establish a standard that had not been met by the Hatfield Model either.

Substantively, New York Telephone asserts that the revisions by central staff were in areas where central staff had superior knowledge or had acted to correct misunderstandings by the field and do not involve field conditions of the sort that field engineers are best equipped to evaluate, such as loop length data, structural inputs, or routing. With respect, for example, to the ONU-96 equipment referred to by AT&T, it explains that at the time the field study had been conducted, ONU-96 was not included as an approved option because final testing of the product had not been completed. Central staff, however, was aware, by the time of its review, that ONU-96 was the recommended DLC option for certain applications and it therefore properly substituted this product. (New York Telephone also attempts to refute AT&T's claim that ONU-96 is a more costly option.[1]) AT&T, in response, offers reasons to believe that field engineers were aware of the ONU-96 decision.[2] With respect to MFS' challenge to central staff having reduced from 65% to 40% the utilization factor for copper distribution cable, New York Telephone contends that it did so because of the field engineers' failure to understand the term "utilization" in a manner consistent with a TELRIC study.[3]

Finally, with regard to the claim that it has not met its burden of proof, New York Telephone responds that the parties raising the claim do not define the burden of proof they believe

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[1] The issue, like many, is multi-faceted and therefore difficult to resolve simply. ONU-96 units are more costly than the alternative OSP-672 units on a per-capacity-line basis, but, when placed in a remote site serving 200 lines or less, tend to be less costly on a per-line-actually-served basis. And these circumstances are more likely to obtain in a dense major-cities environment than in less dense urban or suburban settings.

[2] AT&T's Reply Brief, p. 72.

[3] New York Telephone's Reply Brief, p. 14.

should be applied nor do they acknowledge that the Hatfield Model must be held to the same standard. New York Telephone accepts the burden of proof in substantiating the cost studies it is sponsoring, but it denies that every item in a study must be documented "back to the invoices" and every input supported by detailed testimony. The proper burden, in its view, is to explain by competent evidence how the study was conducted and to justify the reasonableness of the study methods, the appropriateness of the inputs, and the reliability of the outputs. It contends its initial testimony did so and that other parties further explored the bases for its inputs and methods through discovery. It believes the ability of other parties to rerun its studies and conduct sensitivity analyses confirms that it provided, as required, studies that are "complete, self contained and fully supported by documentation, work papers, and algorithms," and it cites the Massachusetts DPU's conclusion, after reviewing studies using the same basic method and engineering assumptions, that "the 'model is reviewable,' the workpapers provided 'make the relationships clear,' and 'the model provides a good representation of a reconstructed local network that will employ the most efficient technology for reasonably foreseeable capacity requirements.'"[1]

2. Substantive Adequacy

Citing what it characterizes as the FCC's stated preference for generic costing models[2] and the burden of proof that agency imposed on an incumbent LEC with regard to the nature and magnitude of costs it seeks to recover,[3] AT&T asserts that New York Telephone chose to ignore costing models available in the industry (including the BCM, which NYNEX itself sponsored) in favor of its own "idiosyncratic, ad hoc and extremely inflexible

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[1] Ibid., p. 18, quoting the Massachusetts Order, pp. 12-13.

[2] First Report and Order, ¶¶ 834-835.

[3] Ibid., ¶ 680.

costing methodology [developed] specifically for purposes of these proceedings."[1] AT&T contends that New York Telephone's model is difficult to understand, resistant to sensitivity testing, hastily prepared with no expertise and no reference to pre-existing incremental cost methods, and lacking in detailed guidance. Asserting that the study depends on engineering and marketing inputs for which New York Telephone provided minimal and, in AT&T's view, misleading evidentiary support, AT&T cites Mr. Curbelo's repeated references to information he received from New York Telephone's engineering and marketing departments and incorporated in the study without independent assessment. With regard to engineering inputs, it contends that Mr. Gansert was unable to provide first-hand information. Compounding the flaws, in AT&T's view, is that many of the data are "hard-wired" into the cost study and cannot be altered readily. AT&T lists a series of these fixed engineering inputs that cannot be readily changed, including the choice of DLC equipment for each density zone, the cable lengths for each density zone, the sharing of poles with electric utilities, and the copper/fiber crossover point. Despite these difficulties, AT&T has been able to run some sensitivity analyses, but it contends that New York Telephone's burden of proof required it to present more than the black box and bottom line results that it produced. And it insists New York Telephone's study cannot be adapted to a proper narrowband network inasmuch as the broadband network is too firmly embedded in the study to be modified.

Several of AT&T's specific methodological criticisms of New York Telephone's study have already been noted; to them may be added its general complaint that the study improperly depends on embedded cost data, contrary to the TELRIC use of forward-looking incremental costs. As already noted, it regards New York Telephone's use of its existing network layout as reflecting an embedded approach; it offers a similar criticism of New York Telephone's calculation of carrying charge factors on the basis

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[1] AT&T's Initial Brief, p. 40.

of 1995 expenses as well as its use of historical data (such as SCIS), to estimate switch investments.

