

# Positioning the Electric Utility to Build Information Infrastructure

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Mr. Steven R. Rivkin is a telecommunications lawyer in Washington, D.C., and a prolific writer and speaker on telecommunications policy questions. Since the late 1970s, he has worked to gain national recognition of the potential twin contributions of telecommunications to save energy and, consequently, of electric utilities to help build modern telecommunications infrastructure.

During the 1992 political campaign, Mr. Rivkin and Jeremy Rosner

prepared a policy paper for the Progressive Policy Institute of the Democratic Leadership Council called "Shortcut to the Information Superhighway: A Progressive Plan to Speed the Telecommunications Revolution," promoting energy savings made possible by telecommunications as a benign way to finance building the information superhighway. A graduate of Harvard College and Harvard Law School, Mr. Rivkin served on the White House staff under Presidents Kennedy and Johnson and has practiced law in Washington for more than two decades.

A year ago, when *NTQ* published my companion essay "Electric Utilities Will Build Telecom Infrastructure,"<sup>1</sup> the forecasts were glowing for the Administration's National Information Infrastructure (NII) initiative. The laying of the cornerstone—Congress passing comprehensive legislation to reform telecommunications—seemed close at hand.

But the unexpected happened: The legislation collapsed just prior to passage, Democrats lost Congress in November, and a new group of Republicans took over with new plans to reshape telecommunications law and regulation. Despite the bold promise of a new statute by July 4, the perpetual inability of Congress to agree on how to change the Communications Act of 1934 cautions against hasty predictions, and the future of telecommunications reform seems uncertain still.

In my view, that's not an unmitigated loss, but rather an opportunity for some creative re-thinking, and here's why.

## Moving In from the Edge

Potentially critical long-term contributions by the nation's electric utilities—so far only peripheral to the NII—have yet to be fully understood or appreciated, not least by the utilities themselves.

Due recognition, however, has begun. As urged by Vice President Gore, Congress was moving last year to preempt from state (telecommunications) regulators so that utilities could join the mix of potential providers and be assured entry into newly competitive local markets for "telecommunications" services.<sup>2</sup> Another provision proposed in the 1994 legislation provided that certain utilities serving about 16 million electric customers, "Registered Holding Companies" under the Public Utilities Holding Company Act,<sup>3</sup> would be exempt from that Act so they could provide *both* "telecommunications" and "information" services.<sup>4</sup> A third provision, applicable in rural and hard-to-serve areas, would have encouraged electric utilities to become "infrastructure providers" only—building facilities for others to use serving customers, but themselves providing *neither* "telecommunications" nor "information" services.<sup>5</sup>

There were thus three widely divergent roles envisaged for electric utilities in the 1994 legislation. These roles were mutually inconsistent and not coherently focused, especially for the majority of companies that furnish electricity to more than 80% of the American people. So with more time available now, a new look at electric utilities' potentially major contributions became possible.

Fortunately, the U.S. Department of Energy initiated such a refocusing effort by supporting three separate utility study projects. A survey undertaken at Lawrence Berkeley Laboratory of the University of California (a DoE contractor) examined the “Supply and Demand of Electric Power and the NII,”<sup>6</sup> summarizing the important economic significance of telecommunications and information to utilities’ present and future electricity functions. Conversely, DoE helped sponsor an investigation by the industry’s Electric Power Research Institute (EPRI) of utilities’ business opportunities in providing telecommunications and information services commercially.<sup>7</sup> And a contract with DoE’s Office of Scientific Computing via Lawrence Berkeley Laboratory supported my own, practicing lawyer’s inquiry into electric utilities’ legal authorities that underlie their abilities to build telecommunications and information infrastructure and hold important and relevant implications for public policies.<sup>8</sup>

My research findings, informed by many years’ practical experience advising utilities<sup>9</sup> and updated with some subsequent developments, are summarized in the balance of this article.

### Overview of Utilities’ Legal Powers

First of all, utilities have legal powers—derived from their charters and operating authorities and confirmed in their rights-of-way—to carry out whatever activities and functions are necessary (or merely just useful) for delivering electric service. For a century, these activities and functions have recognized at least limited telecommunications capabilities as essential to generating, transmitting, and distributing electricity. Illustratively, Idaho’s 1903 statute granting rights-of-way is explicit and fairly typical, according to utilities,

[S]upplying, transmitting, delivering, or furnishing *electric power or electric energy* by wires, cables, or any other method, or means...the right to erect, construct, maintain, and operate *all necessary lines*...together with the right to *erect, construct, maintain and operate upon said electric power line a telephone line to be used only in connection with the said electric energy and power line*....<sup>10</sup>

But not all utilities’ authorities are so specifically limited; many, indeed, have powers to deploy “telecommunications” that are not expressly restricted at all, and most are enabled by broad and vague grants of authority to assert a scope of activity limited only by some nexus of relevance to the utility’s electricity business.

