

**VI. CONCLUSION**

For the foregoing reasons, the Commission should not rely on the Model for any purpose in the interconnection proceeding.

Respectfully submitted,

  
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## DECLARATION OF RICHARD D. EMMERSON

### INTRODUCTION

1. My name is Richard D. Emmerson. I am the President and CEO of INDETEC International, Inc. INDETEC International, Inc. provides consulting and training services to international telephone companies, Lucent Technologies, the United States Telephone Association (USTA), Bellcore, Commission staff members, partners and managers of large accounting and consulting firms, and interexchange companies (these services were formerly offered through INDETEC Corporation and Emmerson Enterprises, Inc.). My business address is 341 La Amatista, Del Mar, CA 92014.

2. I have prepared this declaration on behalf of Pacific Bell in partial response to the Public Notice ("Notice") issued on June 20, 1996.<sup>1</sup> The Notice established a supplemental period in CC Docket No. 96-98 for comment on the Industry Demand and Supply Simulation Model ("Model") developed by the staffs of the FCC's Industry Analysis Division, Common Carrier Bureau, and Competition Division, Office of General Counsel.

### II. SUMMARY AND CAVEATS

3. My review of the Model leads me to conclude that it has limited usefulness for informing decisions on the proper public policy the Commission should follow on the matters at issue in this proceeding. Most importantly, these matters include the level and structure of charges (and other terms and conditions) for interconnection, unbundled network elements, collocation and resold services. The Model's apparent limitations fall into five categories: (1) the meaning and relevancy of some of the Model's

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<sup>1</sup> "Supplemental Comment Period Designated for Local Competition Proceeding, CC Docket No. 96-98," Public Notice, released June 20, 1996.

variables is obscure , (2) the Model appears to overemphasize protecting the financial health of new entrants without regard to the impact on the efficiency of the entire industry, (3) the Model lacks specificity concerning the opportunities for and financial impact of cream-skimming, (4) the Model appears to have shortcomings in its ability to account for likely substitution among local exchange company (“LEC”) services that are priced differently, and (5) the Model does not appear capable of disentangling the financial effects of competition from other relevant effects. In addition, the Model has apparent defects. Three significant defects are (1) an excessively high level of aggregation, (2) inadequate attention to the critical role of universal service funding and (3) failure to address adequately the financial impact of compulsory wholesaling. The combined effect of these limitations means that the Commission should interpret the significance of the Model’s output with considerable caution. At worst, these limitations could produce misleading guidance on public policy.

4. I must qualify this conclusion with the observation that evaluating the Model in the time allotted is extremely difficult. My conclusions and criticisms are based on my best efforts to understand how the Model operates. Given the large number of variables in the Model and their complex interaction together with limited documentation, it would be very easy for almost any reviewer to misunderstand the Model’s operation in at least some of its many aspects. Of course, any errors and omissions in the analysis set out below are my own.

### **III. OPERATING INSTRUCTIONS AND DOCUMENTATION**

5. The Model is very difficult to evaluate in a short period of time; thus, its value in informing public policy decisions is highly limited. This difficulty in evaluation may be traced, in large part, to the absence of operating instructions and adequate documentation pertaining to data dictionaries, algorithms and assumptions. No operating instructions accompany the Model. Consequently, reviewing the Model requires guessing how it runs. In addition, the Model is only sparsely documented on line. Unlike third generation computer languages, documentation is especially important with spreadsheet

programs in order for a reviewer to follow the flow of inputs and outputs. Adequate documentation for any simulation model would describe its purpose or intended use, the underlying economic principles involved and critical assumptions and limitations on intended uses. It would also include a data dictionary and a precise description of the contents of the database. Without operating instructions and adequate documentation, evaluating the Model becomes a process of trial and error. Trial-and-error evaluation consumes valuable time and detracts from obtaining an understanding of the Model's usefulness. For example, insufficient time has been allotted to test the sensitivity of the Model to all of its many components. There has not been enough time for me to attempt to make sensible modifications to the Model for comparison purposes.

6. As a result of its inadequate documentation, the meaning of several of the Model's variables is unclear and their relevancy is not obvious. The meaning and relevance of at least four of the Model's variables are highly uncertain. First, the Model seems to presume that LECs can measure or anticipate usage over unbundled loops, but LECs cannot measure usage over a loop unless the traffic is also switched by the LEC. Does the Model assume a *de facto* bundling of usage and loops? Second, the concept of a "total bill" customer is obscure. The Model appears to divide customers' purchases of local service, vertical services, and intraLATA and interLATA toll services according to certain rules in an "all-or-nothing" game. Third, the Model includes a variable that seemingly allows for CLECs "flowing through" the difference between "traditional" and "alternative" access charges. Does this variable reflect an assumption about how CLECs will set prices or does it reflect the expectation that competition will undermine the existing rate structure? Finally, the Model contains a variable apparently representing expected price reductions in the "non-access" portion of toll charges. Does the Model assume in a substantive way that toll services are priced in two parts: an access charge component and a non-access component? These are examples of the difficulties encountered in attempting to evaluate the usefulness of the Model.