Similar criticisms are offered by MCI, MFS, NYCHA, and Sprint. MCI, for example, portrays the study as a hasty, slapdash effort in which, for example, Mr. Curbelo and Mr. Gansert could not agree on whether distribution plant located within high-rise buildings had been included or not and in which the absence of structure investment associated with that plant had not been taken account of. NYCHA criticizes New York Telephone for basing maintenance costs on historical data, thereby ignoring the cost efficiencies driven by a competitive market, while seeking a cost of capital based on the higher costs demanded by investors in a competitive market.

NYCHA also contends that New York Telephone's study fails to account for the declining prices and increased capacity of many pieces of equipment, a phenomenon assertedly substantiated in a 1995 Bell Laboratory assessment and recognized by New York Telephone in Mr. Curbelo's acknowledgement that prices for switches, software, and hardware have been declining.[1]

New York Telephone responds to NYCHA's comment on price levels by noting that the data it cites do not reflect the cost of inputs (such as labor and copper cable) that are not driven by technology and that are likely to increase with time. More fundamentally, it asserts that projecting trends into the future is speculative; that a forward-looking costing construct does not mean setting prices now on the basis of cost levels that will not be achieved for five or ten years; and that the better approach, as New York Telephone has suggested, would be to revise TELRIC studies in the future as significant changes occur. It points out as well that its cost of capital analysis does not attempt to determine that cost at some arbitrary point in the future; rather, consistent with TELRIC analysis, it seeks to identify the

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[1] Tr. 2,971. Mr. Curbelo there acknowledged that prices had declined but disavowed any opinion on whether that trend would continue.

cost that would have to be paid now by New York Telephone viewed as a wholesale supplier of network elements.

More generally, New York Telephone insists that its study is forward-looking inasmuch as

> full deployment is assumed in all cases for the technologies that [New York Telephone] identified as being the most efficient currently available; the most recent available materials and installation costs were utilized, fully reflecting the discounts and economies of scale that [New York Telephone] has been able to achieve in its purchasing; [CCFs] computed on the basis of current expense to investment ratios were conservatively applied to the lower overall investments characteristics of the TELRIC approach; the CCFs that were used in the study reflected the superior performance of the chosen forward-looking technologies (e.g., the studies reflected the lower maintenance costs of fiber as compared to copper); and even copper maintenance expenses were adjusted to eliminate any allowance for deteriorated cable present in [New York Telephone's] current (embedded) network.[1]

With respect to its omission of savings attributable to process re-engineering or the NYNEX/Bell Atlantic merger, New York Telephone reiterates its view that such matters are better taken account of, should they materialize, through future updates. And it contends that its use of current material and installation prices is warranted in the absence of a showing of inefficient procurement practices (which no party has attempted to make) and that an analysis not based on current updated data, adjusted as needed, amounts to unsupported speculation.

Finally, New York Telephone contends that its studies are auditable and verifiable and that the difficulties in varying inputs that AT&T complains of stem from the model's "fidelity to the complexities of the real world; as a result, sometimes complicated adjustments to the model and the collection of new

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[1] New York Telephone's Reply Brief, pp. 18-19, footnote omitted.

data [are] necessary to adapt it for alternative assumptions."[1] It contends that professional judgment and experience may be needed for such adaptations and that, while this complexity introduces an element of inconvenience, its result is greater predictive power. It asserts the proceeding should focus on cost studies rather than cost models and that the universal applicability and generality of models as AT&T uses the term are liabilities rather than assets, inasmuch as they reduce the models' applicability to particular situations.

In its initial brief, New York Telephone disputes the significance of comparisons that might be drawn between its study's results and those implied by the link and port costs identified in its May 15 cost studies or by embedded costs, the FCC's proxy prices, or existing retail rates.

Recognizing, for example, that its TELRIC study produces a statewide average cost for a two-wire analog loop approximately 50¢ greater than the cost of an unbundled voice grade link calculated by its May 15 incremental study, New York Telephone sees no significance in comparisons between the costs of single elements and little significance even in a showing that the TELRIC method produces incremental costs generally greater or lower than those produced by the earlier study. In some cases, it says, methodological differences may produce higher costs and in others, lower costs. Nor does it see any significance in comparisons between TELRIC costs and embedded costs, noting the FCC's explicit recognition that they may differ and that, in some instances, TELRIC costs may be higher than embedded. New York Telephone explains the particular instance of its TELRIC based local switching investment exceeding the comparable embedded investment by noting that the embedded investment reflects the higher discounts it was able to obtain for digital switches supplied to replace existing analog switches and notes that these discounts are not available on other new-switch purchases. More generally, the relationship between incremental and embedded

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[1] Ibid., p. 23.

costs depends in a complex way on how past costs relate to future costs. The important thing, it says, is that the method selected be consistent and not use forward-looking costs for some components and embedded costs for others, with the goal of choosing the lowest cost in each case.

