see Moccio, *Live Wire: Women and Brotherhood in the Electrical Industry*; also, Green, *Race on the Line*, for similar yet distinct history of race and gender dynamics in the telephone industry.

22. Cohn, *The Grid*; Nye, *American Technological Sublime*. By omnipresent grids I nod to what David Nye called a "technological sublime," more a Promethean symbol than human artifact, given that in any block or city, grids could be sporadic, uneven, or absent.

23. Hausman, "Pyramids of Power" (unpublished); Hausman and Neufeld, "The Structure," 225. For a discussion of the economics of the electric industry in the first twenty years, see "The Structure." Historians Hausman and Neufeld found that expanding grids in the US "did not translate easily or automatically into financial success for the operating companies involved." For holding company "pyramid schemes," see "Pyramids of Power."

24. Carpenter Jr., "The Westinghouse Electric." Macroeconomic instabilities throughout these decades jeopardized many but not all utilities during such economic panics.

25. Neufeld, *Selling Power*. Neufeld discusses the turbulent first decades of central power stations during what he calls their time of "growth and growing pains."

companies, including the Westinghouse Electric Company, which went bankrupt.^{26,27} A few years later, an Oklahoma newspaper claimed that many plants in the state had gone bankrupt, followed by many more companies whose mounting liabilities far exceeded company assets.^{28,29}

The relationship between stock busts and electric utility bankruptcies was not simply one of cause and effect. They were also both symptoms of the same underlying problem: the need to profit and secure funds in fast-changing times. Even after staggering banking instability and unpredictable financial panics led to the demise of countless companies, fierce competition continued to unsettle the industry. Multiple utilities (gas and electric) were operating within the same cities and towns, each desperately vying to serve the same customers.³⁰ Competition forced operators to lower rates or provide free services to keep their business attractive to ambivalent clients.^{31,32} A growing grid also meant the need for more and more capital to fund expansion, which drove competition over investment funds.³³

Attaining a local monopoly did not guarantee financial success. Rapid progress in technologies along the grid and quickly outdated equipment such as local transformers have led to precipitous depreciation of utility assets.³⁴ This calculus was on the minds of Vinita Electric Light and Power Co. of Oklahoma when, in March 1910, it informed the public that although the company had not gone into bankruptcy, it had not made any money either.³⁵ Leaders were desperate to prove that times were indeed hard, in case they had to increase their rates down the line.³⁶

26. Hughes, *Networks of Power*, 395.

27. See, for example: *Birmingham Age-Herald*, "Receiver Appointed. North Georgia Electric Company is in Bankruptcy," September 13, 1907, 1, LOC. On the bankruptcy of the Westinghouse Electric Company, see Carpenter, "The Westinghouse Electric."

28. Hausman and Neufeld, "The Structure and Profitability"; *Vinita Daily Chieftain*, "The Financial Service of an Electric Light Plant," March 22, 1910, 4, LOC. Vinita Electric had been operating for 21 years and was far from unique in its precarious financial situation.

29. Examples of such bankruptcies include Hawaii's Honolulu Electric Company, Arkansas Light and Power Company, and Guilford Electric Company in Hartford, Conn. For more, see the CaseLaw Access Project by Harvard University (<https://cite.case.law/d-haw/4/514/>) and *New Britain Herald*, "Goes Into Bankruptcy," March 8, 1923, 1, LOC.

30. Emmons, "Franklin D. Roosevelt, Electric Utilities." As late as 1930, there was competition among electric utilities in more than 100 cities across the US, including Cleveland, Ohio; Erie, Penn.; and Los Angeles, Calif. In Seattle, Puget Sound Power and Light, and Seattle City Light battled for roughly forty years until the city voted in 1951 for Seattle City Light to buy out its private competitor. See Billington, *People, Politics & Public Power*.

31. Rose, *Cities of Light and Heat*. Evidence of competition from gas utilities forcing electric utilities to lower rates.

32. William H. Stuart, "Electric Light Situation in Central New York," *Electrical World*, January 14, 1909, 161-3.

33. See Hausman and Neufeld, "The Market for Capital."

34. Platt, *The Electric City*, 79. Platt discusses tensions around upgrading wiring standards and "shoestring operations" of early utilities.

35. *Vinita Daily Chieftain*, "The Financial Service," 4.

36. Harrison, "The Historical-Geographical Construction of Power"; Schroeder, "More 'Small Things Forgotten,'" 528. Rate discussions were far from straightforward. Increasing electricity rates, even if publicly acceptable, was not seen as a sound industry practice for many decades because it meant less overall consumption, and less profit. Yet low rates for more consumption ("inducement rates") could only go so far. Differing

Larger companies that seemed to be doing well remained financially precarious, in part because of their ties to other fast-changing public services. The most notorious, perhaps, was the electric streetcar. "Autos Driving Electric Lines to Poorhouse," declared the front-page headline of the December 1919 *New York Tribune*.³⁷ The fact that streetcars were known to be operating at revenues falling to a "vanishingly low point" meant that their financial woes also affected electric companies, which provided their power in return for steady revenues.³⁸ Some blamed the demise of a company, like the Washington Railway and Electric Company (WR&E) in Washington, DC, on problematic and corrupt management, while others saw the decline of streetcars as a business reality that would require them to seek a new foundation for profit-seeking.³⁹

Historians William Hausman and John Neufeld write extensively about the challenges that power stations faced during their first thirty years of development. They argue that in the United States, the lack of financial stability, "let alone exorbitant profit," led to a rise in utility holding companies and the urban consolidation movement beginning in the early 1910s to help companies resolve some of their financing problems.⁴⁰ This was the case for both WR&E and Vinita in Oklahoma and for countless other operating utilities that would become controlled by massive holding companies.

