

AESO Discussion Paper – Alberta Demand Response Initiatives
Stakeholder Comment Matrix

Section	Subsection	Stakeholder Response
<p>2.0 Demand Response Policy and Background</p>	<p>2.3 Demand Response Principles</p> <ul style="list-style-type: none"> a. Remove Barriers b. Symmetric Rules c. Product Design d. Price Fidelity 	<p>Fair - free from bias, dishonesty, or injustice (dictionary.com) Efficient – performing or functioning in the best possible manner with the least waste of time and effort; having and using requisite knowledge, skill, and industry; competent; capable (dictionary.com) Open Competition - Standard form of competition where all qualified or responsible parties are eligible to compete. (businessdictionary.com)</p> <p>Using these conventional definitions, or reasonable alternatives, EnerNOC does not believe that the current market can be said to be Fair, Efficient or Openly Competitive with respect to demand response, and particularly with respect to demand response as provided by third-party aggregators.</p> <p>The current market is not Fair because, as IPCAA notes, the single-sided merit order is <i>biased</i> in favor of suppliers by virtue of allowing only supplier offers to set price. The current market is not Efficient because it fails to compensate loads for reductions in demand at a price that is comparable to the value they provide to the system. This inefficiency is compounded because the market lacks sufficient elasticity of demand to discipline prices and prevent the exercise of market power by generators. Finally, the market is not Openly Competitive because it does not allow loads to compete to provide services they are technically capable</p>

		<p>of providing, specifically ancillary services such as spinning reserves.</p> <p>Beyond these comments and those below, EnerNOC notes that it has coordinated its response with and supports the remarks filed by IPCAA.</p>
3.0 Energy Market Initiatives	3.2 Barriers to more DR in the Energy Market <ol style="list-style-type: none"> a. Are the barriers identified actually barriers? b. Are there missing barriers? 	<p>EnerNOC concurs with the comments of IPCAA. To the extent that a focus on demand response has highlighted shortcomings in the existing underlying market design, that is a further reason to reexamine that market design in the appropriate context, not to dismiss those problems simply because they may impose similar burdens (and similar inefficiencies) on generators.</p>
3.3 Options to Increase DR in the Energy Market	3.3 Options to Increase DR in the Energy Market <ol style="list-style-type: none"> a. Other options beyond those identified in sections 3.3.1 through 3.3.4? 	<p>EnerNOC concurs with IPCAA that new products should consider multi-part pricing structures that include payment for performance, and payment for being available to perform. Depending upon the product, the latter could be broken into a long-term availability payment attendant to parting the program and a short-term payment based on day-to-day willingness to respond.</p>
	3.3.1 Price Certainty <ol style="list-style-type: none"> a. Payments to bids on the margin b. Altering settlement rules c. New products d. Others to add? 	<p>EnerNOC concurs with the comments of IPCAA. In addition, we support the introduction of payments to bids on the margin for loads. To the extent that such a mechanism was deemed reasonable for generators, fairness suggests that loads should receive the same benefit.</p>

	<p>3.3.2 Insufficient Incentive</p> <ul style="list-style-type: none"> a. Pay loads for the benefits they create b. Pay loads the energy price c. Allow bids >\$1000/MWh d. Others to add? 	<p>We entirely concur with IPCAA. Paying loads to reduce is <u>entirely</u> consistent with FEOC. All other North American ISOs/RTOs either have or are developing programs that allow this. There is significant debate about the appropriate level of the payment, with many believing that “LMP-G” is the right level, while others, including EnerNOC believe that full LMP is appropriate.</p> <p>It is worth noting that Dr. Kahn’s defense of full LMP payment is <u>not</u> based on including externalities or other “system benefits.” Regardless of whether Alberta determines that full LMP payment is proper, there can be no defense of zero payment. Zero payment to loads for reducing their use is not “Fair”, nor is it “Efficient.”</p>
	<p>3.3.3 Aggregation and Baseline Methodology</p>	<p>These are separate and distinct issues. It is possible to accommodate aggregators and not use baselines (e.g., NYISO’s Demand Side Ancillary Services Program, or PJM’s Synch Reserve program) just as it is possible to prohibit aggregators while still needing baselines (e.g., large customers participating on their own in the MISO DR programs.) Also, the existence of interval meters at customer sites does not obviate the need for baselines.</p> <p>All other North American wholesale market operators have concluded that allowing and encouraging aggregators is consistent with their versions of “FEOC.” Indeed, the vast majority of demand response MW enrolled in existing ISO/RTO DR programs are enrolled through aggregators like EnerNOC (in NYISO it is well over 75%.)</p> <p>Similarly, all other North American wholesale market operators have either developed programs that pay DR resources market prices or integrated DR resources into the various markets as “suppliers.” Attendant with treating DR as a supply resource is the need to develop baselines that estimate what the load would have done, but for its participation. While certainly not trivial, the</p>

		<p>development of DR baseline approaches has matured greatly over the last decade and much experience now exists regarding how (and how not) to construct an accurate DR baseline. AESO recognizes that customers facing a low retail rate in the face of high wholesale prices will make inefficient consumption decisions and we welcome AESO's willingness to correct that inefficiency. However the solution is not to ensure that loads "can avoid the hourly pool price." The solution to correcting the inefficiency that AESO has recognized between wholesale prices and retail rates is to <u>pay</u> the load the LMP, or, at the very least, the LMP minus the retail rate.</p>
	3.3.4 Signals Beyond the Spot Energy Price	<p>We agree with AESO that managing peak loads is a commercial function that the market operator should not perform on behalf of load serving entities. EnerNOC often works with LSEs within an ISO footprint to reduce their loads and capture additional benefits. Such layered programs are relatively new, but a number of utilities (e.g., ConEd, PPL, PECO) are using such programs to manage their system peaks and/or meet state mandates.</p>
4.0 Reliability Product Initiatives	4.2 Barriers to more DR participation in Reliability Products <ol style="list-style-type: none"> a. Are the barriers identified actually barriers? b. Are there missing barriers? 	<p>Demand response resources are demonstrably as or more technically capable of providing ancillary services as large generators. ISO-NE, NYISO, PJM and MISO all allow DR to provide ancillary services. Where barriers exist within the regional reliability councils, the ISOs/RTOs have been effective in eliminating them.</p> <p>It is not "Openly Competitive" to bar DR from providing high-value spinning reserves and regulation when the technical capability exists. The fact that the barrier has been erected by WECC makes it no less so. AESO should work with other western system operators to amend outdated, generator-centric definitions so that loads capable of providing spinning reserves without degrading reliability may do so.</p>
	4.3.1 New Products <ol style="list-style-type: none"> a. Ramping (wind following) product b. Voluntary load curtailment 	<p>EnerNOC concurs with the comments of IPCAA. In addition, we strongly suggest that AESO consider the high degree of success that other ISOs have had with programs that pay DR providers a</p>

	<p>c. Transmission must run (TMR)</p>	<p>nominal fee to stand ready to assist the system operator in the event that grid reliability is jeopardized. As IPCAA has suggested a multi-part payment structure that provides an ability or call-option payment to ensure that customers are ready to respond on short notice, coupled with an activation or performance payment to maximize timely response when needed, is a highly effective approach to securing emergency DR resources. AESO should procure, directly or through aggregators; the 400 MW that it believes it needs in order to address OPP 801 events. The proper way to determine the correct availability payment would be via a competitive solicitation. Experience in other ISOs suggests that customers value revenue certainty and that multi-month commitments would lower the long-term cost of the product.</p> <p>While AESO has termed this “Voluntary Load Curtailment,” EnerNOC believes that any provider agreeing to perform and receiving an availability payment should be obligated to respond when called. Failure to do so should result in an appropriate penalty. Subject to appropriate geographic restrictions, aggregators should be allowed to meet their commitments by effectively managing their portfolio of providers (in other words, AESO should not care if some customers under-perform, so long as the enough others over-perform to meet the commitment.)</p>
	<p>4.3.2 Aggregators</p>	<p>EnerNOC agrees that aggregators must assume <u>comparable</u> responsibilities for meeting technical and other rules. As noted above, all other North American wholesale market operators have concluded that aggregators provide significant value, including that referred to by IPCAA. Barring aggregators completely is not FEOC. Barring them from providing higher-risk (read: higher value) products because of unfounded concerns is also not FEOC.</p>
	<p>4.3.3 Technical Standards a. Supplemental Reserves b. Spinning Reserves</p>	<p>As noted above, AESO should work with others to lift the existing restrictions on DR providing spinning reserves.</p>

5.0 Other Products	5.1 Generator Outage Coordination and Rescheduling	To the extent that DR resources are providing services to the AESO that are analogous to those provided by generators, EnerNOC is not opposed to appraising AESO of changes in the ability to provide those services. For example, if the emergency DR program described above were implemented and AESO was relying on it to defend system reliability in the case of OPP 801 events, EnerNOC would support a requirement that participating loads or aggregators inform AESO if they were to be unavailable for an extended period of time.
	5.2 Long Lead Time Energy	
	5.3 Dispatch Down Service	
	5.4 Load Shed Service	EnerNOC strongly supports IPCAA’s LSSi proposal and urges the AESO to move forward with it, including the three-part payment structure, with all speed.
6 Conclusions and Next Steps		<p>EnerNOC appreciates the opportunity to comment upon the discussion paper, as well as the opportunity to have participated in its development over the last year. We believe that the AESO has an improved understanding of the benefits that demand response, especially as delivered by aggregators can bring to the system. However, we find the AESO’s interpretation of its “FEOC” mandate to be at best confusing and at worst inconsistent with the plain meaning of the constituent terms.</p> <p>While AESO may lack of a “capacity” market, there is nothing inherent in such markets that mandates against DR <u>products and services</u> that elsewhere may receive a “capacity” payment. Like the systems of ISOs that have capacity markets, Alberta’s system also obeys Kirchhoff’s Laws and the products and services that DR can provide are the same in Alberta as elsewhere.</p>

AFFIDAVIT OF ALFRED E. KAHN

Question:

Please identify yourself.

Answer:

I am Alfred E. Kahn, Robert Julius Thorne Professor of Political Economy, Emeritus, at Cornell University; and Special Consultant to National Economic Research Associates, Inc. (NERA).

Question:

Please provide a summary of your background and qualifications.

Answer:

I attach a copy of my curriculum vitae. Among my most relevant credentials are my authorship of the two-volume *Economics of Regulation*,¹ published in 1980-81 and reprinted in 1988—which I believe it is fair to characterize as the standard if not classic statement of the economic case for marginal cost pricing, my former Chairmanship of the New York State Public Service Commission (1974-77) and, immediately following, my Chairmanship of the U.S. Civil Aeronautics Board. In the former position, I in effect took the leadership in an ongoing and gradually successful effort to apply the principles I had enunciated in Volume 1 of my monograph; in the latter, I took the lead in effectuating the deregulation of the airlines, as the superior method of leaving it to competition, where that seemed to be feasible, to produce those

¹ Alfred E. Kahn, *The Economics of Regulation: Principles and Institutions*, Volume I: *Economic Principles*, published 1970; Volume II: *Economic Principles*, published 1971 by John Wiley & Sons, Inc., New York, NY; reprinted by MIT Press in 1988.

same results. I have also been the Advisor to the President (Carter) on Inflation, and Chairman of the (U.S.) Council on Wage and Price Stability.

I have served also on a variety of other public and private boards and commissions, several of which dealt with environmental issues, including the National Academy of Sciences Advisory Review Committee on Sulfur Dioxide Emissions and the Environmental Advisory Committee of the Federal Energy Administration. I also served on the Executive Committee of the National Association of Regulatory Utility Commissioners, and as Chairman of its Committee on Electric Power. In these several roles, I testified before the Senate Committee on Finance, in successful support of H.R. 6860, “The Energy Conservation and Conversion Act of 1975,” July 18, 1975, specifying in particular the obligation of electric distribution companies to purchase the power of qualified independent generating facilities at avoided or incremental costs, in the interest of both environmental protection and energy conservation.

Question:

What is the purpose of your testimony in this proceeding?

Answer:

My clients, the Demand Response Supporters, have asked me whether I would support a proposal that PJM be required to pay subscribers—or aggregators providing demand-response services to ultimate customers—full Locational Marginal Price (LMP), for curtailing their consumption of electricity, especially at times of peak demand, by specific amounts estimated necessary in the aggregate to hold loss-of-load probabilities to optimal levels—minimizing the aggregate cost to all customers by subjecting the entitlement to them to an auctioning process.

For all practical purposes I am supporting the “full LMP” aspect of PJM’s proposal, although I believe the economics of its supporting argument is not completely correct.

Question:

With which part of PJM’s economic reasoning do you disagree?

Answer:

PJM seems to suggest that the first best economic approach to pricing demand-side load reductions requires the wholesale market price be reduced by the generation portion of retail rates. Because of its unsatisfactory experience in electricity demand reductions hitherto, PJM’s proposal is to depart from what it conceives to be the economic price and pay the full LMP or market price in order to increase participation by customers in its efforts to match load to resources—a proposal of particular interest when the supply-demand margin is small. I believe PJM’s economic rationale is mistaken, but serendipitously, its proposed incentive payments are economically correct.

Question:

Why so?

Answer:

The (incremental) costs saved by curtailments in demand clearly will be full LMP—including the marginal costs of generation. So, in the end, full LMP inducement is the economically correct one.