#### **IV. FOCUS ON FINANCIAL CONSIDERATIONS**

7. A principal focus of the Model appears to be the financial performance of three segments of the telecommunications industry: local exchange carriers (LECs), interexchange carriers (IXCs) and competitive local exchange carriers (CLECs). The Model appears to combine IXCs and CLECs into a single segment for most purposes. Among other financial measures, the Model produces values for the LEC segment's revenues, earnings and return and for the revenues and operating profits of the combined IXC and CLEC segment. These measures in part will depend on the Model's assumptions or algorithms concerning the level and structure of charges for interconnection and unbundled network elements. Because the terms and conditions of interconnection and unbundling are the very issues before the Commission, this procedure suggests that the Model is designed to answer what terms and conditions will promote the financial health of IXCs and CLECs while maintaining "acceptable" financial performance for the LECs. While the LECs' ability to earn a fair return is a legitimate issue in this proceeding, the profitability of new entrants, without regard to their efficiency, is not. My understanding of the Telecommunications Act of 1996 is that it was intended to encourage efficient entry, not the profitability of any new entrants.

8. The Model's focus on the financial health of new entrants confuses promoting competition with protecting competitors. Public policies reflecting this concern would unduly interfere with the competitive process instead of maintaining a level playing field. Unfortunately, the implied objective of the Model is to orchestrate competition and control the outcomes. There is no evidence that the Model is capable of determining whether the outcomes reflect efficient or inefficient forms of competition.

## **V. CREAM-SKIMMING**

9. The Model lacks the specificity needed to determine the extent of and financial impact of cream-skimming. Competition is highly selective, and new entrants will focus their efforts on customers who are less costly to serve or who purchase large volumes of services, especially services priced at high margins over costs. In telecommunications, unit costs are lower the greater is customer density, and large volume

users are highly concentrated geographically.

10. The only concession the Model makes to the fact that some customers are more profitable to serve than others is a “skewing factor.” A different value for this factor may be applied to residential and business classes stratified according to toll usage. The skewing factor does not take into consideration any of the following: (1) geographic differences in the costs of serving customers due to differences in customer density, (2) geographic concentration of high volume users, and (3) price-cost margins that vary across different services. In order for the Model to reasonably reflect the financial impact of selective competition, the vast differences in costs across geographic areas, the structure of the universal service funding mechanism, and the geographical concentrations of revenues must be modeled.

11. The Model uses “average” toll rates, or revenue per minute, and “aggregate” markups on vertical services when economic theory and recent experience suggest that an equally important effect of greater competition will be to *restructure* the rates for toll and vertical services. Two types of toll rate restructuring are likely. First, less rate uniformity among customers will doubtless emerge as toll rate schedules are modified according to the customer’s volume of usage. Second, toll rate schedules under greater competition likely will have a smaller degree of taper with distance and a smaller difference between initial and additional minutes of use. Moreover, using “aggregate” markups on vertical services only weakly reflects the vulnerability of the contribution from such services. Competition in this arena is very likely to convert the cream to skim milk.

12. The Model does not account for substitution between LEC services that are priced differently. Many telecommunications services are close substitutes for one another, and users, particularly sophisticated users like IXC’s and CLEC’s, are prepared to switch from one service to its substitute depending on the relative level of rates charged. For example, a certain amount of arbitrage between the termination of local and toll traffic seems inevitable. The greater is the disparity between the rates charged

for terminating these two classes of traffic, the stronger will be the incentive for new entrants to misclassify the type of traffic delivered for termination and to focus their competitive efforts on customers with large amounts of terminating traffic.

13. In a weak attempt to allow for arbitrage, the Model assumes that CLECs may arrange to terminate traffic originating in their service territories with “affiliates” and that IXCs may “reroute” terminating toll traffic from incumbents to CLECs. At a minimum, the Model should include an “arbitrage” factor tied to the differences in rates for substitutable services. Such a factor would be applied to differences in rates between: (1) switched access and terminating local traffic, (2) residential and business unbundled loops, and (3) bundled services sold wholesale and unbundled network elements.

14. Besides arbitrage, the Model does not reflect the perverse incentives that could be produced by a bill-and-keep for terminating local traffic. Such a requirement would produce at least two harmful incentives. CLECs would be stimulated to concentrate on winning customers with large volumes of terminating local traffic, such as internet providers. Hence, the benefits of competition would be unevenly distributed. CLECs would also be encouraged to build their networks in ways that raise the combined costs of exchanging terminating traffic.

15. In general, the Model should be sensitive to the most important “targeting” characteristics of pending competition. Competition will be most intense for very narrow market segments, as evidenced, for example, by AT&T Chairman Robert Allen’s public comments to the investor community<sup>2</sup>

## **VI. DISENTANGLING COMPETITIVE EFFECTS FROM OTHER FACTORS**

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<sup>2</sup> See, for example, “AT&T Challenges the Bell Companies,” *Wall Street Journal*, June 12, 1996, p. A3 and “Ready, Set, Devour?,” *Business Week*, July 8, 1996, p. 118.