Yet historian Daniel Robert reminds us that this consolidation movement would not have been easy for central power stations, like WR&E, who, in serving customers, would come up against the deep distrust of monopoly power in the Progressive Era.^{41,42} Moreover, although operating utilities controlled by holding companies benefitted from cheap financing, they were also susceptible to holding companies' pyramid schemes. Sitting at the bottom of the pyramid, operating utilities suffered from "imprudent" decisions from the top that trickled down to them, while their income "flowed" upward.⁴³

ideas and beliefs around the "correct" rate were reflected in the staggering variation in rates provided by any given utility (e.g., Harrison, "Race, Space," on Carolina Power & Light).

37. "Autos Driving Electric Lines to Poorhouse," *New-York Tribune*, December 11, 1919, 22, LOC.

38. "War Board and Street Cars Co.: The Data It Has Gathered Showing Their Situation," *Perrysburg Journal*, August 8, 1918, 7, LOC.

39. Some continued to cling to past revenue models, such as the chairman of the Committee on Public Utilities, who believed that raising streetcar rates was a commendable act by the commission charged with saving the Washington Railway and Electric Company. See *Washington Times*, "James T. Loyd, Chairman of the Committee on Public Utilities," June 11, 1919, Final Edition, 12, LOC.

40. Hausman and Neufeld, "The Structure," 227.

41. See Robert, *Courteous Capitalism*; Ferguson, "Public Relations," 47. In his *Public Utilities Papers* (1920–1946), Samuel Ferguson, the president of the Hartford Electric Light Company in Connecticut and a member of the Board of Trustees of the Edison Electric Institute (1943–1944), discussed the necessity of "public relations and good service," linking customer service efforts on the part of public utilities with overcoming "vengeance against the grasping monopoly."

42. Historian Roland Marchand, *The Corporate Soul*, saw growing utility monopolies as at odds with what Robert Weibe called the American "island communities," or the small, self-contained, autonomous town spirit that characterized American life before and into the Progressive Era. According to Marchand, these growing businesses needed a soul to make themselves legible in terms that Americans understood—and thus turned to aggressive public relations campaigns.

43. Hausman, "Pyramids of Power"; Neufeld, *Selling Power*. Discussion on costs that operating utilities incurred from their holding companies. In the 1930s, it became publicly known that holding companies were "bleeding" operating firms. "Utilities. Pat on the Back" *Time*, July 24, 1939, 1, BPAL.

By the mid-to-late 1920s, the one enticing lead for producing a stable revenue stream was the industry's massive (and relatively new) domestic user base. Between 1920 and 1927, more American homes were electrified than during the three decades prior;⁴⁴ by 1927, 75 percent of power stations' total customers were residential users. Judging by measures of current sold, however, the industry's most important consumers continued to be large power and light users (e.g., city lights);⁴⁵ domestic users were still only consuming 450 kilowatt-hours (kWh) per year on average, merely enough to power their lights.⁴⁶ Austin Monty, a Philadelphia industry leader, put it bluntly: anyone consuming less than 400 kWh was considered unprofitable.⁴⁷ In a 1929 letter to the editors of *Electrical World*, a manager at a company in Delaware warned leaders that mandatory consumption levels were necessary to address the problem of unprofitable domestic users.⁴⁸ Such concerns have echoed growing alarm within the industry. The relatively low rates that had originally helped utilities attract consumption could prove their undoing if customers were allowed to consume so little.⁴⁹ Thus, all-out "load building," in which central stations would focus on increasing domestic user consumption (the "domestic load"), would become the unofficial motto of the industry for years.

Early Load Troubles

Load building presented a twofold problem that threatened to overshadow the utilities' aspirations for financial stability. First, the more kilowatt-hours coursing through the wires and transformers of central systems, the more companies needed to worry about maintenance and equipment upgrades. Second, the physical pressures on the system limited the possibility of free-flowing electrons. Even household wiring could create physical friction, limiting what people could readily consume. Moreover, the industry's evolving billing and wiring system could impede continuous consumption. Together, a broken bulb or socket, a faulty meter, a rude meter reader, or a curiously high bill could serve as a form of disconnection, threatening utility prosperity. To overcome such profit-limiting frictions, industry men would need to

44. *Electrical World* provides a yearly review for 1927 and covers industry trends throughout the evolution of the grid. See "Customer Growth and Distribution," *Electrical World*, January 7, 1928.

45. Sumner, "Recent Developments."

46. Neufeld, *Selling Power*. According to a 1930 annual report in *Electrical World*, domestic consumption hovered around 447 kWh in 1925, then moved up slightly to 507 kWh by 1928. By 1930, average consumption would rise another 50 kWh. For this 1930 figure, see Neufeld. See also "Passes Two-Billion-Dollar Mark," *Electrical World*, January 4, 1930.

47. Monty, Austin, "The Problem of the Unprofitable Customer," *Electrical World*, December 19, 1936. Each operating company had to contend with its own localized calculus (e.g., cost of labor and distribution system) to make its domestic base profitable, and regulatory decisions did not readily translate to efficient business practices nor to profitable rate structures. For a detailed discussion, see Neufeld, *Selling Power*; also, Hausman, "Howard Hopson's Billion Dollar Fraud" noted that Associated Gas & Electric Company, a holding company controlled by Howard C. Hopson, passed down \$125,000 in charges to operating companies. For a brief introductory discussion, see Funigiello, *Toward a National Power Policy*.

48. Shank, L. D., "Letters from Our Readers: Understandable Rates," *Electrical World*, October 8, 1927, 747.

49. Shank, "Letters," 747. Specifically, Shank blamed local governments and regulatory bodies, who, by his account, threatened to keep users unprofitable by allowing such a low minimum charge.

publicly come to terms with their problematic services. Users' troubles would become industry men's opportunities in their quest for profits.