Question:

But don't such payments—which some might regard as subsidies—usually distort economic behavior and produce inefficiencies?

Answer:

For my former New York State constituents, a sufficient response to your question would probably be “subsidy-schmubsidy.” The simple answer in the case of this proposal is that the payments it advocates are not “subsidies” any more than other corrections of prices to equate them to marginal costs. The simple answer in the case of this proposal is that the purpose and effect of the direct payments to purchasers will be to *increase* economic efficiency by facilitating and inducing efficient consumer responses to changing incremental supply costs. In contrast to the usual connotations of subsidization, the purpose and result here is to induce consumers to behave as they would if the market mechanisms alone were capable of rewarding them directly for efficient economizing. I will leave as questions for another day the possibility that these incentives and institutional arrangements might prove to be inadequate, i.e., whether or not PJM's proposal to give consumers what it regards—incorrectly—as greater than efficient incentives proves nevertheless insufficient to induce or make economic installation of the requisite metering for all customers and what additional remedies may be required—for example to overcome the typical unwillingness of state commissions to subject customers to genuine marginal cost pricing—as PJM recognizes in this proceeding.

There are two, conceptually different reasons why the mere prescription of equating the price of power to marginal supply cost is not a sufficient recipe for maximizing economic efficiency. The first is that incorporating in wholesale price the sharply increasing marginal cost of

generation at times of peak demand and the increased probability of system-wide losses of load may be politically, and perhaps economically, infeasible: it would not only require separate meters for every customer reflecting the times and amounts of electric use, moment by moment, hour by hour and day by day², but it would also require tariffs that pass those constantly varying costs along to consumers. While there are studies suggesting that such metering might be worthwhile in the aggregate—and there is no serious dispute that the cost-benefit ratio would in a small proportion of the customer base be highly favorable—state regulatory authorities have not generally been supportive of such tariff structures.

Second, and quantitatively far more important, is the increasing probability, as output gets closer and closer to physical limits of generating capacity, of losses of load, the costs of which are orders of magnitude higher than the marginal costs of actual generation. Such shortages can come on quite quickly, from unanticipated losses of generating equipment, unanticipated surges in demand, or some combinations of the two. In such cases, the true marginal costs of energy far exceed LMP.

In any event, I am unaware of any reason to question PJM's assessment that their "optimal" price has not to date produced the efficient demand response and that its effectiveness is actually decreasing over time. So either the LMP-G (or the previous LMP-G-T) price is clearly not economically correct or there is some sort of market failure. Since I am unaware of any assertion that there is such a market failure, I believe that the empirical evidence provided by PJM supports my view that PJM is incorrect on what is the "optimal" price.

² In addition, such meters would have relatively little utility without the ancillary equipment to monitor the current electric price and automatically adjust customer usage in response to it. On the other hand, universally applied economically efficient time-of-use rates would provide efficient incentives to install such equipment.

These circumstances—specifically, the fact that pass-through of the LMP is costly and (perhaps) politically infeasible,³ the possibly prohibitive cost of the metering necessary to charge each ultimate user, moment-by-moment, the often dramatic changes in true marginal costs for each—can justify direct payment at full LMP to distributors and ultimate customers who promise to guarantee their immediate response to such increases in true marginal costs of supplying them.

Question:

How does the full LMP proposal of rewarding successful bidders promising to deliver on short notice such reductions in demand as are estimated to be necessary to equate the remaining demand to available supply while holding loss-of-load probability to optimal levels assure the results that would be achieved if universal time-of-day meter-reading were economically feasible?

Answer:

First, this would not be economically inefficient. It would involve confronting customers (or voluntary aggregators of customers) with the true incremental cost of supply, rewarding them to the extent necessary to produce first-best results. The full LMP plan provides a mechanism for eliciting economically efficient responses from consumers such as would have been achieved were it possible to charge each of them from moment to moment with the varying true marginal cost of supply.

³ And even if both economically and politically feasible, in the event it is not actually present. Thus, while it might make sense, as PJM proposes, to revisit these incentives when a sufficient amount of load is actually subject to LMP, the fact that a trivial amount of load is subject to LMP passthrough today makes the PJM proposed payments relevant.

In addition, the existence of this plan gives consumers the incentive to install costly capital equipment to allow aggregators to remotely control equipment and in this way guarantee timely response.

Question:

Doesn't paying all bidders, high and low alike, the *marginal* price necessary to achieve the amount of load shedding necessary to hold the loss of load probability to acceptable levels end up paying many of them more than necessary to elicit the requisite aggregate curtailment?

Answer:

Economically efficient pricing—at the incremental cost of equating supply and demand—always confers rents on infra-marginal suppliers and bidders. The rents in this case are or would be no more than or different from those prevalent in all efficient markets. What the competitive bidding process—just as competition in the supply of all goods and services—ensures is that those rents are held to the minimum necessary to equate demand with supply, while holding the probability of system breakdowns to predetermined optimal—observe “optimal”, not zero—levels. What economic efficiency requires is that all suppliers and purchasers confront the same *marginal cost*.

The significant point is that such pricing maximizes net social welfare as the economist defines it: the customers who agree to curtail their usage at peak times are better off because, as is demonstrated by their acceptance of the bids, the value of that compensation to them outweighs the inconvenience of curtailing their usage. All the remaining subscribers are better off as well, because the curtailment of usage reduces, or holds down, the incremental cost of continuing to

serve all, while holding the possibility of losses of load and blackouts, highly injurious to all customers, to pre-determined optimal levels.

Society benefits, additionally, by the voluntary reduction, because it puts off the cost of constructing additional generating plants and/or conserves the characteristically heavy use of fuel by peaking generators.

The vision of a power pool inducing individual customers that they are legally obligated to serve to curtail their purchases and paying some more than they would ask individually to curtail their demand may strike the layman as immoral or illegitimate—but that is how a free-price system works, inevitably providing what economists call “rents” to suppliers who would have been willing to provide a large portion of market supplies at lower prices. To induce the supply side of the market to provide output sufficient to meet peak demand clearly confers “rents” on low-cost producers or, strictly, on a large portion of supply that would have been forthcoming at lower prices. It is necessary, similarly, in the event of an increase in demand: the market price paid to all producers, on all the units they offer for sale, must go up in order to meet the increased demand. Alternatively we could curtail the amount demanded by increasing the amount paid for customers to stop consuming. But in either case, infra-marginal suppliers or curtailing consumers in effect receive unnecessary “rents” when supplies in the form of either more production or less consumption or both increase. Consider consumers for example, who because of unexpectedly bountiful wheat harvest can get bread for less than the maximum price they would be willing to pay—they capture “rent”. Similarly, lower-cost electricity suppliers in

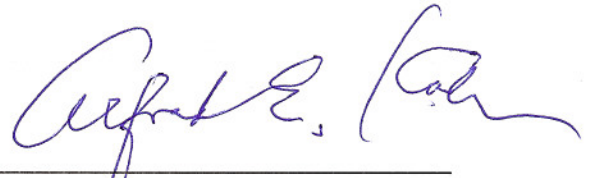
a competitive market earn “rents” as demand increases, necessitating bringing marginal, progressively higher-cost suppliers onto the market to meet that increased demand.

So when, as PJM proposes, increased demand necessitates bringing higher-cost generators into the market and inducing customers to curtail their consumption, the result is to confer economic “rents” on lower-cost, infra-marginal suppliers, in order to induce the requisite recourse to higher-cost supplies (and losses of rents to purchasers). And this is an economically efficient result.

AFFIDAVIT

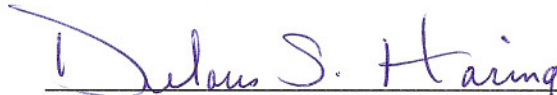
Alfred E. Kahn, being duly sworn upon his oath, deposes and says:

1. I am a consultant to an intervenor in this proceeding, and I am duly authorized to make this Affidavit of Verification on its behalf.
2. I have prepared the contents of the foregoing Affidavit with respect to a proposal by PJM Interconnection, LLC, for revisions to its Tariff with regard to demand response compensation, and I hereby verify that the statements of fact and other information contained in that Affidavit are true and correct to the best of my knowledge, information, and belief.



Alfred E. Kahn

Sworn and subscribed before me this 16th day of September, 2009.



(Notary Public) **DELORES S. HARING**
Notary Public, State of New York
No. 4766345
Qualified in Tompkins County
Commission Expires June 30, 20 11

ALFRED E. KAHN

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Professor Kahn is the Robert Julius Thorne Professor of Political Economy, Emeritus, at Cornell University and a Special Consultant to NERA Economic Consulting.

He has been Chairman of the New York Public Service Commission; Chairman of the Civil Aeronautics Board; and Advisor to the President (Carter) on Inflation and Chairman of the Council on Wage and Price Stability.

Professor Kahn received his Bachelor's (summa cum laude) and Master's degrees from New York University and a Doctorate in Economics from Yale University. Following service in the Army, he served as Chairman of the Department of Economics at Ripon College, Wisconsin. He moved to the Department of Economics at Cornell University, where he remained until he took leave to assume the Chairmanship of the New York Public Service Commission. During his tenure at Cornell, Professor Kahn served as Chairman of the Department of Economics, member of the Board of Trustees of the University and Dean of the College of Arts and Sciences.

Throughout his career, Professor Kahn has served on a variety of public and private boards and commissions including: the Attorney General's National Committee to Study the Antitrust Laws; the senior staff of the President's Council of Economic Advisors; the Economic Advisory Council of American Telephone & Telegraph Company; the National Academy of Sciences Advisory Review Committee on Sulfur Dioxide Emissions; the Environmental Advisory Committee of the Federal Energy Administration; the Public Advisory Board of the Electric Power Research Institute; the Board of Directors of the New York State Energy Research and Development Authority; the Executive Committee of the National Association of Regulatory Utility Commissioners; the National Commission for Review of Antitrust Laws and Procedures; the New York State Council on Fiscal and Economic Priorities; the Governor of New York's Fact-Finding Panel on Long Island Lighting Company's Nuclear Power Plant at Shoreham, L.I.; the Governor of New York's Advisory Committee on Public Power for Long Island; the National Governing Board of Common Cause; in 1990, as Chairman of the International Institute for Applied Systems Analysis Advisory Committee on Price Reform and Competition in the USSR; in 1999, Member of the National Academy of Sciences, National Research Council/Transportation Research Board Committee for a Study of Competition in the U.S. Airline Industry; and in 2000, Chair of the Blue Ribbon Panel to Study Pricing in the California Electricity Market.

He has also served as a court-appointed expert in *State of New York v. Kraft General Foods, Inc., et al.*, U.S. District Court, S.D.N.Y.; Advisor to New York Governor Carey on Telecommunications Policy; and as a consultant to the Attorneys General of New York, Pennsylvania and Illinois, the Ford Foundation, the National Commission on Food Marketing, Federal Trade Commission, Antitrust Division of the Department of Justice, the U.S. Department of Agriculture and the City of Denver on charging and financing of Stapleton Airport.

He has received L.L.D. honorary degrees from Colby College, Ripon College, Northwestern University, the University of Massachusetts and Colgate University, and an honorary D.H.L. from the State University of New York, Albany; he also received the Distinguished Transportation Research Award of the Transportation Research Forum, The Alumni Achievement Award of New York University, the award of the American Economic Association's Transportation and Public Utilities Group for Outstanding Contributions to Scholarship, The Henry Edward Salzberg Honorary Award from Syracuse University for Outstanding Achievement in the Field of Transportation, the Burton Gordon Feldman Award for Distinguished Public Service from Brandeis University, the Wilbur Cross Medal for outstanding achievement (Yale University), The 1997 L. Welch Pogue Award For Lifetime Contributions to Aviation, the 1997 Sovereign Fund Award Honoring Vision, Commitment and Achievement in the Pursuit of Individual Freedom, and the J. Rhoads Foster Award for achievements in economic regulation; and was elected to membership in the American Academy of Arts and Sciences and Vice President of the American Economic Association. He was for 15 years a regular commentator on PBS's "The Nightly Business Report."

He has testified before many U.S. Senate and House Committees, the Federal Power Commission, the Federal Energy Regulatory Commission and numerous state regulatory bodies.

Professor Kahn's publications include *Lessons from Deregulation: Telecommunications and Airlines after the Crunch*; *Whom the Gods Would Destroy, or How Not to Deregulate*; *Letting Go: Deregulating the Process of Deregulation*; *Great Britain in the World Economy*; *Fair Competition: The Law and Economics of Antitrust Policy* (co-authored); *Integration and Competition in the Petroleum Industry* (co-authored); and *The Economics of Regulation*. He has written numerous articles which have appeared in *The American Economic Review*, *The Quarterly Journal of Economics*, *The Journal of Political Economy*, *Harvard Law Review*, *Yale Journal on Regulation*, *Yale Law Journal*, *Fortune*, *The Antitrust Bulletin* and *The Economist*, among others.

EDUCATION:**YALE UNIVERSITY**

Ph.D., Economics, 1942

UNIVERSITY OF MISSOURI

Graduate Study, 1937-1938

NEW YORK UNIVERSITY

M.A., Economics, 1937

A.B. (summa cum laude), Economics, 1936

EMPLOYMENT:

1961-1974 NATIONAL ECONOMIC RESEARCH ASSOCIATES, INC.