Moreover, there are contemporary pressures to achieve wide-scale telecommunications and information flows that can induce customers to conserve energy via real-time pricing and effectuate competitive electricity markets at the retail level (“retail wheeling”). As a consequence, the utilities’ functional needs in support of electric service have a clearly expansive thrust.<sup>11</sup>

All types of U.S. utilities—investor-owned (I.O.U.s), municipal, and cooperative—partake of similar needs and capabilities, each in its own particular ways.<sup>12</sup> Even registered holding companies (multi-state I.O.U.s confined by the U.S. Securities & Exchange Commission to running “[an] integrated public utility system”) have options to create or acquire telecommunications facilities that bear a “functional relationship” to their utility mission.<sup>13</sup> While municipal utilities and rural cooperatives both worry about legal challenges to their borrowing for a non-utility investment, they can ultimately legitimize a telecommunications investment by proving it serves an important utility-related function.

And the economic value of the efficiencies made possible by telecommunications and information could be substantial, even if not uniform for all climates and all energy supply markets. How substantial still needs to be identified on an empirical, utility-specific basis, but there are credible forecasts that electric utility savings could fund a significant share of the capital costs of the NII.<sup>14</sup>

### Political Impact: Whose Windfall?

Although utilities’ legal powers to pursue such efficiencies through investments in telecommunications and information appear beyond dispute, there is the concomitant certainty that the effort to do so will produce substantial “excess capacity.” When the holding company Entergy was challenged recently before the New Orleans City Council, its witness admitted that energy management applications would consume a mere 2% of the bandwidth available on its broadband telecommunications system, leaving 98% of the bandwidth that could be used for non-utility

purposes.<sup>15</sup> At the same time, Entergy's witness also pointed to the fortuitous technological paradox that utility-specific applications necessitate—and thereby will justify economically—building a broadband, high-performance telecommunications system, which unavoidably entails surplus capacity capable of a multiplicity of non-utility uses.<sup>16</sup>

Who will benefit from the bountiful excess capacity in such a facility, bought and paid for by the electricity ratepayer? This potentially contentious political question envelops the utility's investment in telecommunications and demands resolution as a fundamental precondition to activating the utility's potential role in the NII. Will this "windfall" be appropriated by the utility to exploit (for the benefit of its shareholders, in the case of I.O.U.s)? Will it belong to the customer (through sharply reduced electricity rates)? To no one (because political or corporate paralysis has defeated the windfall even coming into being)? Or will there be some equitable and practical split—good sense and pragmatic resourcefulness prevailing to assure the fashioning of a workable *quid pro quo*?

### The Unresolved Problem of Universal Service

Having identified the "unresolved windfall" as an inevitable consequence of an electric utility deploying broadband telecommunications, my inquiry moved on to a contemporary policy issue of very great societal importance, which readily suggests itself as a fortuitous platform on which to apportion the windfall—how to achieve universal telecommunications service. This issue of universal service, made urgent by the imminent substitution of competition for regulated monopolies in telecommunications, was a key concern in the unsuccessful effort to reform telecommunications in the 103rd Congress.<sup>17</sup> In the end, the issue eluded solution.<sup>18</sup>

Though the potential of electric utilities to provide telecommunications services was recognized in the legislation proposed last year, neither the unique capabilities nor the unique needs of utilities were appreciated in any way. Thus, the fact that electric utilities already serve 95% of American homes (a percentage point above telephones and more than 30% over cable television)<sup>19</sup> and the likely requirement that all these homes must receive advanced telecommunications in order to manage energy supply and demand were not factored into the debates and the proposed solutions.