User awareness of subpar and perplexing services came early. Ever since metered electricity began, the fall season brought about confusion for users. The gradual and subtle nature of daylight decline masked the steady rise in household light use. By the end of October, people would be turning on their evening lights an hour earlier than they did at the beginning of the month and leaving them on for longer in the morning. Given how incredibly expensive each kilowatt-hour was at the time, such subtle shifts in consumption made their mark. Users, frustrated over rising bills for what seemed like the same amount of service, kicked—or complained.⁵⁰ By 1891, even elite residents were "inclined to kick and [object] very seriously" to bills they thought were not commensurate with the service they believed they were receiving.⁵¹ High bills had well-to-do users clamoring at the doors of utility offices. Although the introduction of mechanical meters helped to more precisely track usage (in comparison to the old contract system, where people paid per number of lights owned), this did not assuage bill complaints. The public appeared to distrust meters, fearing they were inaccurate;⁵² according to one electrical man's account, "without a moment's notice" users would blame high bills on faulty electric meters.⁵³

Electrical men also noticed that it was not just high bills that people complained about but also inferior service.^{54,55} In newspapers across the country, the public called the new electric systems unreliable, leaving their cities in "darkness."⁵⁶ With multiple lighting sources common in the first two decades of the century, electric lights were cast against gas and even oil lamps, believed to provide at least consistent and reliable services.⁵⁷ An article in *Electrical World* in 1893 bluntly suggested that electric companies were taking their gas competitors too lightly, especially when customers could so easily point to a case of poor lighting from a nearby incandescent lamp.⁵⁸

How station heads managed these instances of distrust and uneven services from customers depended in part on the customers themselves. "In one [case] [sic] the consumer has probably had the courage to insist on being furnished with the candle power he contracted for; in the other case, the central station is probably waiting until the patience of the customer is

50. MacPherson, H. H., "Rates and the Use of Rates," *Electrical World*, October 3, 1908, 746-7.

51. Bell, Louis, "Report of the Committee on the Proper Classification of the Lighting Power of Incandescent Lamps," *Electrical World*, February 28, 1891, 170-1.

52. Jacome and Ray, "The Prepaid Electric Meter." For more on customer distrust of meter service in 1896, see Thayer, George L., "Central-Station Working, Economies in Small Central Stations," *Electrical World*, January 25, 1896, 97-8. There is also a growing body of literature on contemporary meter-related distrust across the globe (e.g., Jacome and Ray).

53. Fred M. Reast, "The Treatment of Complaints," *Electrical World*, December 5, 1908, 1239-40.

54. Forty, *Objects of Desire*. See, for instance, Williams Roderick, "Economy of Incandescent Lamps," *Electrical World*, December 23, 1893, 474. Forty includes a brief discussion on poor-quality electrical services in Britain.

55. Isenstadt, *Electric Light*; Roderick, "Economy of Incandescent Lamps." Isenstadt gives a detailed discussion of street lighting variations.

56. *The Wheeling daily intelligencer*, "Electric Darkness," August 31st, 1892, 5, LOC; *The Telegraph-courier*, "The City in Darkness," Jan 13, 1898, 1, LOC.

57. Nye, *When the lights went out; Evening capital*, "Left in Darkness," August 15, 1892, 3, LOC.

58. Roderick, "Economy of Incandescent Lamps."

exhausted and he makes a vigorous ‘kick.’”⁵⁹ As Chas E. Scott, head of bookkeeping for a light and power company in Pennsylvania, confessed in 1891, his company “only [gave] rebates back to men who kick so outrageously that we cannot get rid of them.”⁶⁰ Those who kicked sufficiently strongly earned the industry’s ire because, as Scott acknowledged, businessmen at the time showed real indifference when it came to complaints.⁶¹ Other commentators agreed: “impatience,” “indifference,” and “high-mindedness” characterized central stations’ attitudes toward complaints.⁶² These half-hearted self-critiques foreshadowed industry efforts that gradually trained customers to kick on purpose.

Soon, electrical men began to recognize that their flippant responses to customer complaints were costing their business. George N. Stroh, the adjuster at San Francisco Gas and Electric Company in 1903, said his company lost many customers to early competitors because of “the sarcastic, high-hand treatment they had been compelled to endure for years at the hand of one of its employees.”⁶³ Moreover, the common assumption was that each new residential customer would not immediately become lucrative for the central station; after all, each addition required new distribution lines, home electrical wiring, and electric meter installation, along with accompanying labor and materials. Thus, making the most of existing customers would be necessary for central stations to turn profits.⁶⁴ The already connected, and yes, disgruntled, users were about to gain considerable attention.

Electric companies began encouraging customers to report their complaints. In the summer of 1906, on the side of a road in St. Louis, MO, residents could see a huge sign with the word “Kick” squarely placed in the middle of a freshly painted black billboard. Written just above were equally large and imposing words, painted in sharply contrasting white: “THE PUBLIC IS ENTITLED TO.” This billboard was part of an ad campaign by the city’s Union Electric Light Power Company to increase profits by getting customers “to make their grievances known.”⁶⁵ The strategy was sufficiently logical. Satisfied consumers and better-quality services meant greater profits for central stations.⁶⁶ In 1908, a commentator in *Electrical World* lauded how companies were implementing this strategy by putting “so-called service supervisors” to work “on nothing but old consumers and discounted services.”^{67,68}

Customer satisfaction strategies could be extreme. One California company, leveraging the fact that it had relatively few residential customers, made one of its employees peruse local newspapers for any signs of customers having “parties, receptions, dances, etc.” When a customer complained, the employee could point to “an entertainment at such a

59. Ibid, 474.

60. Remarks by Chas E. Scott in “Meeting Notes of the Montreal Meeting of the National Electric Light Association,” *Electrical World*, September 19, 1891, 206.

61. Collins, James H., “Don’t Growl—Kick!”, *McClure’s Magazine*, May 1917, 23, 67-8.

62. Williams, S.H., “The Handling of Complaints,” *Electrical World*, August 22, 1908, 402.

63. Stroh, “Business Value of Good Will,” *Pacific Service Magazine*, September 1910, 142.

64. Rose, *Cities of Light and Heat*. Example from mid-1906 Denver.

65. “Advertisement on Kicks for St. Louis Central Station,” *Electrical World*, August 11, 1906, 290.