1980- Special Consultant

CORNELL UNIVERSITY

1947-1989 Assistant Professor; Associate Professor; Robert Julius Thorne Professor of Economics; Robert Julius Thorne Professor of Political Economy, Emeritus, 1989-; Chairman, Department of Economics; Dean, College of Arts and Sciences; on leave 1974-80.

NEW YORK UNIVERSITY SCHOOL OF LAW

Spring 1989 Visiting Meyer Professor of Law

UNITED STATES GOVERNMENT

1978-1980 Advisor on Inflation to President Carter

1978-1980 Chairman, Council on Wage and Price Stability

1977-1978 Chairman, Civil Aeronautics Board

1955-1957 Senior Staff, Council of Economic Advisors to the President

1943 U.S. Army, Private

1943 War Production Board

1942 Associate Economist, International Economics Unit, Bureau of Foreign and Domestic Commerce, Department of Commerce

1941-1942 Associate Economist, Antitrust Division, U.S. Department of Justice

NEW YORK STATE PUBLIC SERVICE COMMISSION

1974-1977 Chairman

BROOKINGS INSTITUTION

1940,

1950-1951 Staff Economist

RIPON COLLEGE

1945-1947 Assistant Professor, Chairman, Department of Economics

TWENTIETH CENTURY FUND

1944-1945 Research Economist

1943-1944 COMMISSION ON PALESTINE SURVEYS
Economist

1937-1938 UNIVERSITY OF MISSOURI
Teaching Assistant

CONSULTANCIES AND PROFESSIONAL ACTIVITIES:

1994-1995 Antitrust Division, U.S. Department of Justice, on the application of Ameritech for waivers of the interexchange restrictions in the AT&T Modified Final Judgment

1994 American Airlines on code-sharing

1993-1994 Court-appointed expert in State of New York v. Kraft General Foods, Inc., et al., U.S. District Court, S.D.N.Y.

1992 New Zealand Telecom on the progress of competition in New Zealand telecommunications

1992 Rochester Telephone Company on corporate restructuring and deregulation

1992 Russian Government on economic reform

1991 British Mercury on terms of competition with British Telecom

1989 City of Denver on charging and financing of Stapleton Airport

1988-1990 Attorneys General, New York and Pennsylvania, on airline mergers

1985 Attorney General, State of Illinois, on Illinois Bell rates

1981-1984 City of Long Beach, California, the Coca-Cola Company and American Airlines on antitrust litigation

1981-1997 Economic commentary, Nightly Business Report (PBS)

1980-1982 Advisor to Governor Carey on Telecommunications Policy

1968 Ford Foundation

1966 National Commission on Food Marketing

1965, 1974 Federal Trade Commission

1963-1964 Antitrust Division, Department of Justice

1960-1961 U.S. Department of Agriculture

1957-1961 Boni Watkins, Jason & Co.

See also the list of testimony below.

MEMBERSHIPS:

2005 Digital Age Communications Act Project Advisory Committee, Progress & Freedom Foundation

2000 Chairman, Blue Ribbon Panel to Study Pricing in the California Electricity Market

1998-1999 Member, Committee for a Study of Competition in the U.S. Airline Industry, National Research Council/Transportation Research Board, National Academy of Sciences

1992-1994 Member, New York State Telecommunications Exchange

1992-1993 Member, Ohio Blue Ribbon Panel on Telecommunications Regulation

1991- Board of Editors, *Review of Industrial Organization*

1990-1992 Chairman, International Institute for Applied Systems Analysis Advisory Committee on Price Reform and Competition in the USSR

1986	Governor Cuomo's Advisory Panel on public power for Long Island
1983-1989	Governor Cuomo's Fact-finding Panel on Long Island Lighting Company's Nuclear Power Plant at Shoreham, L.I.
1983-1990	New York State Council on Fiscal and Economic Priorities
1982-	<i>The American Heritage Dictionary</i> Usage Panel
1982-1985	Governing Board, Common Cause
1980-1986	Director, New York Airlines
1978-1979	National Commission for the Review of Antitrust Laws and Procedures
1975-1977	Project Committee, Electric Utility Rate Design Study, Electric Power Research Institute
1974-1975	National Academy of Science Review Commission on Sulfur Oxide Emissions
1974-1977	Public Advisory Board, Electric Power Research Institute
1974-1977	Environmental Advisory Committee, Federal Energy Administration
1974-1977	Executive Committee, National Association of Regulatory Utility Commissioners, and Chairman, Committee on Electric Energy
1968-1974	Economic Advisory Board, American Telephone & Telegraph Corporation
1965-1967	Economic Advisory Committee, U.S. Chamber of Commerce
1967-1969	Chairman, Tompkins County Economic Opportunity Corporation
1964-1969	Board of Trustees, Cornell University
1961-1964	Board of Editors, <i>American Economic Review</i>
1953-1955	Attorney General's National Committee to Study the Antitrust Laws

HONORS AND AWARDS:

June 2003	American Antitrust Institute Award for Lifetime Achievement in Antitrust
Dec 1999	AEI-Brookings Joint Center for Regulatory Studies First Distinguished Lecturer
Apr 1999	J. Rhoads Foster Award for achievements in economic regulation
Jan 1998	Recipient of the 1997 Sovereign Fund Award "Honoring Vision, Commitment and Achievement in the Pursuit of Individual Freedom"
Dec 1997	The 1997 L. Welch Pogue Award For Lifetime Contributions to Aviation
May 1995	Wilbur Cross Medal for outstanding achievement, Yale University
Mar 1989	Burton Gordon Feldman Award for Distinguished Public Service, Gordon Public Policy Center, Brandeis University
Feb 1989	Distinguished Service Award, Public Utility Research Center, University of Florida
Nov 1988	International Film and TV Festival of New York, Bronze Medal presented to The Nightly Business Report/WPBT2 for Editorial/Opinion Series written by Alfred E. Kahn
Apr 1986	Harry E. Salzberg 1986 Honorary Medallion for outstanding achievement in the field of transportation
Oct 1984	Distinguished Transportation Research Award of the Transportation Research Forum
1981-1982	Vice President, American Economic Association
1978	Richard T. Ely lecturer, American Economic Association, 1978
1978	Rejection Scroll, International Association of Professional Bureaucrats
May 1985	State University of New York (Albany), DHL (Hon.)
May 1983	Colgate University, LL.D. (Hon.)
June 1982	Northwestern University, LL.D. (Hon.)
May 1980	Ripon College, LL.D. (Hon.)

May 1979	University of Massachusetts, LL.D. (Hon.)
May 1978	Colby College, LL.D. (Hon.)
1977-	Fellow of the American Academy of Arts and Sciences
1976	Distinguished Alumni Award, New York University
1976	American Economic Association, Section on Public Utilities and Transportation, citation for distinguished contributions
1954-1955	Fulbright Fellowship, Italy
1935-	Phi Beta Kappa
1939-1940	Yale-Brookings Fellow

BOOKS:

Lessons from Deregulation: Telecommunications and Airlines after the Crunch, AEI-Brookings Joint Center for Regulatory Studies, January 2004.

Whom the Gods Would Destroy, or How Not to Deregulate, AEI-Brookings Joint Center for Regulatory Studies, May 2001.

Letting Go: Deregulating the Process of Deregulation, Michigan State University Institute of Public Utilities, July 1998.

The Economics of Regulation, 2 volumes, John Wiley, 1970 and 1971. Reprinted by The MIT Press, 1988, with a new "Introduction: A Postscript, Seventeen Years After," pp. xv-xxxvii.

Integration and Competition in the Petroleum Industry (with Melvin G. de Chazeau), Petroleum Monograph Series, Volume 3, Yale University Press, 1959. Reprinted in 1971.

Fair Competition: The Law and Economics of Antitrust Policy (with Joel B. Dirlam), Cornell University Press, 1954. Reprinted by Greenwood Press, 1970.

Great Britain in the World Economy, Columbia University Press, 1946. Reprinted in 1968.

MAJOR ARTICLES:

"Reflections of an Unwitting 'Political' Entrepreneur", *Review of Network Economics*, 7:4, December 2008, p. 616-629.

"Excerpts adapted from A Grateful Response and Supplement", September 5, 2008, University of Colorado, in "Alfred Kahn on His 90th Birthday: The Birth of Deregulation" by Judge Richard D. Cudahy, *Infrastructure*, 48:1, Fall 2008.

"The Threat of Latter-Day 'Progressives' to an Authentically Liberal Economic Policy", AEI Center for Regulatory and Market Studies, Working Paper 08-03, <http://www.reg-markets.org/publications/abstract.php?pid=1241>, January 2008.

"FTC Workshop on Broadband Connectivity Competition Policy", *FTC Workshop on Broadband Connectivity Competition Policy*, Washington, DC, February 12, 2007.

"Forward", *The Line in the Sand: The Shifting Boundary Between Markets and Regulation in Network Industries*, Sarah Potts Voll and Michael J. King (eds.), NERA Economic Consulting, 2007, pp. ix-xvi.

- “Network Neutrality,” *AEI-Brookings Joint Center for Regulatory Studies*, <http://www.aei-brookings.org/publications/abstract.php?pid=1171>, March 2007.
- “A Democratic Voice of Caution on Network Neutrality,” *The Progress and Freedom Foundation*, <http://www.pff.org/issues-pubs/ps/2006/ps2.24voiceofcautiononnetneutrality.html>, October 2006.
- “Telecommunications: The Transition from Regulation to Antitrust,” *Journal on Telecommunications & High Technology Law*, 5:1, October 2006, pp. 159-188.
- “Reforming the FCC and Its Mission: Lessons from the Airline Experience,” a paper presented at the Silicon Flatirons Conference, *The Digital Broadband Migration: Rewriting the Telecom Act*, in Boulder, Colorado, February 14, 2005, *Journal on Telecommunications & High Technology Law*, 4:1, 2005, pp. 43-58.
- “The Adequacy of Prospective Returns on Generation Investments under Price Control Mechanisms,” *The Electricity Journal*, 15:2, March 2002, pp. 37-46.
- “The Deregulatory Tar Baby: The Precarious Balance Between Regulation and Deregulation, 1970-2000 and Henceforward,” *Journal of Regulatory Economics*, 21:1, January 2002, pp. 35-56.
- “Pricing in the California Power Exchange Electricity Market: Should California Switch from Uniform Pricing to Pay-as-Bid Pricing?” (with Peter C. Cramton, Robert H. Porter and Richard D. Tabors), a study commissioned by the *California Power Exchange*, January 23, 2001.
- “Enhancing Competition for Broadband Services: The Case for Removing the Prohibition Against High-Speed InterLATA Transmission by Regional Bell Operating Companies” (with Timothy J. Tardiff), prepared for the United States Telecom Association, May 22, 2000.
- “The Telecommunications Act At Three Years: An Economic Evaluation of Its Implementation by The Federal Communications Commission” (with Timothy J. Tardiff and Dennis L. Weisman), *Information Economics and Policy*, December 1999, pp. 319-365.
- “Bribing Customers to Leave and Calling it ‘Competition,’” *The Electricity Journal*, May 1999, pp. 88-90.
- “Comments on Exclusionary Airline Pricing,” *Journal of Air Transport Management*, Volume 5, Issue 1, January 1999, pp. 1-12.
- “Resisting the Temptation to Micromanage: Lessons from Airlines and Trucking,” *Regulators’ Revenge: The Future of Telecommunications Deregulation*, CATO Institute, August 1998, pp. 17-27.
- “Electric Deregulation: Defining and Ensuring Fair Competition,” *Electricity Journal*, April 1998.
- “Deregulation: Micromanaging the Entry and Survival of Competitors,” Edison Electric Institute, February 1998.
- “Competition and Stranded Costs Re-Revisited,” 37:1 *Natural Resources Journal*, Winter 1997, pp. 29-42.
- “How to Treat the Costs of Shared Voice and Video Networks in a Post-regulatory Age,” *Policy Analysis*, #264, November 27, 1996, Cato Institute.
- “Deregulation of the Public Utilities—Transitional Problems and Solutions,” *Economic Papers*, Economic Society of Australia, September 1995, pp. 1-17. (Published in *Réseaux* nos. 72-73 Juillet/Octobre 1995 by CNET as “Déréglementation des Services Publics: Problèmes transitoires et solutions.”)

