



'Accomplished by methods which are indefensible': Electric utilities, finance, and the natural barriers to accumulation



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ABSTRACT

This paper argues that the emergence of electric utility holding companies in the early 20th century coincides with a number of developments related to the materiality of electricity, principally the necessity that electricity generation and demand be temporally matched. While this material limit posed significant barriers to capital accumulation in the early years of electric utilities, innovations in cost accounting, technology, state governance, and finance shifted what was a limit into an accumulation opportunity for financial capital operating in the form of the utility holding company. The utility holding company took advantage of what was effectively a spatial fix for the electric utility industry, the non-competitive service territory that was enabled by state regulation. This fix proved to be effective for several decades. However, the Crash of 1929 initiated the demise of this particular arrangement, and the example of Carolina Power and Light, an electric utility operating in North Carolina within a mammoth holding company, shows the limits of the non-competitive service territory as a spatial fix. The conclusion briefly considers subsequent fixes that emerged in the electric utility industry, including the present wave of mergers and acquisitions that harkens back to the holding companies of the 1920s.

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1. Introduction

On April 8, 1926, the shareholders of Carolina Power and Light, Yadkin River Power Company, Asheville Power and Light Company, and the Pigeon River Power Company had approved the merger of the companies under the new name Carolina Power and Light Company ("Carolina Power and Light", 1926). Given that the voting stock of the four electric utilities, which served portions of North and South Carolina, was almost entirely owned by the electric utility holding company Electric Bond and Share Company (EBASCO), a New York-based company that controlled nearly a quarter of the electricity generation in the United States by the mid-1920s (Hughes, 1983), this approval was no surprise. Under the terms of the merger, the common stock of the 'new' Carolina Power and Light (CP&L) would be entirely owned by National Power and Light, an intermediary company set up by EBASCO to manage several 'operating' utilities, that is, electric utilities that actually generated and sold electricity to customers. While CP&L generated revenue by selling an actual commodity, in contrast, National Power and Light made money by collecting dividend payments from CP&L. By virtue of that fact that National Power and Light's own common stock was largely owned by EBASCO, its earnings were simply passed one level up the pyramid to EBASCO.

This arrangement was not unusual among electric utilities in the United States during 1920s. In fact by 1927, at the peak of

the holding company craze, there were 180 different holding companies that controlled 4,409 operating electric utilities (Hyman et al., 2000). The benefits of the holding company form were numerous, but can basically be boiled down to this: the assets and operations of holding companies were difficult to properly value, and by clever accounting, these companies could be made to look extremely successful and secure. The promise of secure dividend payments attracted outside investors to the preferred stock and bonds that holding companies issued. Sales of these issuances raised the funds needed for the holding companies to obtain additional operating utilities, expand its service territories, and build additional generating equipment. The holding company owners would retain possession of the voting common stock in the various companies, a move that kept operations firmly under their control. In effect, through a minimal investment of their own money, they would control the utilities and authorize generous dividends payments on the common stock they owned (Hughes, 1983; Hyman et al., 2000).

Though they first appeared in the 1890s, electric utility holding companies became increasingly common and influential during the first and second decades of the twentieth century. In this paper, I argue that the timing of their emergence coincides with a number of developments related to the materiality of electricity, principally the necessity that electricity production and consumption be matched. While this material limit posed a significant barrier to capital accumulation in the early years of electric utilities, it also represented an accumulation opportunity for financial capital

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operating in the form of the holding company. In combination with the non-competitive service territories that were enabled by state regulation, holding companies were part of a spatial fix that enabled the material limits of electricity to be overcome. However, like all fixes to the contradictions embedded in a particular accumulation process, this arrangement proved to be a temporary fix that was later replaced by others.

This paper proceeds in three parts. First, I briefly review the insights on fixed capital, credit, and the built environment provided by Harvey (1982) in *The Limits to Capital* (hereafter *Limits*). This work, while providing important insights into credit's ability to direct production, has been extended in two important ways. The first is theorization on the 'natural' limits of capital accumulation, especially the work of Henderson (1998). The second extension comes from a more robust theorization of the role of the state in solving capitalist crises, something Harvey points to in *Limits* on numerous occasions, but never considers fully. To do this, I turn to a framework put forward by Jones and Ward (2004) that posits some ideas of how to accomplish this.

Using insights gleaned from the above literature, in the second section I reexamine the work of historians of technology on the origins of electric utilities. First, following Henderson (1998), I examine the way early utilities were hindered by the natural properties of electricity, but point to the shifting of this barrier into an opportunity via innovations in utility cost accounting. Second, employing the framework put forward by Jones and Ward (2004) I examine the advent of state regulation and the establishment of the electric utility service territory. I argue that this development, which effectively eliminated competition, provided a spatial fix that shifted the natural barrier to accumulation by electric utilities into an opportunity for innovations in the realm of financial capital, namely the utility holding company.