New York Telephone also sees no significance in the relationship between the costs it calculates and the proxy prices determined by the FCC. It notes that the proxy price regulations are among those now stayed and that, in any event, the FCC permits the proxy prices to be superseded at any time by a full forward-looking economic cost study.

Finally, New York Telephone sees existing retail rates as providing no meaningful guidance on TELRIC rates, noting that existing rates may be above or below some relevant measure of cost and that even if such rates were set on the basis of a cost study, that study would not have been a TELRIC study.

In response, AT&T reiterates its judgment that New York Telephone's May 15 study had overstated costs, and it expresses dismay that the current study produces even higher costs. It notes New York Telephone's admission that its total TELRIC investment is $15.8 billion while its total embedded investment is $16.6 billion and suggests this rather small difference between the two figures supports AT&T's contention that New York Telephone's study is in many ways more an embedded than an incremental one. With regard to the FCC's proxy rates, it characterizes New York Telephone's reliance on the Eighth Circuit's stay as "a cynical argument, [amounting] to a contention that the FCC's carefully worked out, state-specific calculation of proxy rates not only should be accorded no legal weight but also should be accorded no persuasive effect at all."[1] It notes that New York Telephone's proposed rates in every instance exceed the FCC's proxy rates substantially and regards this is as warning that New York Telephone's proposed rates substantially exceed TELRIC costs.

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[1] AT&T's Reply Brief, p. 58.

Finally, AT&T agrees with New York Telephone's observation that retail rates provide no meaningful guidance but regards this as a complete response to New York Telephone's objection, described in the next section, to geographically deaveraging its unbundled element rates on the grounds that a deaveraged rate structure would be inconsistent with the current retail rate structure, which is not deaveraged.

The Hatfield Model

In some ways, New York Telephone's general criticisms of the Hatfield Model are the obverse of its defenses of its own model. Many of its specific criticisms have already been described; in general, New York Telephone contends that the model "is based on little more than the unsubstantiated guesswork of third-party consultants",[1] and that neither AT&T nor MCI has sought to validate its reliability on the basis of their own knowledge or experience. It contends that the model rests on untested methods and simplifying assumptions whose unifying principle is to minimize the cost estimates that result. Time Warner criticizes the model's use of highly aggregated ARMIS data rather than the more detailed data provided by New York Telephone and its excessive reliance for its assumptions on the unsubstantiated opinions of one man, Hatfield's consultant Mr. Donovan.

Citing testimony by MCI witness Mercer and AT&T witness Floyd, New York Telephone contends that neither proponent has attempted to validate the Hatfield Model's engineering or other assumptions. Any reliance placed on the BCM, originally sponsored by NYNEX, among others, is misplaced, it says, inasmuch as the BCM was designed only to capture relative cost differences among regions for purposes of allocating a universal service fund. New York Telephone cites various state commissions that have found the Hatfield Model unreliable and declined to use its estimates, including California, Texas, Florida, and

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[1] New York Telephone's Initial Brief, p. 85.

Pennsylvania, as well as the Massachusetts DPU in the decision often cited. It contends as well that the Hatfield Model is difficult for third parties to use and test, pointing, among other things, to difficulties encountered by Dr. Mercer in explaining some of the model's outputs.

To the extent the model's validity can be tested, New York Telephone goes on, it appears unreliable. New York Telephone points, for example, to the model's estimate that some 116,000 lines are required to be serviced at the Broad Street wire center; in reality that wire center today serves approximately 184,000 residential and business lines and, if special access lines are included, serves a total of almost 300,000 lines.[1] New York Telephone contends this error belies the claim that the model properly allocates the total number of lines required at the CBG level by relying on statewide averages, and it notes that the CBG line counts are used widely within the model and that erroneous estimates will lead to costs that are misstated in ways that cannot be ascertained or measured.

New York Telephone further contends that the Hatfield Model is largely a "black box," and one that does not function as described by its sponsors. It points to various costs that are omitted and to other errors, some of which have already been noted. As evidence of the model's lack of reliability, New York Telephone notes MCI's agreement that if the copper/fiber crossover point were reduced from 9,000 feet to 0 feet, the model would be expected to calculate that all lines will be served by fiber feeder and will need to be equipped with DLC equipment. In fact, when the model is run with that change in input, it produces the same number of lines served by DLC equipment.[2]

To show the errors in the Hatfield method, New York Telephone offers a comparison between its actual 1995 investment and expenses and those predicted by Hatfield; it shows a

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[1] Ibid., p. 103.

[2] Ibid., p. 106.

Hatfield-predicted total investment figure that is only 36.4% of the actual level and a Hatfield-predicted total expense figure that is only 28.3% of the actual level.[1] It sees no basis for concluding that a fully functional network can be built to serve existing demand for about one-third of New York Telephone's existing investment nor that competitive efficiencies will allow that network to be operated for just 28% of the current expense level.

In response, MCI contends that New York Telephone's arguments about the Hatfield Model's failure to correspond to reality boil down to a complaint that it does not reflect New York Telephone's embedded costs, something it should not do. It asserts that "[New York Telephone's] 'real world' experience is not relevant,"[2] and suggests that the real world investment may include inefficiencies and reflects physical plant deployed to support broadband services.