- “The Challenge for Federal and State Regulators: Transition from Regulation to Efficient Competition in Electric Power” (with William J. Baumol and Paul L. Joskow), Edison Electric Institute, December 9, 1994.
- “Competition in the Electric Industry Is Inevitable and Desirable,” *The Electric Industry in Transition*, Public Utility Reports, Inc. and New York State Energy Research and Development Authority, December 1994, Chapter 3, pp. 21-31.
- “Can Regulation and Competition Coexist? Solutions to the Stranded Cost Problem and Other Conundra,” *The Electricity Journal*, Volume 7, Number 8, October 1994, pp. 23-35.
- “The Pricing of Inputs Sold to Competitors: A Comment” (with William E. Taylor), in *Yale Journal on Regulation*, Vol. 11, No. 1, Winter 1994, pp. 225-240.
- “Airline Deregulation,” in *The Fortune Encyclopedia of Economics*, David R. Henderson, Ph.D., ed., New York: Warner Books, 1993, pp. 379-384.
- “Change, Challenge and Competition The Report of the National Commission to Ensure a Strong Competitive Airline Industry, August 1993,” *Regulation*, No. 3, 1993.
- “The Competitive Consequences of Hub Dominance: A Case Study,” in *Review of Industrial Organization*, Vol. 8, 1993, pp. 381-405.
- “Pricing of Telecommunications Services: A Comment,” in *Review of Industrial Organization*, Vol. 8, 1993, pp. 39-41.
- “The Purposes and Limitations of Economic Regulation; The Achievements and Problems of Deregulation” and “Reflections and Conclusions on British and U.S. Experience: The Future of Regulation,” in *Incentive Regulation: Reviewing RPI-X & Promoting Competition, Proceedings 2*, Based on papers presented at two CRI seminars in London on 4 June and 15 July 1992, CRI (Centre for the Study of Regulated Industries), October 1992, pp. 1-17 and 93-104.
- “Market Power Issues in Deregulated Industries,” in *Antitrust Law Journal*, Vol. 60, Issue 3, American Bar Association, 1992, pp. 857-866.
- “Regolamentazione e concorrenza nelle imprese de pubblica utilità: un <<inquadramento teorico>>,” *L'INDUSTRIA* / n.s., a. XIII, n. 2, aprile-guigno 1992, pp. 147-166.
- “Least cost planning generally and DSM in particular,” in *Resources and Energy* 14 (1992), Elsevier Science Publishers, North-Holland, pp. 177-185.
- “Price Deregulation, Corporatization and Competition” (with M.J. Peck), in *What is to be Done? Proposals for the Soviet Transition to the Market*, M.J. Peck and T.J. Richardson, eds., New Haven: Yale University Press, 1991.
- “Thinking About Predation—A Personal Diary,” in *Review of Industrial Organization*, Vol. 6, The Netherlands: Kluwer Academic Publishers, 1991, pp. 137-146.
- “An Economically Rational Approach to Least-Cost Planning For Electric Power,” *The Electricity Journal*, Vol. 4, Number 5, June 1991, pp. 11-20.
- “The Changing Focus of Electric Utility Regulation,” *Research in Law and Economics*, Richard O. Zerbo, Jr., Victor P. Goldberg, eds., Vol. 13, JAI Press, Inc., Spring 1991, pp. 221-231.
- “The Soviet Economic Crisis: Steps to Avert Collapse” (co-author), Executive Report 19, International Institute for Applied Systems Analysis, Laxenburg, Austria, February 1991.

- “Telecommunications, Competitiveness and Economic Development—What Makes Us Competitive?”, *Public Utilities Fortnightly*, Vol. 126, No. 6, September 13, 1990, pp. 12-19.
- “Deregulation: Looking Backward and Looking Forward,” *Yale Journal on Regulation*, Vol. 7, Spring 1990, pp. 325-354.
- “Do We Need to Curb the Investments Foreigners are Making in the United States?” in *The Impact of Foreign Investment in the United States*, Touche Ross & Co., June 1989.
- “Innovative Pricing of Electricity,” in *New Dimensions in Pricing Electricity: Proceedings*, Palo Alto, CA: Electric Power Research Institute, April 1989.
- “Competition: Past, Present and Future, Perception vs. Reality,” in *Proceedings: 1988 Utility Strategic Issues Forum Planning in a Competitive Environment*, Palo Alto, CA: Electric Power Research Institute, March 1988.
- “Thinking About The Record of Deregulation,” in The Donald S. MacNaughton Symposium Proceedings 1987, *Economic Deregulation: Promise and Performance*, Syracuse, NY: Syracuse University, 1988, pp. 21-35.
- “In Defense of Deregulation,” in *Cleared For Takeoff: Airline Labor Relations Since Deregulation*, Jean T. McKelvey, Editor, Ithaca, NY: Cornell University ILR Press, 1988, pp. 343-347.”
- “I Would Do It Again,” *Regulation*, 1988 Number 2, pp. 22-28.
- “Airline Deregulation,” *The Senior Economist*, Joint Council on Economic Education, Spring 1988.
- “Airline Deregulation - A Mixed Bag, But a Clear Success Nevertheless,” *Transportation Law Journal*, Volume 16, No. 2, Spring 1988, pp. 229-251.
- “Surprises of Airline Deregulation,” *The American Economic Review, Papers and Proceedings*, Volume 78, No. 2, May 1988, pp. 316-322.
- “Thoughts on the Past, Present, and Future of Telecommunications Regulation,” talk presented to the Current Issues in Telephone Regulation conference at the University of Texas, Austin, October 5, 1987, reprinted in *Telecommunications Deregulation: Market Power and Cost Allocation Issues*, John R. Allison and Dennis L. Thomas, eds., Westport, CT: Quorum Books, 1990, pp. 259-268.
- “The Future of Local Telephone Service: Technology and Public Policy,” Fishman Davidson Center for the Study of the Service Sector, The Wharton School of the University of Pennsylvania, Discussion Paper #22, June 1987. Reprinted in *Toward The Year 2000*, ITT Key Issues Lecture Series, 1986, (New York: ITT Corp. 1987), pp. 86-99.
- “Current Issues in Telecommunications Regulation: Pricing” (with William B. Shew), *Yale Journal on Regulation*, Vol. 4: 191-256, Spring 1987.
- “Deregulatory Schizophrenia,” *California Law Review*, Volume 75, Number 3, May 1987, pp. 1059-1068.
- “A Critique of Proposed Changes,” *The Future of Electrical Energy: A Regional Perspective of an Industry in Transition*, Sidney Saltzman and Richard E. Schuler (eds.), Praeger Publishers, New York, 1986, pp. 340-347.
- “The Tyranny of Small Decisions and the Perils of Big Ones,” in *Allocation, Ethics, and Innovation in Research and Public Policy*, National Symposium on Science and Technology, Cornell University, Washington, D.C., May, 20, 1986.

- “The Theory and Application of Regulation,” *Antitrust Law Journal*, Spring Meeting Issue, 1986, Volume 55, Issue 1, pp. 177-184, from ABA Antitrust Section Annual Meeting.
- “Transportation Deregulation...And All That,” Honorary Salzberg Memorial Lecture, Syracuse University School of Management, Syracuse, New York, April 1986. Reprinted, revised, in *Economic Development Quarterly*, May 1987, Volume 1, Number 2, pp. 91-99.
- “Frontier Issues in Telecommunications Regulation,” Mountain Bell Academic Seminar, Lakewood, Colorado, August 1985.
- “Telecommunications Regulation: A Case Study of the Impact of a Technology on Social Institutions,” for presentation at Cornell University Electrical Engineering Centennial Symposium, Ithaca, New York, June 12, 1985.
- “Public Policies for Our Telecommunications Future,” in *Funding the Future of Telecommunications*, a conference sponsored by Rensselaer Polytechnic Institute, supported by the NYNEX Telephone Companies, Saratoga Springs, New York, June 3-5, 1985.
- “Industrial Policy and Deregulation,” *Federal Bar News & Journal*, Washington, D.C., January 1985.
- First Distinguished Lecture on Economics in Government, “The Macroeconomic Consequences of Sensible Microeconomic Policies,” Dallas, December 28, 1984. American Economic Association meetings.
- “The Regulatory Agenda,” and “Concluding Comments: The Future of Access,” in Alan Baughcum and Gerald R. Faulhaber, *Telecommunications Access & Public Policy*, Ablex Publishing Corporation, Norwood, New Jersey, 1984, pp. 205-210 and pp. 245-253.
- “The Uneasy Marriage of Regulation and Competition,” *Telematics*, Washington, D.C., September 1984, pp. 1-2, 8-17.
- “The Next Steps in Telecommunications Regulation and Research,” *Public Utilities Fortnightly*, Arlington, VA., July 19, 1984.
- “The Road to More Intelligent Telephone Pricing,” *Yale Journal on Regulation*, Volume 1, Number 2, 1984, pp. 139-157.
- “Telephone Deregulation: Two Views: A Needed Dose of Competition,” *Challenge*, March/April 1984, pp. 24-29.
- “Economic Policies For The 80s,” Oppenstein Brothers Foundation Lecture, Rockhurst College and the University of Missouri, Kansas City, April 19, 1983.
- “The Relevance of Industrial Organization,” *Industrial Organization, Antitrust, and Public Policy*, John V. Craven, ed., Kluwer-Nihjoff, 1983.
- “Some Thoughts on Telephone Access Pricing,” National Economic Research Associates, April 1983.
- “Deregulation: Its Meaning and Implications for Antitrust Enforcement,” New York State Bar Association, 1983 *Antitrust Law Symposium*, pp. 2-14.
- “The Passing of the Public Utility Concept: A Reprise,” in *Telecommunications Today and Tomorrow*, Eli Noam (ed.) Harcourt Brace Jovanovich, 1983, pp. 3-37, reprinted by NERA, May 1983.

- “Deregulation and Vested Interests: The Case of Airlines,” *The Political Economy of Deregulation*, Roger G. Noll and Bruce M. Owen, eds., American Enterprise Institute Studies in Government Regulation, 1983.
- “An Alternative to Reaganomics,” *Increasing Understanding of Public Problems and Policies*, 1982, Farm Foundation, January 1983.
- “Utility Diversification,” *The Energy Journal*, Volume 4, No. 1, January 1983, pp. 149-160.
- “The Airline Industry: Is It Time to Reregulate?” *Second Annual William A. Patterson Transportation Lecture*, The Transportation Center, Northwestern University. Published jointly with National Economic Research Associates, 1982. Reprinted in *The World Economy*, December 1982, London: Basil Blackwell, pp. 341-360.
- “On Changing the Consumer Price Index, A Comment,” *Journal of Policy Analysis and Management*, Vol. 1 (Summer 1982), pp. 512-15.
- “The Political Feasibility of Regulatory Reform: How Did We Do It?” *Reforming Social Regulation: Alternative Public Policy Strategies*, Leroy Graymer and Frederick Thompson (eds.), Sage Publications, 1982.
- “The Reform of Government Regulation: Recent Progress in the United States,” University of Leuven Press, Leuven, Belgium, 1981.
- “The New Merger Wave,” *N/E/R/A Topics*, National Economic Research Associates, December 1981.
- “Liberals Must Face Facts,” *Challenge*, Nov/Dec. 1981, pp. 25-32.
- “Is Inflation Abating?” *N/E/R/A Topics*, National Economic Research Associates, November 1981.
- “Utility Regulation Revisited,” National Economic Research Associates: New York, 1981, republished in *Current Issues in Public Utility Economics: Essays in Honor of James C. Bonbright*, Albert L. Danielsen and David R. Kamerschen (eds.), Lexington, MA., D.C. Heath and Company, 1983.
- “Must We Live With Inflation Through the 1980s?” *Major Issues of the 1980s Lecture Series*. Sponsored jointly by the Lowell Institute of Boston and Harvard University Extension, April 1981.
- “Ethical Values in a Market System,” *Across the Board*, The Conference Board, April 1981, pp. 57-63.
- “Can Liberalism Survive Inflation?” *The Economist*, March 7, 1981, pp. 21-25.
- “Health Care Economics: Paths to Structural Reform,” in Mancur Olson (ed.), *A New Approach to the Economics of Health Care*, Washington, American Enterprise Institute, 1981.
- “Regulation and the Imagination,” *Proceedings of a Regulatory Council Conference*, United States Regulatory Council, July 22, 1980, pp. 1-9.
- “Health Care and Inflation: Social Compassion and Efficient Choice,” *National Journal*, August 2, 1980, pp. 1294-97.
- “A Paeon to Legal Creativity” (with Michael Roach), *Administrative Law Review*, Washington, D.C., Winter 1979, Volume 31, No. 1, pp. 97-114.

- “Applications of Economics to an Imperfect World,” The Richard T. Ely Lecture, *The American Economic Review, Papers and Proceedings*, Volume 69, No. 2, May 1979, pp. 1-13. Modified and published as “Applying Economics to an Imperfect World,” *Regulation*, Washington, D.C., November/December 1978, Volume 2, No. 6, pp. 17-27.
- “The Changing Environment of International Air Commerce,” *Air Law* (Netherlands Journal), Volume 3, No. 3, 1978.
- “Deregulation of Air Transportation—Getting from Here to There,” *Regulating Business: The Search for an Optimum*, Institute for Contemporary Studies, San Francisco, California, 1978, pp. 37-63.
- “Load Control, Resource Conservation and King Charles’ Head,” Iowa State University Regulating Conference, *Proceedings*, May 19, 1977, pp. 68-74.
- “Recent Developments in Cost Analysis and Rate Design,” *Proceedings of the Third Annual Symposium on Problems of Regulated Industries*, Kansas City, Missouri, February 14, 1977, pp. 15-28.
- “An Economist at Work on Utility Rate Regulation,” a series of three articles, *Public Utilities Fortnightly*, Washington, D.C., January 5, 19, and February 2, 1978.
- “New Rate Structures in Communications” (with Charles A. Zielinski), *Public Utilities Fortnightly*, March 25, 1976, pp. 19-24 and April 8, 1976, pp. 20-23.
- “Efficient Rate Design: The Transition from Theory to Practice,” *Proceedings of the Symposium on Rate Design Problems of Regulated Industries*, February 23-26, 1975, Kansas City, Missouri, pp. 34-51.
- “Between Theory and Practice: Reflections of a Neophyte Public Utility Regulator,” *Public Utilities Fortnightly*, January 2, 1975, pp. 3-7.
- “Economic Theory as a Guideline for Government Intervention and Control: Comment,” *Journal of Economic Issues*, Vol. VIII, No. 2, June 1974.
- “Market Power Inflation: A Conceptual Framework,” in *The Roots of Inflation*, Burt Franklin and Co., 1975.
- “The Economics of the Electricity-Environmental Issue: A Primer,” P.I.P. National Environmental Press Seminar, Minneapolis, Minnesota, May 31-June 1, 1972.
- “Evaluation of Economic Regulation: Discussion,” *Ibid*, LXI (May 1971) 235-237.
- “National Communications Policy: Discussion,” *The American Economic Review, Papers and Proceedings*, Volume 60, May 1970, pp. 219-20.
- “Dual Pricing in Southern Louisiana: A Reply,” *Land Economics*, XLVI (August 1970): 338-42.
- “The Combined Effects of Prorating, the Depletion Allowance and Import Quotas on the Cost of Producing Crude Oil in the United States,” U.S. Senate, Committee on the Judiciary, Subcommittee on Antitrust and Monopoly, 91st Congress, 1st Session, *Government Intervention in the Market Mechanism, Hearings, The Petroleum Industry*, Part I, Washington, 1969, Reproduced in *Natural Resources Journal* (January 1970) X:53-61.
- “Incentives to Superior Performance: Pricing,” Harry Trebing (ed.), *Performance Under Regulation*, Michigan State University Press, 1968.