66. MacPherson, “The Public Service.”

67. Ibid.

68. Rose, *Cities of Light and Heat*, 79. One such company was Denver Gas & Electric. Beginning in 1904, the company had supervisors check in exclusively on “old customers.”

date" as the reason that the customer's bills had run unusually high.⁶⁹ At another company in the Southwest, a manager amassed a sizeable library of technical journals and books to use as references for complaining customers. On the off chance that a customer complained about "his watt-hour meter," the manager could look at his references to show him "what a small per cent of meters were actually found to register fast or in error."⁷⁰ Industry men turned to these strategies early on to manage the slew of issues new customers were facing.

As cities electrified, user troubles became more complicated, exposing unforeseen tensions with central stations. Upset about the free bulbs given to him by Seattle City Light, G. C. Lingenfelter wrote to the City Office. According to Lingenfelter, he heard from a shopkeeper who sold lamps that City Light was giving out bulbs that consumed more electricity than standard tungsten Mazda lights, and that the company was doing so to avoid "a deficit" without the increased consumption drawn in by their free lamps.⁷¹ Lingenfelter ended the complaint letter by reminding the City Office that unlike the private Puget Sound Power & Light (PSP&L) company also operating in Seattle, City Light "is the people's plant" and that it was in its best interest to have a policy that would not only "save current" but, Lingenfelter assumed, cost less to maintain as a result.⁷²

In many ways, the shopkeeper was perceptive. Utilities looked to increase consumption to avoid running a deficit—and they often resorted to giving away electrical accessories, including motors, fixtures, and wiring, to force higher levels of energy consumption.⁷³ Nevertheless, Lingenfelter's assertion that saving kilowatt-hours would in turn save the company money was starting to prove compelling to industry leaders. After all, expansion required not only more fuel but also larger wires and transformers to allow all those electrons to flow unimpeded. If utilities did their job right, they might even succeed at getting users to consume more overall, just staggered across times of the day, which would allow for a smooth flow of electrons.

Smooth, however, was the specter-like caveat in the great electrical experiment. Frustrated over the boom-and-bust nature of their material predicament, one electric company in Oklahoma stated in 1910 that "the faster a business grows the greater" chance their machinery becomes "out of date or too small," and pointed to the "large number of plants in [Oklahoma] cities [that] have become bankrupts [sic] trying to do that very thing."⁷⁴ This editorial also represented an attempt to get ahead of public relations problems; the public needed to know that service issues were simply part and parcel of the dire tradeoffs central stations faced. Over time, the industry's troubles seeped into public consciousness, requiring leaders to address them head-on to overcome their material woes.

69. "When Customers Kick," *Electrical World*, May 12, 1910, 1210.

70. "A Library Index is Useful," *Electrical World*, May 12, 1910, 474.

71. "Communication of G. C. Lingenfelter in Regard to Lamps Furnished by Light Department," December 2, 1912, Comptroller File 49993. SCF. Utilities were in the practice of selling lights and appliances directly to customers during this period.

72. *Ibid.*

73. Platt, *The Electric City*; see also, for instance, Stuart, "Electric Light."

74. *Vinita Daily Chieftain*, "The Financial Service," 4.

The Rise of Trouble Divisions

Large industries coming of age in the early 1900s were forced to confront disgruntled customers to compensate for their shrinking margins. “A disgruntled customer, though still using service, does more damage to new-business prospects than can be overcome by weeks of work,” said a central station manager at a professional meeting in 1910.⁷⁵ As industries grew increasingly complex—bureaucratically, managerially, and technically—some feared that the American public was growing increasingly dissatisfied. Yet those who seldom formally complained did no good for business if left unattended. People could not be left to simply bad-mouth businesses anonymously in newspapers, for instance, when something was “wrong in the complex routine” of their daily lives.⁷⁶ Thus, utilities turned to the profit-saving potential of systemized and meticulously tracked grievances, which gave rise to what companies called their “trouble divisions” and a focus on the work performed by low-level workers who were at the front lines of utilities’ expanding services.

H. H. MacPherson, an industry commentator who, beginning in 1908, regularly wrote for and edited trade journals, was one of the first central-station leaders to detail these profit-saving insights in *Electrical World*.⁷⁷ MacPherson thought that trust, once broken, was impossible to repair.⁷⁸ Unfortunately for utilities, broken trust costs money. According to MacPherson, “[high-bill] complaints in some cases cost a company directly \$10,000 per year and upward,” as meter readers were called on repeatedly to verify bills or fix perfectly working meters.⁷⁹ In an attempt to advise utility men, MacPherson detailed that careless practices from an over-read or under-read meter, or a bookkeeper, could leave their mark on customers if left unchecked.⁸⁰ Central stations took to the argument that distrust was bad for their bottom line, heeding the advice of bookkeepers who insisted that even the smallest detail out of place could create innumerable losses for their fledgling businesses.

Nor were billing grievances the only troubles. Reports of transformers that “caught fire” when overloaded soon began appearing in local newspapers.⁸¹ With large numbers of electrical users turning on multiple lights and appliances at the same time, there was a good chance that a given wire would start drawing too much current for its size, or that a smaller transformer would be forced to do the work of a larger one. Overloaded equipment resulted in anything from inconveniently dim lights to dangerous fires. Customers across the United States were starting to wonder out loud why their services were so poor, and in particular why the lights grew dim at the exact time they needed them most: nighttime. The expanding roster of complaints in 1910 thus reflected not only the increasingly bureaucratic complexity

75. “Handling Complaints and Enforcing Discount Dates,” *Electrical World*, February 3, 1910, 298.

76. Collins, “Don’t Growl,” 23. James Collins, a regulator commentator on the electric industry, argued that all large emergent industries, including telephone and electric, need to rein in disgruntled customers who complain in unstructured ways.