AT&T insists the record shows that Hatfield's method and assumptions are realistic and "actual" in all important respects. In defense of the model's simplifying assumptions, it asserts that all forward-looking cost models simplify reality and that the only question, which AT&T answers in the negative, is whether the simplifying assumptions bias the resulting cost estimates downward. It insists that a TELRIC model cannot simply mirror New York Telephone's existing embedded network and cites what it characterizes as the Judge's ruling that it would be inappropriate to compare the forward-looking TELRIC network designed by the Hatfield Model with New York Telephone's existing network.[3] It adds that the Hatfield network provides basic, narrow-band local telephone services while New York Telephone's study reflects a network designed to accommodate broadband,

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[1] Ibid., p. 107.

[2] MCI's Reply Brief, p. 16.

[3] Tr. 3,528-3,530. The Judge said such a comparison "wouldn't necessarily be valid."

video, and other non-basic services, and thereby unreasonably inflates its costs.

AT&T acknowledges four errors in the model identified by New York Telephone but characterizes them as "glitches" having little effect on the model's outputs.[1] And it contends the model's inputs are proper, emphasizing its view that only New York Telephone has the burden of proof.

Discussion

In evaluating the models, one should start by recalling the purpose of the effort: to estimate, as well as possible, the costs that properly should be recovered through the prices charged for network elements. Consistent with basic economic principles, these in general should be the incremental costs of the elements being priced, for only then will prospective users of the elements make economically efficient decisions about their purchase and about the relative merits of purchasing elements and competing with ILECs via other avenues, such as resale or installing their own facilities. At the same time, the "correct" price will be one that permits the ILEC to recover its reasonable costs, including a fair return. These principles underlie the TELRIC analysis contemplated by the FCC as well as the more traditional LRIC method, and AT&T properly suggests that the two approaches tend to merge.

The principles just outlined sound, in many ways, like those underlying traditional rate cases, in which regulators sought to determine the costs properly recoverable by the regulated entity (something different from the costs it actually incurs) and to allocate the recovery of those costs among customer classes in the most economically efficient manner possible, consistent with other policy considerations (such as the avoidance of unduly harsh impacts on particular groups of customers.) And while the 1996 Act precludes "reference to a rate-of-return or other rate-based proceeding" in determining the

[1] AT&T's Reply Brief, p. 113.

costs that will underlie network element prices, it does not forbid use of some of the techniques applied in those proceedings to determine "allowable" costs. The parties here have done so, using DCF analyses, for example, to determine the contemplated rate of return, and arguing depreciation lives in terms strongly reminiscent of earlier rate cases (with the "regulated utility" urging shorter lives and customer groups or their representatives urging longer ones.) And the forward-looking aspect of a TELRIC study also is not unique, given New York's long history of deciding rate cases on the basis of fully forecast test years.

What makes this case different, of course, is the nature of the costs to be projected. In a traditional rate case, the costs are those expected to be incurred by the utility in connection with its actual facilities and services, subject to normalization if they are skewed by extraordinary events and to adjustment if they are found to be imprudent or otherwise to exceed reasonable levels. Those total costs may then be allocated among services to ensure, for example, that basic service ratepayers are not called upon to subsidize enhanced services. Here, in contrast, (at least under the TELRIC construct) we are called upon to forecast the costs of a hypothetical system that is designed to provide only the network elements being priced, that takes as a given only the existing central office locations, and that contemplates full deployment of the most efficient, least-cost, technology available.

The presentations in this case take opposite paths to designing this hypothetical system. The Hatfield Model emphasizes the "almost clean slate" guideline and builds a system, starting from existing wire centers, on the basis of numerous engineering assumptions and mathematical constructs, applied to a range of user-adjustable inputs. New York Telephone's model (or, more properly, its study, to use the term that the Hatfield proponents see as one of opprobrium but in which New York Telephone takes pride) starts from the premise that New York Telephone's existing system configuration has not been shown to be imprudent and can serve as the hypothetical

system, and endeavors to identify the costs of providing the elements in question through that system configuration.

These different approaches lead directly to the parties' criticisms of each other. New York Telephone disparages the Hatfield product as a fantasy world, created by obscure manipulation of unsupported data, unrelated to anything real, and failing to take account of the complexities and costs actually faced by New York Telephone in providing network elements. Conversely, the Hatfield proponents see New York Telephone's study as unduly deferential to New York Telephone's existing system and historical costs, so much so as to be, in effect, an embedded cost study. They also charge it is unduly tied to its poorly supported assumptions (raising, in particular, the evidentiary concerns related to whether the study presented on the record was, in fact, the one conducted) and resistant to manipulation by users of those assumptions.