- “The Graduated Fair Return,” *The American Economic Review*, March 1968.
- “Cartels and Trade Associations,” *International Encyclopedia of the Social Sciences*, David L. Sills, Editor, The Macmillan Company & The Free Press, Vol. 2, 1968, pp. 320-325.
- “The Merits of Reserving the Cost-Savings From Domestic Communications Satellites for Support of Educational Television” (with Joel B. Dirlam), *Yale Law Journal*, Volume 77, No. 3, January 1968, pp. 494-520.
- “Tyranny of Small Decisions: Market Failures, Imperfections, and the Limits of Economics,” *Kyklos*, Volume 19, 1966.
- “Mergers in the Petroleum Industry and Problems of the Independent Refiner,” U.S. Senate Judiciary Committee, *Economic Concentration*, Part II, Washington, 1965, pp. 562-609.
- “The Depletion Allowance in the Context of Cartelization,” *The American Economic Review*, Volume 54, 1964, pp. 286-314.
- “Efficiency in the Use of Natural Resources: Discussion,” *The American Economic Review, Papers and Proceedings*, Volume 54, May 1964, pp. 221-226.
- “Market Power and Economic Growth: Guides to Public Policy,” *Antitrust Bulletin*, Volume 8, May-June 1962, p. 531.
- “Agricultural Aid and Economic Development: The Case of Israel,” *The Quarterly Journal of Economics*, Volume 76, November 1962, pp. 568-591.
- “The Role of Patents,” in J.P. Miller, ed., *Competition, Cartels and Their Regulation* (North Holland Publishing Company, Amsterdam), Chapter 8, 1962, pp. 308-346.
- “The Chemical Industry,” Walter Adams (ed.) *The Structure of the American Industry*, First, Second and Third Editions, New York, MacMillan, 1948, 1954 and 1961.
- “Economic Issues in Regulating the Field Price of Natural Gas,” *The American Economic Review, Papers and Proceedings*, Volume 50, May 1960, pp. 506-517.
- “Pricing Objectives in Large Companies: Comment,” *The American Economic Review*, Volume 49, September 1959, pp. 670-678.
- “Selected Papers: A.E.A. Competition: Discussion,” *The American Economic Review, Papers and Proceedings*, Volume 48, May 1958, pp. 600-602.
- “Economic and Legal Approaches to Antitrust: An Attempt to Clarify the Issues,” *Antitrust Bulletin*, Volume 2, January 1957, pp. 267-279.
- “Report on Antitrust Policy: Discussion,” *The American Economic Review, Papers and Proceedings*, Volume 46, May 1956, pp. 496-507.
- “My Antitrust Philosophy: Evidence of Schizophrenia or Shattering Transformation?” *Antitrust Bulletin*, Volume 1, November 1955, p. 355.
- “Regulation of Crude Oil Production in the United States and Lessons for Italy,” *Banca Nazionale Del Lavoro Monthly Review*, Volume 8, June 1955, pp. 67-79.
- “A Rejoinder” (with Joel B. Dirlam), *Indiana Law Journal*, Volume 29, Spring 1954, pp. 371-375.

- “Legal and Economic Appraisal of the ‘New’ Sherman and Clayton Acts,” *Yale Law Journal*, Volume 63, January 1954, pp. 293-347.
- “Standards for Antitrust Policy,” *Harvard Law Review*, Volume 67, November 1953, pp. 28-54. Also reprinted in Homewood-Irwin, *Readings in Industrial Organization and Public Policy* (American Economic Association, 1958), pp. 352-375.
- “A Reply” (with Joel B. Dirlam), *Journal of Political Economy*, Volume 61, October 1953, pp. 441-446.
- “The Integration and Dissolution of the A & P Company” (with Joel B. Dirlam), *Indiana Law Journal*, Volume 29, Fall 1953, pp. 1-27.
- “Big Business in a Competitive Society” (with A.D.H. Kaplan), *Fortune*, Volume 47, Supp., February 1953.
- “Leadership and Conflict in the Pricing of Gasoline” (with Joel B. Dirlam), *Yale Law Journal*, Volume 61, June-July 1952, pp. 818-855.
- “Price Discrimination in Law and Economics” (with Joel B. Dirlam), *The American Journal of Economics and Sociology (Essays in Honor of Harry Gunnison Brown)*, Volume 11, April 1952, pp. 281-313.
- “Antitrust Law and the Big Buyer: Another Look at the A & P Case” (with Joel B. Dirlam), *Journal of Political Economy*, Volume 60, April 1952, pp. 118-132.
- “Investment Criteria in Development Programs,” *The Quarterly Journal of Economics*, Volume 65, February 1951, pp. 38-61.
- “The Burden of Import Duties, A Comment,” *The American Economic Review*, Volume 38, December 1948, pp. 857-867.
- “Patent Policy: Discussion,” *The American Economic Review, Papers and Proceedings*, Volume 38, May 1948, pp. 245-260.
- “The British Balance of Payments, and Problems of Domestic Policy,” *The Quarterly Journal of Economics*, Volume 61, May 1947, pp. 368-396.
- “Palestine: A Problem in Economic Evaluation,” *The American Economic Review*, Volume 34, September 1944, pp. 538-560.
- “Fundamental Deficiencies of American Patent Law,” *The American Economic Review*, Volume 30, September 1940, pp. 475-491.

U.S. CONGRESSIONAL TESTIMONY:

- Senate Committee On Commerce, Science and Transportation on the current structure and financial viability of the U.S. airline industry, January 9, 2003.
- Senate Committee on Governmental Affairs, examining the economic issues associated with the restructuring of energy industries, June 13, 2001.
- Senate Committee on Commerce, Science and Transportation, on antitrust issues in the airline industry, July 27, 2000.

House of Representatives Committee on the Judiciary, on the state of competition in the airline industry, June 14, 2000.

Antitrust Subcommittee of the Senate Committee on the Judiciary, on assertedly predatory airline pricing, May 2, 2000.

Transportation Subcommittee of the Senate Committee on Commerce, Science and Transportation on predatory pricing in the airline industry, May 5, 1998.

Aviation Subcommittee of the Senate Committee on Commerce, Science, and Transportation on predatory pricing in the airline industry, April 23, 1998.

Subcommittee on Railroads of the House Committee on Transportation and Infrastructure, Public Hearing on Surface Transportation Board Reauthorization: State of the Railroad Industry, April 22, 1998.

Aviation Subcommittee of the House Committee on Public Works and Transportation on international aviation policy, May 9, 1991.

Subcommittee on Aviation of the Senate Committee on Commerce, Science and Transportation on airline concentration at hub airports, September 22, 1988.

Subcommittee on Aviation of the Senate Committee on Commerce, Science and Transportation on airline safety and re-regulation, November 4, 1987.

Subcommittee on Telecommunications and Finance, House Committee on Energy and Commerce, on competition and deregulation of the telecommunications industry, July 15, 1987.

Subcommittee on Antitrust and Monopoly of the Senate Committee on the Judiciary, on competitive issues in the airline industry, March 25, 1987.

Subcommittee on Monopolies and Commercial Law, Committee on the Judiciary, U.S. House of Representatives, on the Administration's proposed amendments to Section 7 of the Clayton Act, February 26, 1986.

Subcommittee on Aviation of the Senate Committee on Commerce, Science and Transportation on Computerized Reservation Systems, March 19, 1985.

Joint Economic Committee, United States Senate, Hearing on the Economic Issues of a Changing Telecommunications Industry, October 3, 1983.

House Subcommittee on Aviation on "Competitive Problems Raised by Computerized Reservation Systems," June 22, 1983.

House Committee on the Judiciary, on H.R. 1878, "The Shipping Act of 1983," May 19, 1983.

House Committee on Public Works and Transportation on "Coal Slurry Pipelines," April 13, 1983.

House Committee on the Judiciary, on H.J. Res. 350, A Plan to Balance the Federal Budget, August 4, 1982.

Senate Committee on the Judiciary, on S. 1215, the Malt Beverage Competition Act, June 21, 1982.

Subcommittee on Investigations and Oversight, House Committee on Public Works and Transportation, "Development, Operation and Implementation of the United States International Aviation Policy," December 9, 1981.

Joint Economic Committee, U.S. Congress on "Trucking Regulation," November 17, 1981.

Subcommittee on Monopolies and Commercial Law, House Committee on the Judiciary, "Mergers," August 26, 1981.

Senate Committee on Commerce, Science and Transportation, on S. 898, "The Telecommunications Act of 1981," June 11, 1981.

Subcommittee on Telecommunications, Consumer Protection, and Finance, House Committee on Energy and Commerce, "Telecommunications Regulation," May 20, 1981.

Subcommittee on Health, Senate Committee on Finance, on "The Health Incentives Reform Act," March 19, 1980.

House Budget Committee Inflation Task Force, on the "Treatment of Housing Costs in the Consumer Price Index," January 24, 1980.

Senate Committee on Banking, Housing, and Urban Affairs, on "The Chrysler Loan Guarantee Act," November 15, 1979.

Subcommittee on Surface Transportation, House Committee on Public Works and Transportation, on "Trucking Deregulation," October 4, 1979.

Senate Committee on Commerce, Science, and Transportation, on "Trucking Deregulation," June 26, 1979.

Subcommittee on the Legislative Process, House Rules Committee, on "Sunset Legislation," May 23, 1979.

Testimony on food prices and inflation, before:

- a) House Subcommittee on Domestic Marketing, Consumer Relations and Nutrition; and Subcommittee on Department Investigations, Oversight and Research, Committee on Agriculture, April 4, 1979.
- b) Subcommittee on Antitrust and Monopoly, Senate Committee on the Judiciary, April 6, 1979.

Testimony on hospital cost containment legislation, before:

- a) Subcommittee on Health and the Environment, House Interstate and Foreign Commerce Committee; and Subcommittee on Health, House Ways and Means Committee, March 12, 1979.
- b) Health Subcommittee, Senate Finance Committee, March 13, 1979.

Subcommittee on Environmental Pollution, Senate Committee on Environment and Public Works, on "Environmental Regulation and Inflation," February 27, 1979.

Testimony on authorization and appropriations for the Council on Wage and Price Stability, before:

- a) Subcommittee on Economic Stabilization, House Committee on Banking, Finance and Urban Affairs, February 6, 1979.
- b) Senate Subcommittee on Commerce, Consumer and Monetary Affairs, February 7, 1979.

- c) Senate Committee on Banking, Housing and Urban Affairs, February 9, 1979.
- d) Subcommittee on Treasury, Postal Service, and General Government, House Committee on Appropriations, May 24, 1979.
- e) House Appropriations Committee, February 6, 1980.
- f) Senate Committee on Banking, Housing, and Urban Affairs, March 17, 1980.
- g) Subcommittee on Treasury, Postal Service, and General Government, House Committee on Appropriations, March 31, 1980.
- h) Senate Committee on Banking, Housing and Urban Affairs, April 21, 1980.
- i) Subcommittee on Treasury, Postal Service, and General Government, Senate Committee on Appropriations, April 23, 1980.
- j) Subcommittee on Economic Stabilization, House Banking Committee, May 6, 1980.

House Committee on Ways and Means, on "Real Wage Insurance," January 30, 1979.

Testimony on the President's anti-inflation program, before:

- a) Subcommittee on Economic Stabilization, House Committee on Banking, Currency, and Housing. November 22, 1978.
- b) Subcommittee on Economic Growth and Stabilization, Joint Economic Committee, December 6, 1978.
- c) House Committee on the Budget, January 30, 1979.
- d) Subcommittee on Treasury, Postal Services, and General Government, House Committee on Appropriations, February 14, 1979.
- e) Senate Budget Committee, March 7, 1979.
- f) Subcommittee on Commerce, Consumer and Monetary Affairs, House Committee on Government Operations, June 28, 1979.
- g) Economic Stabilization Subcommittee, House Committee on Banking, Finance and Urban Affairs, October 10, 1979.
- h) Economic Stabilization Subcommittee, Senate Committee on Banking, Housing and Urban Affairs, October 11, 1979.

Subcommittee on Aviation, Senate Commerce, Science, and Transportation Committee, on S. 3363, "The International Air Transportation Competition Act of 1978," August 23, 1978.