77. See MacPherson, “Special Men and Specializing”; also, MacPherson, “Tungsten Lamps, Lessons” and, the well-cited 1908 article, MacPherson, “Rates and the Use of Rates.”

78. See also the senior thesis of college students writing in 1903. Fielding Jr. and Reed, “Regulation and Testing of Wattmeters.”

79. MacPherson, “The Public Service,” 746.

80. Ibid.

81. For instance, see “Transformer Caught Fire,” *Norwich Bulletin*, July 5, 1909, 5, LOC.

of electrical management but also the material vulnerability of interconnected and increasingly load-bearing systems.

To address such nuanced points of friction, central station men had to render their systems intelligible to laypeople. Customers were trained to speak engineering jargon as electrical discourse expanded to average citizens.⁸² In Connecticut, at a meeting in October 1913 to appease townspeople who had grown fed up with the city's "failing" lighting system, the company admitted that the trouble was overloaded transformers and, thus, improper voltage.⁸³ In Florida, meanwhile, a city's electrical committee put out a 1911 report to acknowledge complaints over poor lighting, saying that while the system voltage was "up to 118 nearly all the time," it was also true they had "overloaded transformers."⁸⁴ No engineering details seemed too esoteric if they helped customers make sense of appliance malfunctions and electrical bills that were not adding up to quality services.

These tactics followed the advice given to utilities by experts and managers who believed that detailed explanations for complex conditions would help quell rising customer frustrations. Even clerks, experts said, "should be familiar with conditions causing a variation in voltage at different parts of the system," which would allow them to tell customers whether their trouble was at the transformer level or inside the home.⁸⁵ Therefore, all company men could help assuage customer dissatisfaction by empowering users with technical knowledge, up to a point.

Customer empowerment also meant that electrical men had to acknowledge the limits of their offerings. As one Oregon manager in 1916 insisted, "Inducing a customer to overrate [your electric] range is just commercial suicide."⁸⁶ Taken together, lowering service expectations while building an understanding of the intricate work entailed in delivering service was essential to increasing profits over the long term. In a 1921 Arkansas newspaper, one electric utility embraced this approach. The February 11 advertisement said:

The new management took charge of the idea and understood that every customer wanted better lights. They also knew they were producing 110,000 kilowatts of electricity at the plant and only collecting payment for about 40,000 kilowatts. This was not the consumers' fault but the result was the consumers were not getting efficient lights and that several of our transformers were overloaded and only producing 80 to 90 volts at your light globe where you should have 110 volts. With these conditions, we went to work equalizing the transformer loads by changing some customers from overloaded transformers to some that were not so heavily loaded. The result was that you get lights that are as good as can be found in any city and at a small increase in cost to you.⁸⁷

82. Rose, *Cities of Light and Heat*, 63.

83. "Failure of Lighting System Causes Special Meeting," *Norwich Bulletin*, October 22, 1913, 2, LOC.

84. "Ocala's Electricity, Report of Light and Water Committee of the City," *Ocala Evening Star*, November 4, 1911, 2, LOC.

85. Williams, "The Handling," 408.

86. Hall, "The Selling of Electric Ranges," 986.

87. "You Control Your Electric Light Bills," *Courier-Index*, February 11, 1921, 2, LOC.

The advertisement is astonishing in the level of electrical knowledge it synthesizes for the casual reader, as well as in its acknowledgment that losses associated with inefficient systems were the company's fault, not the customers'. As the advertisement explained, the company was only collecting compensation for a fraction of what its generators were putting out because households' power had been diminished by overloaded networks. In showing that the company respected its customers' capacity to understand detailed explanations, the company hoped customers would be satisfied because the company was providing a "service to the best of [its] ability."⁸⁸ Importantly, the company tried to show customers proof of this effort by linking infrastructural changes with tangible improvements in light quality—while admitting it was the best it could do.

Over time, as electrical devices became more varied and widespread, electrical failures and dissatisfaction became more prevalent, and users began wondering what was happening to their "high-tech" appliances. In this way, radios replaced lights as bellwether indicators of service delivery gone wrong; instead of lights going dim, users now complained of static interrupting their cherished radio hours. In *The New York Times*, readers linked their radio problems to bad utility services, saying: "It is an unfortunate fact [that] the line voltage in some localities vary [sic] considerably with the distance from the central station or from the transformer station."⁸⁹ The paper's technical explanation of the problem helped users refine their complaints to companies that had groomed customers to come to them with any issue. Because of this cultivated public consciousness, electrical men would need a more methodical solicitation scheme to handle complaints.

By 1920, fully operational "trouble divisions" were established at utilities across the nation. "Trouble-men" in these divisions kept track of empty sockets, broken lightbulbs, and fixtures in need of repair or replacement, as well as blown fuses, "skimpy wiring," and overloaded networks, all in addition to simple disconnections resulting from nonpayment. They conducted investigations and parsed root causes.⁹⁰ "Irregularities" in electrical services could be caused by anything from a door missing on a meter box, thereby exposing it to the weather, to a local transformer with faulty connections caused by dirty insulators, to a delinquent bill turned disconnection.⁹¹ In the eyes of the central station, these seemingly diverse troubles, manifested through such a variety of complaints and user practices, came to represent a form of friction jeopardizing the bottom line, driving the station to act through its frontline workers.

One company stood out for its outward commitment to maintaining uninterrupted connections through obsequious service. "Perhaps nowhere in the United States has the slogan of 'Perfect Service and Perfect Public Relations' been more widely used than on the Pacific Coast."⁹² John A. Britton delivered these bold words in a lecture at Princeton University in

88. Ibid, 2.

89. "Remedies to Protect Tubes from Excess Line Voltage," *New York Times*, March 25, 1928, 18, NYDA. Also, "Electric Device Steadies Current," *New York Times*, February 29, 1929, 149, NYDA.