Not surprisingly in light of the foreseeably far-reaching and costly consequences, utilities have been reluctant to speak up about universal service. The industry leader Entergy has projected serving no more than one-third of its higher-income customers (a total of 442,090 customers) with its Customer-Controlled Load-Management (CCLM) system,<sup>20</sup> for reasons derived directly from its projections of telecommunications costs and energy-savings benefits.<sup>21</sup> Yet were the utility *not* to make available the benefits of remote, real-time sales and purchases of electricity to all its customers would eventually bring charges to electric regulators that the utility was unfairly discriminating—a potential violation of its own utility obligations.<sup>22</sup>

### Toward a New Regulatory Compact

The challenge of ensuring universal *telecommunications* service is one very potent reason why these same regulators and electric utilities have good reason to get together to slice up the windfall of excess capacity. As noted, in Entergy's regulatory dealings with both local regulators and the SEC, no commitments have been made to deploy CCLM services beyond the limited numbers mentioned, all of whom would be voluntary adherents, since installation for them would be "cost-justified" presumably on a house-by-house basis. But a large proportion of the ratepayers not entitled to anticipate such a high "benefit/cost ratio" (see note 21)—about 60% of all customers—will still need and benefit from (if only to a lesser degree) the energy-saving opportunities made possible by advanced telecommunications. And the same is surely true for institutions such as schools and medical facilities that fall outside the residential calculus, but remain especially important claimants for telecommunications services and for energy savings too.


Regulators can, and should, allow electric utilities incentives to secure the rapid build-out of information infrastructure. Specifically, utilities can be assured by regulators *in advance* that they will allow "rate-basing" of telecommunications plant *if used for energy management*—if the utility agrees to measured commitments to the regulator to construct facilities *on a universal basis*. Such an initiative would have the impact of greatly increasing the utility's physical plant subject to rate-of-return regulation, which will be of great and lasting benefit to the utility's shareholders as well as ratepayers.<sup>23</sup>

While regulators, eying both consumers and courts, always strike a cautious posture in verifying that utility investments are “used and useful in the regulated business,” the regulatory process has also exhibited flexibility to recognize and pursue socially important goals, for example by allowing rate-basing of unamortized costs of abandoned nuclear plants.<sup>24</sup> Accepting the reality of the growing synergies between telecommunications and electricity would be very much in the mainstream.

Sound familiar? Such shrewd repositioning has been done before, with spectacular results, in a not-dissimilar circumstance where universal service was also becoming a defining public concern. Around World War I, AT&T’s president Theodore N. Vail fended off antitrust enforcement against his company by deftly identifying AT&T with the public interest. As recounted by one observer:

[AT&T] promised to improve equipment and operating procedures and to continue expansion into uneconomic, sparsely settled, and difficult-to-reach territories. Most importantly, *AT&T committed itself to attaining universal service*, so that virtually everyone who desired a telephone could have one and could communicate with anyone else. Obviously, the public utility commissions were expected to regulate telephone pricing so that subsidy flows could allow these goals to be achieved.<sup>25</sup>

And the rest—for better and worse—is history!

In the effort to fashion the NII that will now continue, the unique potential contributions of electric utilities to serve important social and economic needs—universal service, in particular—merit urgent attention. 

Applications and Technology to the Office of the Director, National Institute of Standards and Technology (NIST Special Publication 868) (Gaithersburg, MD, September 1994), pp. 25-53.

<sup>7</sup> EPRI, *Business Opportunities and Risks for Electric Utilities in the National Information Infrastructure*, TR-104539 (Palo Alto, CA, October 1994).

<sup>8</sup> S. R. Rivkin, *Positioning the Electric Utility to Build Information Infrastructure*, U.S. Department of Energy, Office of Scientific Computing (DOE/ER-0638, January 1995), available from U.S. Department of Commerce, Technology Administration, National Technical Information Service, Springfield, VA 22161.

<sup>9</sup> I have advised many of the utilities whose powers are examined in my study. In all respects, the sources and materials relied on are in the public domain.

<sup>10</sup> Sec. 62-705, Idaho Code, formerly Sec. 2378, Idaho Revised Code (emphasis added).

<sup>11</sup> For example, EPRI’s study cited above (note 7) flatly concludes, “Energy production and delivery will be tightly coupled with telecommunications and information services for the foreseeable future,” p. v.

<sup>12</sup> According to the Edison Electric Institute’s *1992 Pocketbook of Electric Utility Industry Statistics*, I.O.U.s serve 76.4%, municipal and other public agencies serve 13.7%, and rural electric cooperatives serve 9.9% of all customers for electricity.

<sup>13</sup> Sec. 11(b)(1) of the Public Utility Holding Company Act of 1934 (PUHCA), 15 U.S.C. Sec. 79k. Though the SEC has implied it is ready to interpret PUHCA flexibly to accommodate limited entry by registered holding companies into dual-use telecommunications, the companies lobby strenuously for legislation relieving them completely from SEC controls over their telecommunications activities.