National Commission for the Review of Antitrust Laws and Procedures, on "Economic Regulation and Antitrust Exemptions and Immunities," July 26, 1978.

Senate Commerce Committee, on S. 3064, "Airline Noise Legislation," June 14, 1978.

Testimony on CAB appropriations, before:

- a) House Subcommittee on Appropriations, February 28, 1978.
- b) Senate Subcommittee on Appropriations, March 2, 1978.

Testimony on United States international aviation negotiations, before:

- a) Subcommittee on Aviation, House Committee on Public Works and Transportation, September 29, 1977
- b) Aviation Subcommittee, House Public Works and Transportation Committee, on H.R. 11145, March 6, 1978.

House Budget Committee Task Force on Tax Expenditures, Government Organization, and Regulation, on "Airline Regulation," July 14, 1977.

Senate Antitrust and Monopoly Subcommittee, Oversight Hearings on Antitrust Enforcement, on "Enforcement of the Antitrust Laws," May 4, 1977.

Subcommittee on Investigations and Review, House Committee on Public Works and Transportation, on "The Effects of the Clean Water Act on the Electric Utility Industry," April 19, 1977.

Subcommittee on Communications, Senate Committee on Commerce, on "The Communications Act of 1934 Revisited," March 21, 1977.

Subcommittee on Communications, House Committee on Interstate and Foreign Commerce, on "The Consumer Communications Reform Act of 1976," H.R. 12323, September 30, 1976.

Subcommittee on Energy and Power, House Committee on Interstate and Foreign Commerce, on H.R. 12461, the Dingell-Moss Bill, to Prescribe Certain Rules for Federal, State and Local Agencies Regulating Electric Rates, April 7, 1976.

House Subcommittee on Communications, on "Domestic Common Carrier Regulation," November 18, 1975.

Senate Committee on Finance, on H.R. 6860, "The Energy Conservation and Conversion Act of 1975," July 18, 1975.

Subcommittee on Administrative Practice and Procedure, Senate Judiciary Committee, on "Regulation of the Airlines Industry," February 6, 1975.

Senate Committee on Interior and Insular Affairs, on "Financial Problems of the Electric Utility Industry," August 8, 1974.

Joint Economic Committee, U.S. Congress on "Market Power in Relation to Economic Growth," August 1962.

Senate Subcommittee on Patents, on natural rubber cartels, May 23, 1942.

TESTIMONY BEFORE THE FEDERAL POWER COMMISSION, 1958-62

In the matters of:

Area Rate Proceeding (Southern Louisiana Area), Docket Nos. AR61-2, et al.

Area Rate Proceeding (Permian Basin Area), Docket Nos. AR61-1, et al.

Omnibus, Docket Nos. G-9277, et al.

Atlantic Refining Company (Catco), Docket Nos. G-11024, et al.

Sohio Petroleum Company, et al., Docket Nos. G-8488, et al.

Gulf Oil Corporation, Docket Nos. G-9520, et al.

Amerada Petroleum Corporation, et al., Docket Nos. G-9385, et al.

Union Producing Company, Docket Nos. G-18354, et al.

Phillips Petroleum Company, Docket Nos. G-1148, et al.

Tidewater Oil Company, Docket Nos. G-13310, et al.

MISCELLANEOUS TESTIMONY:

Testimony filed before the Florida Public Service Commission in the matter of Establishment of Rule On Renewable Portfolio Standard (Docket No. 080503-EI). Filed December 4, 2008.

Testimony filed before the Canadian Radio-television and Telecommunications Commission, Telecom Public Notice CRTC 2005-2, re forbearance from regulation of local exchange services. Appendix 3 to Comments of TELUS Communications Inc. in PN 2005-2, "Economic Justification for TELUS' Two-Facilities Bright-Line Forbearance Test." Filed June 22, 2005.

Declaration before the Federal Communications In the Matter of Unbundled Access to Network Elements (WC Docket No. 04-313) and Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers (CC Docket No. 01-338), in support of the comments of the Verizon Telephone Companies (with Timothy J. Tardiff), October 4, 2004; Reply Declaration (with Timothy J. Tardiff), October 19, 2004.

Declaration of Alfred E. Kahn and Timothy Tardiff on the review of rules for pricing unbundled network elements, prepared for filing with the Federal Communications Commission on behalf of Verizon, WC Docket No. 03-173, December 16, 2003.

Affidavit submitted to the United States District Court for the Northern District of Illinois Eastern Division in support of Illinois Public Act 93-0005 and the instructions it gives the Illinois Commerce Commission (No. 03 C 3290), on behalf of SBC Illinois, May 27, 2003.

Statement in support of Senate Bill 885 on behalf of SBC Illinois before a joint hearing of the House Public Utilities Committee and Senate Environment and Energy Committee of the Illinois State Legislature, in Springfield, Illinois, on UNE-P charges, May 5, 2003.

Statement (Appendix E) in the matter of Petition of TELUS Communications Inc. to the Governor in Council Government of Canada to vary Telecom Decision CRTC 2002-67, on behalf of TELUS, commenting on the economic and regulatory principles applicable to the determinations about the costs incumbent local exchange carriers are required to use, January 22, 2003.

Declaration before the Federal Communications Commission In the Matter of AT&T Corp. Petition for Rulemaking to Reform Regulation of Incumbent Local Exchange Carrier Rates for Interstate Special Access Services, on behalf of BellSouth Corporation, Qwest Corporation, SBC Communications, Inc., and Verizon (with William E. Taylor), December 2, 2002.

Reply Declaration (Attachment A) Before the Federal Communications Commission In the Matter of: Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers (CC Docket No. 01-338); Implementation of the Local Competition Provisions in the Telecommunications Act of 1996 (CC Docket No. 96-98); Deployment of Wireline Services

Offering Advanced Telecommunications Capability (CC Docket No. 98-147) (with Timothy J. Tardiff), July 17, 2002.

Statement and Report reviewing the applicable economic and regulatory principles, on behalf of TransGrid, submitted to the Australian National Electricity Tribunal, in its review of a NEMMCO decision approving that company's application for authority to construct the SNI interconnecting transmission line, July 3, 2002.

Statement submitted to the New Zealand Commerce Commission on behalf of Telecom Corporation of New Zealand (with Timothy J. Tardiff), commenting on the Commission's responsibility for establishing a universal funding mechanism for Telecom's telecommunications service obligation, June 10, 2002.

Statement submitted to the New Zealand Commerce Commission on behalf of Telecom Corporation of New Zealand, commenting on its responsibility for making access determinations under the Telecommunications Act of 2001, April 19, 2002.

Declaration submitted in the United States District Court for the Northern District of New York in support of temporary restraining order and preliminary injunction on behalf of Verizon New York, contending that the New York Public Service Commission has not followed the instructions of the FCC in determining its proper gross cost of capital, February 4, 2002.

Statement submitted to the U.S. Federal Energy Regulatory Commission on behalf of a group of electric generating companies appraising the proposal of the Commission to condition its granting of market-based rate authority on the assurance that sellers not engage in "anticompetitive behavior or the exercise of market power," Docket No. EL01-118-000 (97 FERC ¶ 61,220 [2001]), January 7, 2002.

Declaration submitted to the U.S. Federal Communications Commission on behalf of Verizon regarding broadband regulation (with Timothy J. Tardiff), December 18, 2001.

Statement submitted to the U.S. Department of Transportation on behalf of American Airlines regarding their proposed alliance with British Airways, October 30, 2001.

Statement on behalf of Auckland International Airport Ltd on the treatment of land held for future construction of an additional runway in the pricing of its aviation services, in response to the New Zealand Commerce Commission's draft report, *Price Control Study of Airfield Activities at Auckland, Wellington and Christchurch International Airports*. Statement submitted August 10, 2001.

Testimony before the New York Public Service Commission on behalf of Verizon New York Inc., in the Proceeding on Motion of the Commission to Consider Cost Recovery by Verizon and to Investigate the Future Regulatory Framework (Case 00-C-1945), May 15, 2001.

Statement of opinion before the New York Public Service Commission on the petition by Telergy Metro, LLC asking the Commission to rescind the license that it issued to Con Edison's sibling corporation to construct or install fiber optic telecommunications facilities, making use of portions of Con Edison's transmission and distribution facilities for that purpose, on behalf of Con Edison, April 5, 2001.

Submission to the Australian Competition and Consumer Commission on behalf of the Sydney Airports Corporation on land valuation and "single-till" issues raised by its application in

December 2000 for a revision in charges for aeronautical services. Paper submitted January 18, 2001.

Declaration before the Federal Energy Regulatory Commission reviewing the Oil Pipeline Pricing Index, in response to the Commission's Notice of Inquiry, on behalf of the Association of Oil Pipe Lines (18 CFR Part 342, Docket No. RM00-11-000), filed August 31, 2000; Rebuttal, October 2, 2000.

Public Interest Affidavit before the Federal Communications Commission in the matter of Application of SBC Communications Inc., Nevada Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Nevada Bell Long Distance, for Provision of In-Region InterLATA Services in Nevada (with Timothy J. Tardiff), filed July 24, 2000.

Testimony before the Delaware Public Service Commission on behalf of Delmarva Power & Light Company, Concerning the Cost Accounting Manual and the Code of Conduct, PSC Docket No. 99-582, November 1999; Rebuttal Testimony, March 29, 2000.

Testimony before the Department of Transportation in support of the application of American Airlines to be designated as an authorized carrier between the United States and China under the bilateral agreement between the two countries, OST-99-6323, February 23, 2000.

Brief of Evidence in the High Court of New Zealand in support of the claim of Telstra New Zealand that Telecom New Zealand has employed its dominant position in the customer access and local services markets to prevent or deter competition with it in a number of markets, in violation of Section 36 of the Commerce Act of 1986, CL No. 16/99, filed February 16, 2000.

Public Interest Affidavit before the Federal Communications Commission in the matter of Application of SBC Communications, Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc., d/b/a Southwestern Bell Long Distance for Provision of In-Region, InterLATA Services in Texas, on behalf of Southwestern Bell Telephone Company (with Timothy J. Tardiff), filed January 10, 2000.

Comments before the New York Public Service Commission, on behalf of Consolidated Edison Company of New York, on its request for approval of an agreement granting its affiliate Consolidated Edison Communications, Inc. (CECI), non-exclusive access to its facilities for the purposes of constructing, installing, and operating certain telecommunications facilities, Case 99-M-0811, September 10, 1999.

"Relaxed Regulation of High Capacity Services in Phoenix and Seattle: The Time is Now," before the Federal Communications Commission on behalf of U S West Communications (with Timothy J. Tardiff), July 23, 1999.

Declaration before the Federal Communications Commission in response to *Second Further Notice of Proposed Rulemaking* in the matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, on behalf of GTE-Bell Atlantic, CC Docket No. 96-98, filed May 26, 1999; Reply Declaration filed June 10, 1999.

"New Jersey Affiliate Relations Standards," on codes of conduct, before the New Jersey Board of Public Utilities on behalf of Public Service Electric & Gas of New Jersey, May 4, 1999.

Rebuttal Testimony before the Public Service Commission of Maryland, defending a regulated electric distribution company's ability to offer a regulated retail electric generation service and of an unregulated affiliate offering competitive services and the sufficiency of the Maryland Code of

Conduct to prevent distortions of competition and cross-subsidization; and defending Baltimore Gas and Electric's proposed shopping credit, on behalf of Baltimore Gas and Electric Company, Case Nos. 8794/8804, March 22, 1999.

"High Capacity Competition in Seattle: Reply to Comments of Intervening Parties," before the Federal Communications Commission on behalf of U S West Communications (with Timothy J. Tardiff), March 10, 1999.

Testimony before the Public Service Commission of the State of Missouri in the matter of application of SBC Communications, Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc., d/b/a Southwestern Bell Long Distance for Provision of In-Region, InterLATA Services in Missouri, on behalf of Southwestern Bell Telephone Company (with Timothy J. Tardiff), Docket No. TO 99-227, filed November 20, 1998; Surrebuttal Affidavit, February 1, 1999.

Rebuttal Testimony before The Commonwealth of Massachusetts Department of Telecommunications and Energy on public policy considerations and principles re the Boston Edison Company/RCN joint venture (DPU 93-37), on behalf of Boston Edison Company, DTE 97-95, February 12, 1999.

"Economic Evaluation of High Capacity Competition in Seattle," prepared for filing with the Federal Communications Commission on behalf of US WEST Communications, Petition of US WEST Communications for Forbearance from Regulation as a Dominant Carrier in the Seattle, Washington MSA (with Timothy J. Tardiff), December 22, 1998.

"High Capacity Competition in Phoenix: Reply to Comments of Intervening Parties," prepared for filing with the Federal Communications Commission on behalf of US WEST Communications, Petition of US WEST Communications for Forbearance from Regulation as a Dominant Carrier in the Phoenix, Arizona MSA (with Timothy J. Tardiff), October 28, 1998.

"Measuring and Recovering the Costs of Long-Term Number Portability," Prepared for Southwestern Bell for presentation to the Federal Communications Commission, October 28, 1998 (with Timothy J. Tardiff).

"Comments on Exclusionary Airline Pricing," Submission to the Department of Transportation, September 25, 1998.