90. For meters, see C. B. Merrick, "Inspection Department is Important Factor in Good Service," *Electrical World*, August 7, 1920, pp 292-3; for radios, see "Interference Responsibility Shared by Radio Users," *Electrical World*, April 23, 1932, pp 738-9.

91. Ibid.

92. Lecture by John A. Britton at Princeton University, 4 April 1922, box 43, folder Britton, John A., n.d. PGEL.

1923. Having worked up the ranks of the electric industry, from debt collector to the first president of Pacific Gas and Electric (PG&E), Britton took pride in his company's motto, "Courteous and Continuous," even having it painted on the side of PG&E's first building in 1909.⁹³

For the lower-level employees of PG&E, however, his motto implied a warning. In the company's internal publication, *Pacific Service Magazine*, the manager of the publicity division, J. Charles Jordan informed employees in 1923 that selecting good workers meant choosing "those who will do certain tasks with the least amount of friction."⁹⁴ As he warned, any employee could be guilty of causing such injurious friction; for instance, "a lineman who calls on a 'no light' complaint and because the consumer does not have 15 cents in change to pay for a fuse leaves him in darkness."⁹⁵ Looming darkness served as an ominous admonition to company practices.

Like at PG&E, frontline employees across the country had their work cut out for them. In 1915, a St. Louis company told all 65,000 of its customers that even the most modest users among them "had ready access to the office of any department head as well as to the office of the general manager."⁹⁶ In Manhattan, where the troublemen were trained not "to wait for complaints, but [instead] to anticipate and ward them off," journalists reported that complaints were coming in "every three minutes of the day"—totaling upward of 50,000 a year.⁹⁷ Companies were pitching themselves to ordinary users with the promise of prompt and comprehensive service: "[I]f a customer calls the trouble department night or day, one of these men will speedily arrive at the scene of the trouble."⁹⁸ There, a troubleman might be found at the transformer fuse plugs, investigating whether they had been damaged by current surges or overuse, or perhaps even inside the home, repairing a toaster or another appliance in disarray.⁹⁹

At a company in Portland, OR, which installed 5,190 electric ranges in 1925, 5,553 customer complaints poured in over 6 months—a total of more than one complaint per new electrical range.¹⁰⁰ Smaller appliances, like "burned out" lamps, also needed to be addressed. The St. Louis company that sold 80,000 discounted lamps during its September 1915 "empty-sockets" campaign conceded that the company would soon have to replace plenty of them.¹⁰¹ Yet true to their word, trouble divisions spared no effort in their quest to make domestic users' every complaint legible, a profit-maximizing scheme cloaked in good Samaritanism.¹⁰²

Meanwhile, in January 1929, the head of the Seattle City Light Trouble Division could not help but comment on how even the credit department's priorities were starting to creep into

93. Negative No. 3323, n.d. PG&E.

94. Jordan, "It's the Little Things that Count," *Pacific Service Magazine*, January 1923, 254.

95. *Ibid.*

96. "Progressive Public Policy and its Results," *Electrical World*, February 20, 1915, 470.

97. "50,000 Dispute Electric Bills During a Year. Complaints Come Every Three Minutes of Day," *New York Times*, November 15, 1925, 17, NYDA.

98. "Progressive Public Policy," *Electrical World*, 470.

99. *Ibid.*, 471.

100. Report of "2 Power Co.s in Portland, Or.," 1925, 1200-01, box 125, folder 15, Reports Divisional: Appliance division, 1920-1935, SLDI.

101. "Progressive Public Policy," *Electrical World*, 471.

102. *Ibid.*

his department's work.¹⁰³ The fact that the troublemen were being asked to collect payments from delinquent users (or, conversely, disconnect them for nonpayment), a job that would normally be the responsibility of a metering or collections department, reveals how determined this central station had become to get every last employee to help shore up its profits.

If the trouble division had started to do work that the credit department or even the metering department could have been doing, so too did other departments start doing the work of troublemen. Companies encouraged their commercial wiring, appliance, and metering divisions to keep meticulous records, which often overlapped with the efforts of official trouble divisions. By the 1930s, the Great Depression would force utilities to further elevate the customer service efforts of these other divisions because their employees were the ones most actively involved in customer-facing work like selling and maintaining appliances and building indoor wiring. Thus, salespeople and jobbers would soon assume the role of troublemen to ensure the steady, frictionless use of appliances in American homes.

Courteous and Continuous Services in the Depression Years

Beginning in the 1930s, the electric industry's financial gains and growing stability were threatened by the adverse conditions and attitudes created by the Great Depression.¹⁰⁴ Previously, overall use had been steadily increasing, propelled in part by all the work that utilities had been doing during the previous decade to satisfy the demands of those already connected. The Depression temporarily curtailed sales and slowed the industry's expansion.^{105,106} Yet despite strong financial indicators, electrical men across the United States continued to grapple with the deeper residual misgivings created by the Depression and the broader changes it brought to their industry.¹⁰⁷ As the number of domestic customers seemed to approach saturation, some grew increasingly alarmed that growth was tapering.¹⁰⁸ In this context, the prejudices and fears emblematic of twentieth-century American society would

103. Remarks in "Report of Trouble Division January 1929," February 2, 1929, 1200-01, box 126, folder 16, Reports Divisional: Trouble division, 1920-1935, SLDI.

104. Emmons, "Public and Private Responses" (unpublished). The crash sent utility stocks plummeting. Hausman, "Howard Hopson's Billion Dollar Fraud." The effects on broader patterns of customer curtailment, and revenue loss, would take a few more years. Cannon, "The Wholesale Electric Business."

105. Hausman, "Howard Hopson's Billion Dollar Fraud," 388. The industry's holding companies had helped expand centralized networks.

106. Hausman and Neufeld, "The Economics of Electricity"; Hausman, "Pyramids of Power." While each central power station fared differently depending on the community it served, many electric utilities were faced with lowered revenues during the Depression, not only because of slumps in consumption that varied across consumer classes, but because of the large number of delinquencies and disconnections. See "Utilities Meet Their Crisis," *Electrical World*, May 27, 1933, 666-70.