16. The Model is not sufficiently economically sophisticated to disentangle the financial effects of greater competition from other relevant factors, such as business cycles, economic growth, incentive regulation and industry trends. Exogenous factors generally are subsumed in the input specifications. Important variables appear to be either ignored or obscured, and the likely result is that the future financial performance of the Model's two industry segments will be mistakenly attributed to particular terms and conditions for interconnection, unbundling and resale

17. The financial aspect of the Model attempts to project accounting categories, such as revenues, earnings (or profits) and net investment. To make projections of this kind, the Model needs to make specific assumptions about improvements in productivity, changes in demand, capital expenditures, rates of depreciation or obsolescence, and values of various macroeconomic variables. Gauging productivity improvements requires information about the rate and direction of technological change and the extent of economies of scale and scope. The level and composition of demand depend upon such factors as income elasticities, population and employment growth, and the rate of adoption and diffusion of new technologies among users. Capital expenditures depend upon growth in demand, maintenance and replacement, and modernization. The rate of depreciation and technological obsolescence depend on some of the Model's outputs, such as output prices and competitive displacements. Important macroeconomic variables include growth in income and corporate employment and profits, interest rates and growth in real wages. It is not clear that some or any of these factors are reasonably represented in the Model.

18. Although the Model allows users to specify plant additions in terms of added loops and replacement as a percentage of prior years' investment, a user need not reveal the reasons for choosing particular values for such variables. Whether values are chosen to reflect, say, the rate and direction of technological change will not be apparent to anyone reviewing the Model's outputs. Moreover, the Model's only apparent concession to incorporating macroeconomic variables includes allowing the user to specify an inflation rate, a rate of growth in real GDP and a value for Moody's Aaa

bond yield.

## VII. OTHER MAJOR DEFECTS

19. Assuming that an important purpose of the Model is to forecast the financial effects of various terms and conditions for interconnection, collocation, unbundling and resale, it has several major defects. Two of these defects seem especially important. The first of these two concerns the level of aggregation. Only two broadly defined industry segments are considered in the Model's outputs, and the Model may not be flexible enough to predict the financial performance of individual firms. The financial performance of LECs serving high concentrations of large-volume, low-cost subscribers may be particularly unreliable. I earlier mentioned the related problems with a lack of geographic deaveraging of competition and universal service funding. The second of the most important major defects concerns wholesale discounts from retail rates. The Model does not appear to be able to forecast the financial effects of selling retail offerings at sizable wholesale discounts.

20. Several other potentially significant defects also plague the Model. Nothing in the Model appears to account for the inefficiencies that may accompany interconnection, collocation and unbundling. Higher unit costs could come about from duplicating large, fixed facilities and the resulting lower utilization rates. Increased costs could also result from physically unbundling network components and functions that would be more efficiently employed in combination (*i.e.*, a loss of economies of vertical integration). In addition, certain transactions requiring non-redeployable assets, such as collocation and "meet point" interconnection, may be accomplished at a lower cost if organized internally rather than vertically separated. In addition, nothing in the Model appears to account for the higher expenses LECs will incur paying CLECs for terminating local traffic or the resulting revenues accruing to the CLECs.

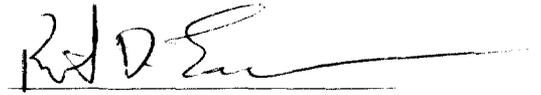
21. Another defect is that the Model contains only a limited range of potential rate structures for interconnection services. The following alternative rate structures do not

appear to be included in the Model: (1) charges for access to poles, ducts, conduits and rights-of-way; (2) terms and conditions for physical and virtual collocation; (3) arrangements for sharing the costs of “meet point” interconnection (or “mid-span” meets); (4) flat rates per unit of capacity for terminating local traffic, and (5) flat-rated “port” charges for switching local traffic. Not including such alternative structures precludes measuring their financial impact no matter how useful the Model might be in other respects.

22. Finally, as an economist, I find it distressing that the authors of the Model claim to attempt to assess changes in consumers’ and producers’ surpluses when its principal focus suggests a concern for managing the financial well-being of potential entrants. Orchestrating competition almost surely will encourage inefficient entry and may handicap efficient participants. Truly effective competition weeds out the inefficient rather than encouraging their entry and encourages the success of efficient rivals. Orchestrating competition most likely will reduce economic welfare in spite of what the Model might say will happen to consumers’ and producers’ surpluses. The chief losers will be telephone subscribers. They will be deprived of the lower prices, greater product variety and higher quality services that unfettered competition could bring.

23. While the tone of my comments is quite negative, that tone derives from great concern for an efficient, fair and effective implementation of the Telecommunications Act of 1996, not from a presumption that the Model is intended to advocate any one party’s interest over another. These matters are simply too important to be strongly influenced by the assumptions and structure of one spreadsheet-based model.

I declare under penalty of perjury that the foregoing is true and correct. Executed on July 5, 1996, at Del Mar, California.

A handwritten signature in black ink, appearing to read 'R D Emmerson', written over a horizontal line.

Richard D. Emmerson