"Economic Evaluation of High Capacity Competition in Phoenix," on behalf of U S West Communications, requesting that the FCC forebear from regulating it as a dominant carrier in its sale of high capacity services in the Phoenix metropolitan area (with Timothy J. Tardiff), August 14, 1998 (filed August 19, 1998).

Declaration before the Federal Communications Commission in the matter of Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996 (CC Docket No. 96-128), on behalf of the RBOC/GTE/SNET Payphone Coalition, July 13, 1998.

Testimony before the Public Service Commission of Maryland evaluating the restructuring plan proposed by Baltimore Gas & Electric Company (Case No. 8794), on behalf of Baltimore Gas & Electric Company, July 1, 1998.

Statement before the Public Utility Commission of Texas regarding the Proposed Rulemaking on Code of Conduct for Electric Utilities and Their Affiliates, on behalf of Texas Utilities, June 19, 1998.

- Affidavit Before the Federal Communications Commission in the matter of Application of SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance for Provision of In-Region, InterLATA Services in Arkansas (with Timothy J. Tardiff), February 24, 1998; Rebuttal Affidavit, June 12, 1998.
- Comments on the Pennsylvania Public Utility Commission Proposed Rulemaking Regarding the Establishment of Competitive Safeguards for the Pennsylvania Electric Industry, on behalf of the Pennsylvania Electric Association, June 9, 1998.
- Testimony Before the State Corporation Commission of the State of Kansas in the matter of Southwestern Bell Telephone Company – Kansas’ Compliance With Section 271 of the Federal Telecommunications Act of 1996, Docket No. 97-SWBT-411-GIT (with Timothy J. Tardiff), February 17, 1998; Rebuttal Testimony, May 27, 1998.
- Rebuttal Affidavit Before the Public Utilities Commission of the State of California in support of Pacific Bell’s Draft Application for Authority to Provide InterLATA Services in California (with Timothy J. Tardiff), May 20, 1998.
- Rebuttal Testimony Before the Oklahoma Public Service Commission, in support of the Applications of SBC Communications, Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc., for Provision of In-Region InterLATA Services in Oklahoma, Cause No. PUD 970000560 (with Timothy J. Tardiff), April 21, 1998.
- Testimony Before the State of New Jersey Board of Public Utilities, in the matter of Energy Master Plan Phase II Proceeding to Investigate the Future Structure of the Electric Power Industry, Docket Nos. EX94120585Y and EO97070463, regarding restructuring basic generation service, on behalf of Public Service Electric and Gas Company, April 16, 1998.
- Affidavit before the Federal Communications Commission in the matter of Application of SBC Communications Inc., Southwestern Bell Telephone Company and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance for Provision of In-Region InterLATA Services in Texas (with Timothy J. Tardiff), March 2, 1998; Reply Affidavit April 17, 1998.
- Affidavit Before the Federal Communications Commission in the matter of Application of SBC Communications Inc., Pacific Bell, and Pacific Bell Communications for Provision of In-Region InterLATA Services in California (with Timothy J. Tardiff), March 31, 1998.
- Affidavit Before the Illinois Commerce Commission in the matter of Implementation of Section 16-121 of the Public Utilities Act, No. 98-0035, on behalf of Ameren Services, February 17, 1998; Rebuttal Affidavit, March 12, 1998.
- Affidavit Before the Federal Communications Commission in the matter of Application of SBC Communications Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a Southwestern Bell Long Distance for Provision of In-Region, InterLATA Services in Oklahoma (with Timothy J. Tardiff), February 13, 1998.
- Testimony Before the Massachusetts Department of Public Utilities on public policy considerations and principles re the Boston Edison Company/RCN joint venture (DPU 93-37), December 29, 1997.

Testimony Before the Massachusetts Department of Public Utilities on the Standards of Conduct for Distribution Companies and Their Affiliated Companies, on behalf of Boston Edison Company (DPU 97-96), November 21, 1997.

Statement Before the California Public Utilities Commission on Order Instituting Investigation to Establish Standards of Conduct Governing Relationships between Energy Utilities and Their Affiliates, on behalf of Edison Electric Institute (Docket No. I.97-04-012), November 17, 1997.

Rebuttal Testimony Before the Delaware Public Service Commission Concerning the Cost Accounting Manual and the Code of Conduct, on behalf of Delmarva Power & Light Company. Docket No. 97-65, October 20, 1997.

Verified Statement Before the Surface Transportation Board on the need for shipper protections created by the acquisition of Conrail by the Norfolk & Southern and CSX Railroads, on behalf of electric utility shippers of coal (with Frederick C. Dunbar). Finance Docket No. 33388, October 20, 1997.

Testimony Before the Public Utility Commission of the State of Texas evaluating AT&T's proposed rates for unbundled network elements, on behalf of Southwestern Bell Telephone Company. Docket Nos. 16189, et al, September 15, 1997.

Affidavit Before the Public Service Commission of the State of Missouri In the Matter of AT&T Communications of the Southwest, Inc.'s Petition for Arbitration pursuant to Section 252(b) of the Telecommunications Act of 1996 to Establish an Interconnection Agreement with Southwestern Bell Telephone Company, Case No. TO-97-40, on behalf of Southwestern Bell, August 20, 1997.

Rebuttal Testimony Before the Pennsylvania Public Utility Commission on the merits of stranded cost recovery, the estimation of stranded costs and competitive safeguards, on behalf of Pennsylvania Power & Light Company, Docket No. R-00973954, August 4, 1997.

Affidavit Before the Federal Communications Commission In the matter of Application of SBC Communications, Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc., for Provisions of In-Region, InterLATA Services in Oklahoma, CC Docket 97-121 (with Timothy J. Tardiff), on behalf of Southwestern Bell, February 13, 1997 (Filed April 7, 1997); Reply Affidavit, May 28, 1997.

Affidavit Before the Federal Communications Commission In the matter of Application of SBC Communications, Inc., Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc., for Provision of In-Region, InterLATA Services in Kansas, CC Docket 97-121 (with Timothy J. Tardiff), on behalf of Southwestern Bell, April, 1997.

Statement in Support of The Southern New England Telephone Company's Proposed Reorganization, on behalf of SNET, March 24, 1997.

Statement of Alfred E. Kahn and Timothy J. Tardiff, "Funding and Distributing the Universal Service Subsidy," Prepared for US West for presentation to the Federal Communications Commission, March 13, 1997.

Statement of Professor Alfred E. Kahn and Report of Professor Jerome E. Hass on Railroad Revenue Adequacy Standards, analyzing the methods by which the Surface Transportation Board determines whether individual railroads are or are not "revenue adequate," on behalf of the Alliance for Rail Competition, February 1997.

Statement of Alfred E. Kahn on FCC's Proposed Reforms of Carrier Access Charges (re proposed Order in CC Docket No. 96-488), on behalf of the United States Telephone Association, February 14, 1997.

Verified Statement Before the Surface Transportation Board on behalf of the National Industrial Transportation League and the Western Coal Traffic League commenting on the joint statement submitted by the Association of American Railroads, Docket No. 41626, Docket No. 41242, Docket No. 41295, November 27, 1996.

"Joint Marketing, Personnel Separation and Efficient Competition Under the Telecommunications Act of 1996" (with Timothy J. Tardiff), a statement on behalf of U S West commenting on the FCC's NPRM of July 17th, in CC Docket No. 96-149, October 11, 1996.

"Economic Competition in Local Exchange Markets" (with Kenneth Gordon and William E. Taylor), on behalf of Bell Atlantic Company, commenting on a statement by seven economists on the pricing of essential network elements submitted by AT&T in state arbitration proceedings, August 9, 1996.

Declaration Before the Federal Communications Commission In the Matter of Allocation of Costs Associated with Local Exchange Carrier Provision of Video Programming Services, CC Docket No. 96-112, July 19, 1996.

Testimony before the Kansas Corporation Commission commenting on the continuing regulation and deregulation of the telecommunications industry in Kansas with reference to Competition docket HB 2728, on behalf of Southwestern Bell, Docket No. 190,492-U, June 14, 1996.

Declaration before the Federal Communications Commission In the Matter of Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, on behalf of Bell Atlantic (with Timothy J. Tardiff), CC Docket No. 96-98, May 30, 1996.

Testimony before the Public Service Commission of Maryland In Support of the Petition of Bell Atlantic - Maryland, Inc. for Adoption of a Price Cap Form of Alternative Regulation, on behalf of Bell Atlantic - Maryland, February 15, 1996; Rebuttal March 14, 1996; Surrebuttal April 1, 1996.

Testimony before the Public Service Commission of Pennsylvania regarding the Formal Investigation to Examine and Establish Updated Universal Service Principles and Policies for Telecommunications Services, Docket No. I-940035, on behalf of Bell Atlantic - Pennsylvania, Inc., December 7, 1995; Rebuttal, February 14, 1996.

Affidavit before the Public Service Commission of Maryland In the Matter of the Petition of Bell Atlantic-Maryland, Inc. for Adoption of an Alternative Form of Regulation pursuant to Amended Public Service Commission Law, Article 78, Section 69(E), on behalf of Bell Atlantic-Maryland, December 21, 1995.

"Changes in Interstate Price Regulation: An Economic Evaluation of the Pacific Bell and Nevada Bell Proposal," prepared for filing with the Federal Communications Commission on behalf of Pacific Bell and Nevada Bell, December 11, 1995 (with Timothy J. Tardiff).

Rebuttal Testimony before the State of Connecticut Department of Public Utility Control, discussing network unbundling, universal service and apportioning loop costs between telephone and video services, on behalf of the Southern New England Telephone Company, Docket No. 95-06-17, September 20, 1995.

Affidavit In the United States District Court for the Eastern District of Virginia (Alexandria Division) in the matter of United States Telephone Association, et al v. Federal Communications Commission, Civil Action No. 95-533-A, on behalf of USTA (with William E. Taylor), October 24, 1995.

“Preserving Universality of Subscription to Telephone Service in an Increasingly Competitive Industry” (with Timothy J. Tardiff), before the Public Utilities Commission of the State of California, on behalf of Pacific Bell, September 1, 1995.

Rebuttal Testimony before the Commonwealth of Massachusetts Department of Public Utilities, Docket 94-185, discussing network unbundling and universality of service, on behalf of NYNEX, August 23, 1995.

“Alternative Regulation for Connecticut Telecommunications Services,” before the Connecticut Department of Public Utility Control, discussing the economic principles that should guide the introduction of an alternative form of regulation for noncompetitive telecommunications services, on behalf of the Southern New England Telephone Company, Docket No. 95-03-01, June 15, 1995.

Rebuttal Testimony before the New Jersey Board of Regulatory Commissioners, in the matter of the Investigation Regarding IntraLATA Toll Service Competition on a Presubscription Basis, Docket No. TX94090388, on behalf of Bell Atlantic - New Jersey, Inc., May 31, 1995.

Testimony before the Connecticut Department of Public Utility Control on strandable investments, on behalf of United Illuminating, Docket 94-12-13, March 24, 1995.

“Rebuttal Evidence on Rate-base Splitting, Price Caps and the Treatment of Economies of Scope in Telecommunications Regulation,” submission to Canadian Radio/television and Telecommunications Commission, Ottawa, Ontario, Canada, on behalf of AGT Limited, March 30, 1995.

“Preconditions of Efficiently Competitive Local Exchange Markets,” submission to Canadian Radio/television and Telecommunications Commission, Ottawa, Ontario, Canada, on behalf of AGT Limited, March 15, 1995.

Testimony before the Connecticut Department of Public Utility Control, Docket Nos. 94-10-01-02, on incremental cost standards for network unbundling, on behalf of the Southern New England Telephone Company, January 10, 1995; Rebuttal Testimony, February 13, 1995.

“Comments on Competition in Electric Power,” submission to Rhode Island Division of Public Utilities and Carriers, inquiry into retail competition in the electric utility industry, on behalf of The Narragansett Electric Company, Docket D-94-9, November 18, 1994.

Testimony before the State of New York Public Service Commission in the Petition of Rochester Telephone Corporation for Approval of Proposed Restructuring Plan (Panel on Public Policy Issues with Robert W. Crandall), Case Nos. 93-C-0033 and 93-C-0103, February 3, 1993; Testimony of Panel on Public Policy Issues in Support of Settlement, June 17, 1994; Rebuttal Testimony of Panel on Public Policy Issues, July 22, 1994.

Affidavit before the Federal Communications Commission In the Matter of Price Cap Performance Review for Local Exchange Carriers, Notice of Proposed Rulemaking, on behalf of Bell Atlantic, filed June 29, 1994.

Affidavit before the U.S. District Court for the Northern District of Alabama Southern Division on behalf of BellSouth Corporation on overturning the statutory prohibition of telephone companies carrying their own video programming, filed June 3, 1994.

Reply Affidavit before the U.S. District Court for the District of Michigan (Eastern Division) on behalf of Ameritech Corporation on overturning the statutory prohibition of telephone companies carrying their own video programming, filed May 16, 1994.

Affidavit before the U.S. District Court for the District of Columbia on behalf of Southwestern Bell in support of request for out-of-region waiver from the interLATA MFJ restrictions (with William E. Taylor), filed May 12, 1994.

Reply Affidavit before the U.S. District Court for the District of Maine on behalf of NYNEX Corporation on overturning the statutory prohibition of telephone companies carrying their own video programming, filed May 6, 1994.

Testimony on behalf of Bell Atlantic-New Jersey in proceeding involving the issue of opening the intraLATA toll market to competition, filed April 7, 1994; Rebuttal Testimony filed April 25, 1994.