107. Sandage, *Born Losers*; Terkel, *Hard Times*. Hausman, "Howard Hopson's Billion Dollar Fraud," captures the changing regulatory climate during the period: Private utilities increased their political messaging to counteract the increased support for public power, and in some cases, associated costs were passed to customers via opaque accounting practices. See, for instance: United States of America Federal Power Commission Opinion No. 50, 2, BPAMO.

108. "Customers Aggregate 24,187,151," *Electrical World*, January 7, 1933, 19.

reveal the industry's fickle commitment to "courteous and continuous" services in the name of profits and the limits of the perceived goodwill of the industry.

Faced with falling revenues, stagnant demand, stricter regulatory conditions, and hesitant investors, Depression-era power delivery challenged public and private utilities alike.^{109,110} Seeing few avenues for utilities to turn around their shrinking margins, the editor of *Electrical World* stated in 1932 that "[t]he job of the industry is a selling job."¹¹¹ Even during a period described as "retrenchment in all directions," utilities like the investor-owned monopoly PG&E and the public Seattle City Light mounted an aggressive and coordinated selling program.¹¹² By 1934, *Electrical World* observed that utilities were using "[m]ore salesmen, more advertising, more merchandizing to build more load" than the year prior.¹¹³ That same year, PG&E welcomed an increase in residential consumption of 2.7 percent from its previous 1931 peak; the company's annual report gladly informed shareholders that all its efforts had paid off, and credited such long-awaited financial success to intrepid tactics: "Such a degree of stability could not have been maintained, particularly because of the reduced public purchasing power and of rate reductions during the interim, except for our undiminished and unremitting sales effort during this period."¹¹⁴

Within this paradigm of ever-increasing appliance use, utilities working to satisfy user problems had to intensify their efforts. In 1936, Seattle City Light detailed just how many ranges, water heaters, ironers, washers, refrigerators, and smaller appliances they had installed, including how many later encountered problems. Their records show more than 50,000 trouble calls on electric ranges alone that year, a massive number considering that the company only had 79,889 domestic accounts at the time.¹¹⁵ Meanwhile, PG&E began featuring contests in 1935 in *P.G.E. Progress*, the company's customer-facing magazine mailed directly to its hundreds of thousands of customers, soliciting customers' opinions on service problems and company workers, reflections that would be culled and revealed back to them in a curated fashion. Both "Contest on Complaints" and "I Called a P.G. and E. Service Man"¹¹⁶ featured

109. For a nice summary of the conditions of electric utilities during the Depression, see Glaeser, "Public Utilities in the Depression."

110. Emmons, "Public and Private Responses," 57. Glaeser, "Public Utilities in the Depression." See Pacific Gas and Electric Company Twenty-Eighth Annual Report, 1933, 9, PGEL. PG&E's revenues were more than \$6.1 million less than two years prior because of shrinkage of sales and increasing tax burden, leading the company to lay off employees and end the publication of their *Pacific Service Magazine*. State and federal laws enacted from 1931 to 1935, meant to strengthen "weak" commissions and check the power of utility holding companies, limited what utility leaders could do. Marlett and Traylor, "Public Utility Legislation in the Depression."

111. L. W. W. Morrow, editorial in *Electrical World*, June 4, 1932, 978.

112. Annual reports and documents from PG&E and from Seattle City Light during this period highlight these efforts. See, for example, the July 1932 edition of *Pacific Service Magazine* (one of the last editions before it was suspended under the guise of economizing). *Pacific Service*, July 1932, PGEL; also, Seattle City Light 1932 Annual Report, SLDI.

113. "Notice to Our Readers," *Pacific Service Magazine*, January 1933, 356, PGEL; "Nine Months of Merchandising," *Electrical World*, December 8, 1934, 28.

114. Pacific Gas and Electric Company Twenty-Ninth Annual Report, 1934, 7, PGEL.

115. Residential service records as documented by the City of Seattle's Department of Lighting. "Reports Annual: Misc. Agencies on the Lighting Department Covering the Year 1910 and Comparison with 1947," 1947, 1200-01, box 125, folder Mis, SLDI.

116. Response on service, "Consumer Complaints and Advice," March 1935, *PG&E Progress Collection*, 7, PGEL.

winners that exemplified the ethos of the company's motto, showcasing how increased courteousness and attentiveness to troubles facing customers' appliances, wires, and fuses would promote continuous usage. PG&E workers were portrayed in the magazine as both "heroic," turning up at all hours of the day and for any situation (e.g., during fires), and domesticated, avoiding messes (e.g., not trampling flowerbeds) and cleaning up after themselves.¹¹⁷

For their part, Seattle City Light managers saw this sort of undaunting and laborious work as feasible only from its male employees, especially considering local competition.¹¹⁸ This was their argument in a September 29, 1936, meeting conducted by the Civil Service Commission after a Seattle woman named Gertrude Gillmer filed an objection against the utility for not hiring her despite her stellar examination performance. Appearing before the Commission, a manager argued that the company employed a sizeable number of women, "even though it could operate, in most cases, more efficiently with men"; yet with its "everpresent [sic] contract fight with [its] competitors," with its salesmen having to make "many rush and emergency calls, such as to turn on the meter, test fuses, (which may be in attic, basement, or on porches), estimate wiring and plumbing costs, personally deliver small appliances sold, etc.," a man should be hired "whenever possible."¹¹⁹ In siding with Seattle City Light, the Commission agreed with the company's logic that making services as reliable as possible was necessary for the company's success and was best achieved with men, upholding discriminatory practices and gendered norms of the time.