<sup>14</sup> *Supply and Demand for Electric Power and the NII* predicts, “The savings which will accrue from energy sector applications of the NII could make substantial contributions to the cost of deploying the NII.” Note 6 *supra*, p. 52.

<sup>15</sup> Rebuttal testimony of Michael R. Niggli on behalf of Entergy’s subsidiary New Orleans Public Service, Inc. in Docket No. UD-92-2B, October 13, 1993, p. 13. Mr. Niggli strongly implied that the economic value of utility applications was sufficient to pay for the telecommunications system.

<sup>16</sup> *Ibid.*, p. 20. The heart of Mr. Niggli’s justification for a utility to build a broadband system for energy management purposes was as follows: “The...technology enable[s] instantaneous, simultaneous two-way information exchange between the Entergy dispatch system and a large volume of customers with regard to direct control of customer appliances, variable pricing of electricity, and energy efficiency education. This capability of offering continuous automated feedback and accumulation of customer usage information is critical to evaluating the total System benefits associated with shifting demand requirements of many customers from the peak-load period to the off-peak period and influencing conservation efforts.”

<sup>17</sup> For a humane and comprehensive review of the societal significance of universal telecommunications service, and of the range of options considered to achieve it, see Susan G. Hadden, “Expanded Universal Service for the 21st Century,” *New Telecom Quarterly*, Vol. 2, No. 2 (May 1994), pp. 28-34.

<sup>18</sup> Though S. 1822 sought to assure “universal service protection and enhancement” and provided for a “universal service fund” (Sec. 102), some of its expedites—for “public rights of way” (Sec. 103) and “public access” to “public facilities” at “preferential rates” (Sec. 104)—were politically contentious.

<sup>19</sup> Sources: *Statistical Abstract of the United States—1993*, pp. 561 and 563 (telephone: 93.9%), and pp. 589 and 728 (electric: 95.0%);

<sup>1</sup> S. R. Rivkin, “Electric Utilities Will Build Telecom Infrastructure,” *New Telecom Quarterly*, Vol. 2, No. 2 (May 1994):15-19.

<sup>2</sup> See S. 1822, 103rd Cong. (Sept. 14, 1994), Sec.302(a).

<sup>3</sup> 15 U.S.C. Sec. 79, *et seq.* The 16 million customer statistic was in testimony of Edison Electric Institute before the House Committee on Energy and Finance, Subcommittee on Telecommunications and Finance (February 9, 1994), p. 15.

<sup>4</sup> See S. 1822, Sec. 302(b).

<sup>5</sup> See S. 1822, Sec. 201.

<sup>6</sup> See *The Information Infrastructure: Reaching Society’s Goals*, A Report of the Information Infrastructure Task Force Committee on

and Paul Kagan, *Marketing New Media* (December 14, 1992), p. 4 (cable: 62%).

<sup>20</sup> *Least Cost Integrated Resource Plan—Three Year Action Plan*, filed by Entergy on December 1, 1992 with PUCs in Arkansas, Louisiana, Mississippi, and in the City of New Orleans.

<sup>21</sup> According to Entergy's most recent figures for its Chenal Valley, AK demonstration of CCLM in a neighborhood of affluent houses (reported in detail in footnote 81 of my *Positioning* study), its 20-year *electricity benefits* would be \$1,845 per house, while its comparable *telecommunications and computing costs* would be \$1,172 per house.

<sup>22</sup> In the real world, it is unlikely that state regulators would let an electric utility "have its cake" (maintain a protected, rate-base monopoly on electric service) "and eat it too" (be free of requirements to make expensive telecommunications amenities widely available). "...[A] utility may charge but one rate for a particular service, and any discrimination between customers as to the rate charged for the same service *under like conditions* is improper." 1 Priest, *Principles of Public Utility Regulation*, p. 288, citing *F&R Lazarus & Co. v. PUC*, 122 NE2d 783, 786 (Ohio, 1954).

<sup>23</sup> Frankly, while most utilities would rather rate-base an investment in plant *and* maneuver to gain unregulated returns on excess capacity, any such "scam" would be hugely unpopular. Far better financially over the long run for utilities to gain stability for their investments in physical plant and to continue to pay dividends to shareholders—*classically in excess of the norm for all American corporations!*

<sup>24</sup> See, for example *Washington Water Power Company*, 81 PUR 4th 229 (Washington, 1987) and *Maine Public Service Company*, 46 FERC Sec. 61,183, 103 PUR 4th 43 (1989).

<sup>25</sup> Alan Stone, *Wrong Number* (1989), p. 47, emphasis added.