It should come as no surprise that both sides press sometimes valid, but sometimes overstated, criticisms. The Hatfield output should not be characterized as the worthless fantasy world portrayed by New York Telephone. The bases for the model's assumptions are explained, its algorithms are described, and the large number of user-adjustable inputs provides a way to tie it to the world as the user sees it. Still, when all is said and done, it achieves its degree of generality by relying heavily on simplifying assumptions that by their nature can never be substantiated and by failing to pay adequate attention to the world outside as it really exists. (In this regard, it seems to rely heavily on the advice of one expert consultant, an individual not even presented for cross-examination.) AT&T cites the FCC's stated preference for generic models, but a recent FCC staff paper pointed out some of the difficulties associated with

relying on such models,[1] and the FCC itself contemplated use of a generic model, if one were approved, only to replace the default proxy costs it was setting. In that event, it noted, states would have the option of setting rates on the basis of the generic model or an economic cost study.[2]

Other concerns posed by the Hatfield model include its relentless assumption that the provision of network elements will remain a monopoly service, notwithstanding the Hatfield proponents', and others', efforts to break that monopoly. (One tendency shared by both sides is a degree of self-serving selectivity with regard to where one is "forward-looking.") In addition, though not a "black box," the model has been shown to produce some unpredictable and inexplicable results. AT&T dismisses as "glitches" some specific errors identified by New York Telephone, but such errors undermine the confidence needed to rely on a model so replete with assumptions.[3] And at no point has it been shown that the model successfully predicts actual costs confronted by a LEC in providing network elements. The wide spread between the costs the Hatfield model predicts for New York Telephone and the costs calculated by New York Telephone's model calls both approaches into question, for while New York Telephone's calculated costs may be inflated (a matter considered next), it is unlikely, after decades of careful regulation, that they are as inflated as the Hatfield proponents would have it.

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[1] "The Use of Computer Models for Estimating Forward-Looking Economic Costs: A Staff Analysis" (January 9, 1997). It is recognized that the paper's authors stated that "the opinions and tentative conclusions expressed in [the] paper are those of the authors and do not necessarily reflect the views of the [FCC] or any of its Commissioners, or other staff." The FCC has invited comment on the paper.

[2] First Report and Order, ¶ 835. These aspects of the First Report and Order are among those stayed, but the FCC's views remain instructive.

[3] New York Telephone may have the ultimate burden of proof with regard to its rates, as AT&T suggests, but New York Telephone properly responds that a party sponsoring a model has the burden of proving the model reasonable.

In evaluating New York Telephone's study, it is necessary, first, to consider the evidentiary challenge levelled by the Hatfield proponents. The issues presented by the late disclosure are two: the specific question of how many density zones are encompassed in the study, and the more general one of how the study was conducted and how the view of central engineering staff related to those of the field engineers. In addition, there is the matter of whether New York Telephone presented an engineering witness fully conversant with all engineering inputs.

A fair conclusion on these matters is that they damage New York Telephone's case, but do so neither fatally nor even critically. Clearly, New York Telephone erred in at least one interrogatory response. Less clearly, it should have been more forthcoming in disclosing how it conducted its density zone analysis. (There is no firm evidence that it actively concealed or misrepresented information; on the other hand, it did not provide in this regard all the information it might have or provide it in as clear a form as possible.) Similarly, it has sought to explain specific instances in which field engineers appear to have been overruled, but (as AT&T suggests in its motion to strike portions of New York Telephone's reply brief), it offered no firm evidentiary explanation of how it went about reconciling the views of field engineers and headquarters personnel. But while all of this weakens the degree of confidence one might have in New York Telephone's study, none of it means, as the Hatfield proponents would have it, that the study presented is not the study conducted or that New York Telephone can be found outright not to have met its burden of proof.

Another overstated criticism is that New York Telephone in effect conducted an embedded cost study because it took account of historical data. A forward-looking study attempts to portray the future system and estimate its incremental cost, but in doing so, it need not, and arguably should not, ignore the past and present. Historical data, subjected to critical review,

can provide the basis for forward-looking projections, and their use does not make the study an embedded one. The key, of course, is that the historical data be critically evaluated, and, as described in the foregoing sections, some of New York Telephone's projections on the basis of historical data require substantial adjustment. But that means, as explained at the outset, that the important debate here is largely over inputs, not over study method. New York Telephone relies very heavily, perhaps to a fault, on historical or actual data (with respect, for example, to its network configuration or the expenses reflected in the CCFs); but that reliance does not mean it conducted an embedded study, and its effects can be limited, as we have done, by suitable adjustments to the inputs.

The Hatfield proponents properly note the difficulty of manipulating New York Telephone's study and the degree to which some of its inputs are "hard-wired." New York Telephone offers a partial justification in its observation that this is a "study," not a "model," but that really begs the question. A study whose inputs are subject to question would benefit greatly by having the flexibility to show readily the effects of varying those inputs.