The final part of the paper considers the way in which the spatial and temporal fixes provided by holding companies, like all fixes to capitalism's contradiction (Harvey, 1982), were only temporary. To do this I briefly focus on the operating utility previously introduced, CP&L. CP&L's rapid spatial expansion throughout the 1920s, which occurred under the supervision of the highly leveraged holding company giant EBASCO, was quickly brought to a halt after the Crash of 1929, leaving its spatial extent largely the same today. This brings me to my conclusion, in which I argue that many of the current challenges posed to society by the electric utility industry, as well as the industry's own attempts to overcome its internal contradictions, can be traced to new spatial fixes that emerged when CP&L, like many of other utilities of the time, was unable to continue its territorial expansion. Further, I posit that the case of CP&L and EBASCO, marked by complex financial forms and blurred lines between financial and industrial capital, served as something of a precursor to the 2007–2008 financial crisis.

2. Fixed capital, materialities, and the state

Harvey's *The Limits to Capital* (1982), a book Walker has described as "still the best thing ever written on the logic of capitalist credit and fixed capital" (2004, p. 435), offers an extended discussion on fixed capital, finance, and built environment. Harvey's crucial insight, Walker (2004) argues, is that credit is not just a way of making money, but rather it is integral to the entire capitalist productive scheme. Fixed capital, while often operating outside of a specific commodity production process (i.e. producing computers or picture frames), acts to decrease barriers and costs to production. In this sense, we can think of the role that ports, roads, aqueducts, and in our case, electricity generation and distribution infrastructure, all play in the realm of production. While control over the configuration of the built environment (which is the sum

of all fixed capital projects) is among the keys to the further expansion of capital accumulation, the production of large scale fixed capital projects places a significant burden on the capitalist. This is due to the need for substantial upfront outlays of money, equipment, and materials for the construction of projects, which is further complicated by the slow rate of return that these projects often entail. While this barrier has often shifted the responsibility of large infrastructure projects to the state, most electricity generation in the United States has remained in the private sector. This has occurred with the help of financial capital and credit.

For Marx, money permits the separation of sales and purchases in space and time by acting as the equivalent of a particular commodity (Marx, 1990). Credit, then, allows for the temporary extension of the role of money, enabling the time-space separation of transactions to be extended. This enables further flexibility in the exchange process because of credit's ability to be extended for a particular purpose and then paid back in increments as surplus value is realized from the particular production process. Credit, in other words, anticipates the production of surplus value (Gough, 2004), allowing money to be extended before production occurs, a function essential to constructing large infrastructure projects. However, the extension of credit entails several risks: (1) future labor and extraction of surplus value must occur, and at the anticipated rate of exploitation of labor, otherwise the capital advanced is lost; (2) the large project to be funded is subject to devaluation due to wear and tear as well as a number of social determinants including regulation, taxation regimes, other technological innovations, or changes in consumer preferences; and (3) a loss of the liquidity and flexibility of money as it is tied down to specific use values, essentially becoming 'fixed' in a particular built environment and unable to be used for other purposes.

Because of these risks, many large projects are less appealing to traditional financing mechanisms, such as bank loans. Harvey points to two solutions that have emerged to this problem: involvement by the state and the formation of joint stock companies. I will first examine the role of the state.

2.1. The state and fixed capital

Despite *Limits* pointing to some important roles that the state can play in coordinating spatial fixes and capital switching, the work has frequently been criticized for not offering a more robust theory of the state (Jessop, 2004; Jones and Ward, 2004).¹ In a short essay that explicitly discusses *Limits*, Jones and Ward (2004) take some insights from Harvey (1982) and attempt to establish a framework for incorporating the state into a theory of capitalist production. Their contribution draws on the work of the regulation approach (Aglietta, 1979; Boyer, 1990; Jessop, 1997), which they argue helps to understand how what they term accumulation systems (modes of production and consumption) are coupled with modes of regulation (which includes institutional actors like the state as well as the capital-labor relationship, activities of the central bank, and patterns of competition) to form a relatively stable phase of capital accumulation. Despite offering insights into how certain arrangements that offer sustained accumulation are stabilized, Jones and Ward (2004) find the regulation approach to be plagued by an inability to fully integrate theories of the state, and turn to the work of the Frankfurt School, particularly Offe (1984).

In Offe's (1984) work Jones and Ward (2004) see the state conceptualized as "continually snared within the multiple contradic-

¹ As Jessop (2004) points out, much of Harvey's lack of theorization of the state in *Limits* can be attributed to his close following of the work of Marx, who had planned, but never completed, a book on the capitalist state. However, most critics feel that his more recent work has begun to fully take into account the role of the state, particularly during the current financial crises.

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