Other industry leaders still struggling to turn their business around during the Depression would put aside their "good will" to come up with derogatory terminology for customers who seemed to be getting in the way of profits. By the mid-1930s, "ancient bugaboo" or "unprofitable" domestic users were making headlines in *Electrical World* in full force. Termed "small," "scant," these customers who consumed little were deemed "reliefers," "liabilities," or "loss customers."¹²⁰ These terms came to dominate *Electrical World* to construct an image of intensely unfavorable domestic customers. When Francis Perkins, the Labor Secretary and main architect of Franklin D. Roosevelt's New Deal, tried to recast Americans who were still relying on financial assistance in 1937 as in "the process of rehabilitation," Howard Ehrlich, the vice president and editor of *Electrical World*, showed little sympathy, saying "Under any name, these people present a problem to the utility company."¹²¹

To industry leaders, the downtrodden were at once intolerable and incomprehensible, and yet at the same time indispensable to future dreams of ever-greater expansion. In the mid-1930s, utility managers were sounding the alarm that nearly half of domestic consumers were paying less in bills than what their houses cost to service.¹²² Austin Monty, the manager

117. See for example "Pacific Service Workers Save Homes from Flames," April 1932, *PG&E Progress Collection*, 5, PGEL.

118. Gillmer, Gertrude (Elect. Appliance Salesman, Lighting Dept.), 1935-1936, box 6, folder 7, n.d., ASMA.

119. Ibid.

120. Sutherland, J.S., "Building Small-Customer Load Alabama," *Electrical World*, January 18, 1936, 28-30; "A United Front for Business," *Electrical World*, February 2, 1935, 21; see also, "Utility Rate Case Delayed by Commission," *The Indianapolis Times*, October 7, 1933, 1, LOC.

121. Howard Ehrlich Editorial, *Electrical World*, January 16, 1937, 47.

122. Sutherland, "Building Small-Customer"; also, "Selling Centers on Homes," *Electrical World*, January 5, 1935, 61; also, Monty, "The Problem."

of merchandising at the Philadelphia Electric Company, calculated that in his city, a whopping 51.7 percent of domestic customers remained unprofitable. Yet, in looking to address his company's "unprofitables," Monty declared, "It must be remembered that these people do not understand us or our business."¹²³ He warned that their usual advertisements would "have no effect, for they do not read them, and would not understand them if they did."¹²⁴ Customer hostility appeared in the industry's premier journal in unadorned display.

What made these customers especially concerning was that they comprised demographics that the industry had largely ignored but which were now connected: low-income and marginalized users who had been devastated by the Depression and those who had been trivialized long before. As Monty, the Philadelphia manager, put it, the industry still needed to know "Who He Is, What He Is, His Likes and Dislikes." This objectifying rhetoric showed how dehumanized some customers were to the industry, which allowed them to justify negative attitudes and eschew the empathic commitment they had curated for the well-to-do.

For a generation of industry men, these unprofitable users activated deep-seated prejudices and primal fears long prevalent in American society. In North Carolina, in 1934, companies deliberately decided not to expand their grids to service Black residents because they were deemed to be more likely to be unprofitable than White residents.¹²⁵ Heads of companies rationalized these practices through racist and classist views until they began conceding that even "loss-customers" "on the wrong side of the tracks" (e.g. nonwhite and nonupper-class women) wanted electricity and could use it, "if properly trained."¹²⁶ Yet it was these customers who finally forced utility leaders to admit that their "dependable" networks were defined by wide-ranging discriminatory practices and disenfranchisement, physical and otherwise, and for whom "courteousness" would be put to the test.

Conclusion

Everyday problems defined the origins of the U.S. grid, from its networks of wires and transformers to the appliances it powers. Good, frictionless grids could only become commercially and rhetorically possible by requiring domestic users to consume more and more, which in turn required full recognition of the troubles of a nascent and rapidly changing industry. By confronting users' worries, utility managers learned to make sense of the trouble areas that jeopardized their business. Yet the interactions and relationships between users and utilities' frontline workers were not merely performative; they brought about systematic changes that proved pivotal to the development of good grids, though not for all.

123. Monty, "The Problem," 34.

124. Ibid.

125. Harrison, "Race, Space, and Electric Power." For more on electricity in the US South, see Cater, *Regenerating Dixie*. In *Electrical World*, the rare mention of race prior to the 1930s carried the unabashed, racist sentiments of the era. See, "Founder's Week in Philadelphia," *Electrical World*, October 24, 1908, pp 906-8.

126. See advertisements from Electromaster, Inc. to "Electric Utility Executives Only, Please" in *Electrical World*, October 5, 1940, 101; also in January 25, 1941, 82; Hicks, M.H. "Commercial Cooking Adds Revenue of \$135,000." *Electrical World*, June 28, 1941, 54.

The history of “killing complaints with courtesy” described in this paper also reveals a failure of imagination in understanding the dynamics behind contemporary grid services such as those in SSA. With brown outages and blackouts and utility insolvency understood to be common in electrified cities in SSA, the dominant assumption is that these conditions are partly the fault of so-called entitled users who steal or do not pay and who make it hard for utilities to recover costs and deliver good services.¹²⁷ Despite the emphasis on problematic users, little evidence links entitlement to poor services and economically failing systems. Ironically, entitlement might have been central to the development of “good” grids and a business tool to break ties with other energy services.

Amid eroding infrastructure, worsening climate catastrophe, and staggering global inequality today, a fully reliable and “good” grid appears elusive—no more than a rhetorical construction meant to impugn a “lesser” and “other” grid system. To imagine that we can make sense of unreliable grids simply by looking at the faults of users (or more broadly, the faults of past and present politicians, elites, and technicians) is to ignore the possibility that so-called good grids were never really planned as such—and that their dependability was the result of a much more prolonged and cultivated set of practices and relationships than any cost recovery discussion could ever capture. In the end, the story we tell ourselves about the differences between good and bad infrastructure, along with our prevailing sense that economic inequality is both unavoidable and inevitable, undermines our ability to develop an understanding of our collective global electrical networks, their past, and their future.

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