The overriding impression created by New York Telephone's study is that what the study does is quite clear and verifiable, notwithstanding the arguments to the contrary; that why the study did what it did, and why particular inputs were selected, is much less clear; and that the effects of changing those inputs are more difficult to determine than they ought to be. In addition, the study produces results that are counter-intuitive (such as the higher link cost for Manhattan, in the face of the premise that shorter loops should cost less and evidence from the Massachusetts DPU's evaluation of central Boston that this is so); and its very substantial divergence from the FCC's New York proxy rates is at least noteworthy. (Given the Eighth Circuit's stay, the FCC proxy rates have no legal significance whatever, but, as AT&T suggests, they remain pertinent as a point of reference. Divergence from those rates

would not in itself be significant, but substantial divergence, as is the case here, should raise an eyebrow.)

Conclusion

When all is said and done, we are presented with two studies (three, if the MCI and AT&T versions of Hatfield are separately counted) that can illuminate, but not resolve, the rate setting issues before us. Each approach has clear advantages and disadvantages; each, inevitably, is tendentious; and each employs inputs that have been called into serious question. As described above, substituting more reasonable inputs for those properly called into question causes the results of the two studies to converge, sometimes to the point of crossing. Those revised results may be seen as defining the range of reasonable outcomes of this proceeding, and we may use our discretion to set prices within that narrowed range. In the absence of factors clearly tending one way or the other, prices will be set at the mid-point of that narrowed range. Where the less disaggregated nature of AT&T's study precludes direct identification of such a range, however, the rate will be set on the basis of a comparable adjustment to the input-adjusted New York Telephone result. The results of the foregoing process are displayed in Attachment D, and New York Telephone will be directed to submit tariffs adopting those rates. All parties, of course, are free to submit, in any later proceedings that may be convened to modify the rates here set, revisions of their studies that respond to the concerns we have raised.

GEOGRAPHIC DEAVERAGING

In portions of the First Report and Order and associated rules that are now stayed, the FCC concluded that geographically deaveraged rates more closely reflect actual costs than do average rates, and it required states to establish at least three cost-based rate zones.[1] New York Telephone's study

[1] First Report and Order ¶¶ 765-766; 47 CFR §51.507 (f).

accordingly included four density-based zones: rural, suburban, urban, and major city. The zones were defined on the basis of number of access lines per square mile.

In the briefing questions propounded by Judge Linsider, parties were asked to comment on the pros and cons of geographic deaveraging in the absence of the FCC deaveraging mandate. The parties have done so; New York Telephone opposes deaveraging at this time (though not in principle) while most other parties favor it. In addition, the parties continue to dispute how deaveraging should be accomplished.

Deaveraging in General

In its initial brief, New York Telephone says it does not oppose geographic deaveraging in concept but believes it is impractical now. Most important from its point of view is the prospect of deaveraging wholesale rates in the face of its inability to deaverage its retail rates by reducing prices for low-cost customers and raising them for others. Deaveraging on the wholesale side alone, it suggests, would permit its competitors to undersell it in low-cost zones, where it would be required to offer elements at a reduced rate but could reduce its retail rate only if it were willing to absorb the associated revenue loss, inasmuch as it could not increase its retail rates elsewhere. Meanwhile, in the high-cost, largely rural zone, higher wholesale rates would not permit alternative facilities-based providers to compete effectively with New York Telephone for retail local service. Overall, New York Telephone says, it would be unable to recover its total incremental network element costs, contrary to the mandate of the 1996 Act. New York Telephone asks, at a minimum, that if deaveraged rates are ordered, steps be taken to insure that it has comparable freedom to deaverage its retail rates on a revenue-neutral basis.

In response, AT&T contends that New York Telephone's opposition to deaveraging, raised for the first time in brief and unsupported by record evidence, is simply an effort to impede the development of competition in the (low-cost, dense) areas where

it would develop soonest given proper prices. It notes that the entire case went forward on the basis of geographically deaveraged costs and that the record lacks not only support for the practical problems now raised by New York Telephone but also any basis for setting statewide average rates, inasmuch as statewide averages are provided for some, but not all elements. As for the practical problems themselves, AT&T asserts New York Telephone wants only to preserve its ability to continue to recover the level of revenues it now enjoys by reason of its monopoly status. "In other words," it says, "[New York Telephone's] argument consists entirely of the proposition that its current retail rates are not economically efficient and that, therefore, cost-based wholesale rates should be held hostage until some unspecified future time when [New York Telephone] is able to adjust its retail rates to reflect underlying costs."[1]

Referring back to its initial brief, where it offered various reasons in support of geographic deaveraging, AT&T takes the position that deaveraging is required not only by the FCC standards but by the 1996 Act itself, which requires that rates be cost-based and, hence, geographically deaveraged if costs vary by geographic area. New York Telephone itself recognizes these cost differences and, according to AT&T, there can be no doubt that geographic deaveraging is statutorily required.

AT&T believes as well that geographic deaveraging is correct as a matter of economics and public policy, again citing its earlier argument that the effect of statewide average pricing would be to set above-cost rates for network elements in the low-cost, densest areas of the State and thereby stifle development of competition in the areas of the State where it is likely to develop soonest. Noting (though not agreeing with) New York Telephone's argument that deaveraging would impede the growth of competition in rural areas, AT&T suggests that averaging would correspondingly impede the growth of competition in the densest urban areas of the State. And if New York

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[1] AT&T's Reply Brief, p. 26.

Telephone's competitors are required to pay above-cost rates in the densest areas of the State, the amounts they pay in excess of costs will either subsidize network element offerings elsewhere or simply result in monopoly profits for New York Telephone.

With respect to New York Telephone's argument that it cannot adjust its retail rates, AT&T notes that New York Telephone is free to reduce those rates and that the public interest would be well served by selective lowering of local rates as competition develops without offsetting rate increases where competition is slower to develop. AT&T adds that under New York Telephone's Performance Regulation Plan (PRP), we may take actions to promote competition and that New York Telephone has no entitlement to a guaranteed recovery of revenues that may thereby be lost. It cites, in this regard, our clarification of the PRP, at AT&T's request, "to make clear beyond dispute that by accepting the PRP, [New York Telephone] was giving up any right to argue that it was entitled to oppose Commission-ordered changes to resell or link or port prices."[1]

Other parties favor geographic deaveraging for reasons substantially the same as those advanced by AT&T. NYCHA warns that averaged prices will stifle the development of competition in urban areas and undermine the cost-based mandate of the 1996 Act. In response to New York Telephone's new objections to deaveraging, NYCHA suggests that it raise in other proceedings its interest in subsidizing its high-cost areas or in having more rate setting flexibility. MFS notes that while New York Telephone liberally quotes from the Massachusetts Order throughout its brief, it fails to mention that the Massachusetts DPU ordered deaveraged link rates for central Boston, (in addition to the three zones proposed by New England Telephone), finding that ignoring the cost differences between the Boston exchange wire centers and other urban wire centers would be contrary to the 1996 Act. MFS adds that we cannot rely on geographic averaging of link rates to promote universal service.

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[1] Ibid., p. 32.

MCI similarly believes that the 1996 Act requires deaveraging in order to reflect cost differences. It asserts that the PRP does not take precedence over the requirements of federal law and that New York Telephone is free to file a petition to modify the PRP. It notes that deaveraging has been required not only by Massachusetts but also by New Hampshire and Rhode Island. Sprint, in its reply to the briefing questions, cites the ability of deaveraging to account for different costs by area as its primary advantage; it notes, as disadvantages, the cost and time taken up by deaveraging as well as the possibility of higher prices in rural areas.

Defining the Zones

At the briefing stage, New York Telephone continues to advocate its four-zone deaveraging (assuming rejection of its preferred outcome of no deaveraging); most other parties see a need to place Manhattan or New York City in a separate zone. In its testimony, AT&T proposed the following four zones: (1) Manhattan; (2) the remainder of New York City; (3) Nassau, Suffolk, Westchester, and Putnam counties; and (4) the remainder of the State, called "Upstate New York." MFS would modify AT&T's proposal by tying it less tightly to geography and instead emphasizing density; it proposes to define the zones as follows: (1) Manhattan; (2) Bronx, Brooklyn, and Queens; (3) Staten Island, Nassau, Suffolk, and Westchester counties, and downtown Albany, Syracuse, and Buffalo; and (4) the remainder of the State.

As already noted, New York Telephone initially considered a five-zone structure, with New York City as a separate zone. It attributes its change to four zones to a preliminary finding that the costs in the New York City zone were very close to (indeed, slightly higher than) the aggregate costs for the second densest zone (the "major cities" zone) in which New York City would otherwise have been included.

As for the proposal to treat Manhattan as a separate zone, New York Telephone acknowledges its distinct cost

characteristics but contends that costs are not the sole criterion for delineating zones and that if it were, the State would have several hundred zones each reflecting its area's unique cost characteristics. Other factors must be taken into account, according to New York Telephone, including the objections to dividing a political unit. It warns that "establishing a regime in which rates are significantly lower in Manhattan than in Queens or Staten Island would be tantamount to redlining and would disserve the interests of the residents of those outer boroughs by encouraging the relocation of existing businesses to Manhattan," and it asserts that the Commission, in the guise of telecommunications reform, should not "unilaterally encourage such broad-ranging and significant transformations," which ought to be under the control of representative political bodies.[1] It adds that wholesale deaveraging would serve as a precedent for retail deaveraging, a step that would have an even more profound effect on the life and economic structure of New York City.[2]

To bolster its position that Manhattan should not be broken out, New York Telephone contends that, when all is said and done, costs in Manhattan are not all that different from those in the major cities zone. It says so on the basis of a Manhattan-only cost study, prepared in post-hearing discovery at AT&T's request, that shows two-wire analog link costs of $15.86 per-month in Manhattan, a figure not drastically below the $16.75 per month cost for the major cities zone as a whole. It suggests the result reflects the fact that DLC loop networks are less sensitive to cable length than copper-based systems and that economies of scale may be offset by costs of congestion. It maintains its study properly reflects Manhattan-specific costs and should be distinguished from other efforts to develop a cost

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[1] New York Telephone's Initial Brief, p. 48.

[2] In its reply brief, New York Telephone acknowledges NYCHA's observation that its proposed density zones do divide Buffalo but says it favors realignments to eliminate that division.

for Manhattan "based on a presumed relationship between loop lengths and costs."[1] AT&T, however, challenged the study, contending that it had requested a cost figure developed by applying to Manhattan the methods and assumptions used in new York Telephone's study as a whole and that New York Telephone had, instead, modified those methods and assumptions. New York Telephone later submitted, though it denied the correctness of, a study using the approach AT&T had requested; it resulted in an even higher cost of $18.64 per month.[2]

AT&T, meanwhile, characterizes New York Telephone's four density zones as "facially preposterous."[3] It emphasizes that the densest, "major cities" zone would encompass almost 70% of the access lines in the State and would include Manhattan, with its density of more than 100,000 access lines per square mile, as well as Cheektowaga, with a density of less than 1,600 access lines per square mile. It cites testimony by its witnesses Globerson and Floyd regarding Manhattan's unique nature and suggesting that New York Telephone's definition of the major cities zone is designed to obscure, rather than to reflect, cost differences. In its reply brief, it charges New York Telephone with vacillating between objecting to a Manhattan zone because of non-cost considerations and arguing that the cost differences, in fact, are minimal in any event. It asserts that New York Telephone has misused the concept of redlining and it sees no basis in the record for New York Telephone's concern that firms might relocate from other boroughs to Manhattan because a competitive local exchange carrier could provide local telephone service in Manhattan somewhat more cheaply. It maintains that New York Telephone is simply trying to keep network element rates

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[1] New York Telephone's Reply Brief, p. 25.

[2] New York Telephone's Revised Response to Information Request ATT-NYT-332 (January 15, 1997).

[3] AT&T's Initial Brief, p. 119.

high in the areas where genuinely cost-based rates would permit competitive firms to develop.

AT&T notes as well that in the recent Massachusetts proceeding, New England Telephone, like New York Telephone here, first proposed in its initial brief to abandon geographic deaveraging. The Massachusetts DPU not only rejected that proposal but also modified New England Telephone's three-density zone proposal in favor of a four-density zone plan that identified the central Boston exchange as a separate density zone. It notes as well that New England Telephone's Massachusetts study, similar in many ways to the study here, showed a consistent decline in costs as density increased, and it is perplexed by the difference between that result and the result here, where New York Telephone contended that its study showed costs that did not continue to decline and may even have increased when New York City was broken out as a separate density zone.

MCI stresses the sensitivity of cost to loop length and the shortness of loops in Manhattan and notes with surprise New York Telephone witness Curbelo's testimony that the zones were developed by a New York Telephone marketing executive. It suggests that the anticipated Manhattan-only study be approached cautiously, given the ease with which results can be manipulated. As an example, it notes that the field reports produced by New York Telephone after the hearing show no costly ONU-96 remote terminals in Manhattan, yet the workpapers underlying its submitted study show 28% of the lines in zone 1 being served by ONU-96 terminals, thereby assertedly increasing costs. Sprint sees no explanation of New York Telephone's basis for selecting its density zones.

NYCHA offers similar arguments, suggesting New York Telephone's choice of zones was based on policy considerations, not costs.[1] It adds that New York Telephone has been unable to explain why loop costs in Manhattan so exceed those in comparable

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[1] NYCHA's Initial Brief, p. 6.

areas of other cities. It points, in contrast to New York Telephone's calculated Manhattan cost of $15.86 per month per loop, to comparable figures of $9.22 in the central Boston exchange and $5.78 in Ameritech's central Chicago exchange.

MFS emphasizes the wide variation in densities within New York Telephone's "major cities" zone and characterizes the result as "sham deaveraging."[1] It prefers AT&T's deaveraging plan, except for its inclusion, in the least dense "upstate" zone, of the downtown areas of Albany, Syracuse, and Buffalo, whose densities resemble those of portions of the New York Metro LATA. Rather that using AT&T's strict geographic deaveraging, MFS would deaverage by wire center on the basis of density, proposing the zones noted at the beginning of this section.

Turning to the Manhattan-only study prepared by New York Telephone in response to AT&T's post-hearing information request, MFS suggests its result means it is flawed on its face and that the reduction in link costs is not as great as one might have expected given the increase in density. It adds that some of the changes made in the study involved corrections to the original study, suggesting that the original study was flawed.[2]

Discussion and Conclusion

The case was litigated by all parties on the premise of geographic deaveraging using at least three zones, as required by the FCC's First Report and Order; and that premise remained in place, until questioned in New York Telephone's brief, even after the pertinent provisions of the First Report and Order were stayed. Still, New York Telephone is entitled to raise the issues it now raises, and its arguments must be carefully considered.

To begin, even though the geographic deaveraging provisions of the FCC's pricing rules have been stayed, the 1996

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[1] MFS' Initial Brief, p. 61.

[2] MFS' Reply Brief, pp. 19-22.