Testimony on behalf of Massachusetts Electric Company before the Federal Energy Commission on wholesale wheeling and the problem of stranded investment. FERC Docket No. ER94-129-000, filed March 14, 1994.

Testimony on behalf of The Chesapeake and Potomac Telephone Company of Maryland, Case No. 8584, on the regulatory principles applicable to determining an efficient price for MFS-I's interconnection with C&P's network (with William E. Taylor), filed November 19, 1993; Rebuttal Testimony filed January 10, 1994; Surrebuttal Testimony filed January 24, 1994.

Affidavit to the Federal Communications Commission with respect to Interstate Long Distance Competition and AT&T's Motion for Reclassification as a Nondominant Carrier (with William E. Taylor), filed November 12, 1993.

Affidavit to the High Court of New Zealand on behalf of New Zealand Rail Limited involving wharfage charges by Port Marlborough, September 27, 1993.

Testimony before the Federal Energy Regulatory Commission On Behalf of a Group of Independent Refiner/Shippers on the proposed Revision to Oil Pipeline Regulations under the Energy Policy Act of 1992, Docket No. RM93-11-000, August 12, 1993.

Affidavit to the High Court of New Zealand on behalf of Air New Zealand, Ltd., and others in a proceeding involving landing charges by Wellington International Airport, Ltd., June 25, 1993. Second Affidavit, August 19, 1993.

Affidavit before the U.S. District Court for the Eastern District of Virginia in the matter of *The Chesapeake and Potomac Telephone Company of Virginia v. United States of America*, Civil Action No. 92-1751-A, June 5, 1993 and before the Federal Communications Commission *In the Matter of Amendments of Parts 32, 36, 61, 64 and 69 of the Commission's Rules to Establish and Implement Regulatory Procedures for Video Dial Tone Service*, Petition for Rulemaking RM 8221, June 7, 1993.

Testimony before Denver County District Court, Denver, Colorado, on behalf of Metropolitan Denver Water Authority re City of Denver water rates, May 17, 1993.

“Review of Regulatory Framework: Telecom Public Notice CRTC 92-78,” on behalf of AGT (Alberta Government Telephone Company), Alberta Canada, April 13, 1993.

“Major Elements of a Competitive Telecommunications Policy,” on behalf of AGT (Alberta Government Telephone Company), Alberta, Canada, February 15, 1993

Testimony on behalf of the Municipal Electric Association evaluating the soundness of Ontario Hydro’s Demand Side Management program, December 1992.

Rebuttal Testimony on behalf of Sithe Independence Power Partners, L.P., in response to the arguments advanced by the New York Power Authority and the County of Westchester in opposition to the proposed transmission line at issue in PSC Cases 92-T-0114 and 92-T-0252, November 1992.

Affidavit before the Federal Communications Commission *In the Matter of Amendment of the Commission’s Rules to Establish New Personal Communications Services*, GEN Docket No. 90-314, ET Docket No. 92-100, November 6, 1992.

Testimony on behalf of New Zealand Telecom in an antitrust proceeding before the High Court of New Zealand involving terms of interconnection with Clear, a competitive provider of local transport, April 27, 1992.

Testimony on behalf of AMR Corporation and American Airlines, Inc., against UAL Corporation, United Airlines, Inc., UAL Acquisition, Inc., Air Wis Services, Inc., and Air Wisconsin, Inc., 91 CIV. 7773 (KMW), analyzing United Airlines’ acquisition of Air Wisconsin’s 50 O’Hare jet slots, March 2, 1991. Supplemental and Second Supplemental Testimonies, March 10 and 15, 1992.

Testimony before the Illinois Commerce Commission on behalf of Illinois Power Company, Docket No. P91-0001, on certification of a competing natural gas pipeline, February 24, 1992.

Rebuttal Testimony before the Florida Public Service Commission, Tampa Electric Co. Docket No. 910883EI, on electric utility company responsibilities for demand side management, November 20, 1991.

Affidavit before the Federal Communications Commission *In the Matter of Expanded Interconnection Between Local Telephone Facilities*, CC Docket No. 91-141 ENF-87-14, August 5, 1991.

Statement on behalf of United Kingdom of Great Britain and Northern Ireland in US/UK Arbitration Concerning Heathrow Airport User Charges, April 1991. Rebuttal and Surrebuttal Statements, June and July 1991; testimony before the International Court, The Hague, July 1991.

“The Treatment of New Services Under Price Cap Regulation,” on behalf of BellSouth, Federal Communications Commission, June 10, 1991.

Testimony on behalf of Fireman’s Fund Insurance Company before the Insurance Commissioner of the State of California re proposed action to repeal and adopt regulations concerning property and casualty insurance rates, February 20, 1991.

Testimony before the Federal Energy Regulatory Commission on behalf of Conoco, Inc. Kanab Pipeline Operating Partnership, L.P., and Kerr-McGee Refining Corporation (Williams Pipeline), February 4, 1991.

Affidavit to the U.S. District Court for District of Columbia on behalf of Bell Atlantic Corporation in *United States of America v. Western Electric Company, Inc. and American Telephone and Telegraph Company*, re MFJ restrictions on Bell Operating Companies' ability to offer information services, January 8, 1991.

Oral testimony before the Puerto Rican Legislature on privatization and future regulation of the Puerto Rico Telephone Company, June 20, 1990.

Testimony on behalf of Central Telephone Company of Florida before the Public Service Commission, June 12, 1990.

Testimony on behalf of Fireman's Fund Insurance Company on Proposition 103 Rate Regulation Hearings, February 5, 1990.

Testimony before Denver County District Court, Denver, Colorado, on behalf of Southgate Water District vs. Denver Water Authority on conduit extension charges, May 25, 1989.

"Efficient Pricing of Congested Airport Facilities," A Report to the Department of Transport, Great Britain, April 1989.

Testimony on behalf of ETSI Pipeline Project v. Burlington Northern Inc., et al, in the United States District Court for the Eastern District of Texas, Beaumont Division, Civil Action No. B-84-979-CA, February 23, 1989.

Reply Verified Statement on behalf of Concerned Shippers, In the Matter of Railroad Cost Recovery Procedures—Productivity Adjustment; Ex Parte No. 290 (Sub-No. 4), January 17, 1989.

Testimony on behalf of California Coalition for Trucking Deregulation before the Public Utilities Commission of the State of California, In the Matter of the Regulation of General Freight Transportation by Truck, Case No. I-88-08-046, October 27, 1988.

Testimony before the Public Service Commission of the State of New York on the application to construct the Empire State gas pipeline, Case No. 88-T-132, October 1988.

Testimony before the Federal Communications Commission on behalf of Bell South on adjustment factor for local exchange companies under rate cap regulation, In the Matter of Policy and Rules Concerning Rates for Dominant Carriers (CC Docket 87-313), July 1988.

Affidavit on behalf of Massachusetts Port Authority in a proceeding on the proposed structure of landing fees for Logan Airport, Boston, U.S. District Court, District of Massachusetts, June 1988.

Affidavit on behalf of Financial Interchange Inc. in an antitrust arbitration proceeding on the legality of jointly set interchange fees of an electronic funds transfer network, April 1988.

Verified Statement before the Interstate Commerce Commission in *Coal Trading Corporation, et al. v. Baltimore & Ohio Railroad Company, et al.* (Docket No. 38301S) on the computation of rail stand-alone costs, April 1988.

Testimony on behalf of Public Service Electric & Gas Company, New Jersey on the used and useful doctrine in the context of utility performance standards, April 1988.

Testimony on behalf of the U.S. Postal Service on the pricing of Express Mail, March 28, 1988.

Testimony on behalf of Kentucky Industrial Utility Customers Case No. 9934 on the criteria for deciding whether a nuclear plant should be completed, February 8, 1988.

- Testimony and Rebuttal Testimony before the Iowa State Utilities Board Department of Commerce on behalf of Northwestern Bell on the regulatory treatment of depreciation reserve deficiencies, October 1987 and November 1987.
- Testimony before the State of Connecticut Department of Public Utility Control on behalf of the Connecticut Cable Television Association on regulating cable television rates, November 13, 1987.
- Testimony before the Federal Communications Commission on behalf of Bell South In the Matter of Policy and Rules Concerning Rates for Dominant Carriers (CC Docket 87-313) October 1987 and Reply Testimony, November 1987.
- Reply Verified Statement before the Interstate Commerce Commission on behalf of McCarty Farms et. al. and Montana Department of Commerce, on the stand-alone cost constraint on railroad rates to captive shippers, October 2, 1987.
- Testimony before the New York State Public Service Commission on behalf of New York Telephone Company on assessing the competitiveness of telecommunications markets, April 1987.
- Testimony before the New Jersey Senate Energy and Environment Committee on behalf of Public Service Electric and Gas Company on draft bill, No. 2801, the "Electricity Market Pricing Act of 1986," January 26, 1987.
- Testimony before Federal Energy Regulatory Commission on behalf of Interstate Natural Gas Association of America on "Competitive Implications of Natural Gas Pipeline Marketing Affiliates," December 29, 1986.
- Testimony before the New York State Public Service Commission on behalf of the Owners Committee on Electric Rates, Inc., on rent-inclusion and submetering, November 19, 1986.
- Testimony before the Illinois Commerce Commission on behalf of Commonwealth Edison Company on standard for deciding whether Braidwood Unit 2 should be cancelled, August 4, 1986.
- Verified Statement on Standards for Railroad Revenue Adequacy, on Interstate Commerce Commission's Ex Parte No. 393, Sub-No.1, July 1986.
- Supplemental Verified Statement before the Interstate Commerce Commission, Docket No. 38783, Omaha Public Power District v. Burlington Northern Railroad Company on behalf of Omaha Public Power District, April 1986.
- Statement to Federal Communications Commission on New England Telephone Company's Proposed Interstate Access Tariff Restructure, January 30, 1986.
- Testimony before the Public Utilities Commission of the State of Oregon on inverted rate structures on behalf of the Pacific Power & Light company, January 1986.
- Rebuttal Testimony before the California Public Utilities Commission on San Onofre nuclear plants on behalf of Southern California Edison Company, January 1986 and En Banc Proceeding, February 1986.
- Testimony and rebuttal testimony before the Arizona Corporation Commission on behalf of Arizona Public Service Company on economic and regulatory principles applicable to entry of nuclear plants into rate base, December 1985, March 1986, December 1986 and March 1987.

- Testimony before the Corporation Commission of the State of Oklahoma on economic principles applicable to access charges, Cause No. 29321 on behalf of Southwestern Bell Telephone Company, September 1985.
- Testimony before the California Public Utilities Commission on regulatory principles applicable to prudence determinations on behalf of Southern California Edison Company, August 1985.
- Testimony before the Corporation Commission of the State of Oklahoma on development of intrastate access charges, Cause No. 28309 on behalf of Southwestern Bell Telephone Company, May 1985.
- Verified Statement before the Interstate Commerce Commission, Docket No. 38783 on behalf of Omaha Public Power District, on the grouping of captive shippers for purposes of applying a stand-alone cost test of contested rail rates, November 1984.
- Comments of Alfred E. Kahn to the Department of Transportation in Support of "Complaint of Donald L. Pevsner Against British Airways, et. al., Docket 41977" re IATA pricing. 1984
- Testimony before the House Public Policy and Veterans Affairs Committee of the Indiana General Assembly on behalf of the Indiana Telephone Association, October 25, 1984.
- Testimony before the Iowa State Commerce Commission, Docket No. INU-84-6, Investigation into competition in communications services and facilities, October 18, 1984.
- Testimony and rebuttal testimony on current cash support for construction and the reorientation of regulatory policy before the Maine Public Utilities Commission, in the matter of Central Maine Power Company's proposed increase in rates, Docket No. 84-120, August 1984 and February 1985.
- Testimony and rebuttal testimony for Illinois Power Company on rate base treatment of construction work in progress, before Illinois Commerce Commission, Docket No. 84-0480, August 1984 and April 1985.
- Verified Statement before the Interstate Commerce Commission, Docket No. 39687, on behalf of Platte River Power Authority, on the proper definition of the cost of capital for purposes of applying a stand-alone cost test of contested rail rates, July 1984.
- Verified Statement and Surrebuttal Verified Statement Before the Interstate Commerce Commission, Finance Docket No. 30300 on behalf of the Water Transport Association, in opposition to the application of CSX Corporation to acquire American Commercial Barge Lines, Inc., February 14, 1984 and April 19, 1984.
- Direct and rebuttal testimony, Federal Energy Regulatory Commission, Trans Alaska Pipeline System, on behalf of the State of Alaska, Dockets Nos. OR 78-1-014 and OR 78-1-016 (Phase I Remand) November 1, 1983 and December 23, 1983.
- Verified Statement, Interstate Commerce Commission, on the stand alone test for rail rates to captive shippers, on behalf of Utility Fuels, Inc., Docket No. 39002, October 3, 1983.
- Testimony on telephone rate structures before the Colorado Public Utilities Commission for Mountain States Telephone & Telegraph Company, May 27, 1983; the California Public Utilities Commission, for Pacific Telephone & Telegraph Company, August 18, 1983; the Missouri Public Service Commission, September 8, 1983; and Texas Public Service Commission, September 19, 1983, for Southwestern Bell Company.

- “Comments on the Federal Communications Commission’s Financial Interest and Syndication Rules,”
In the Matter of Amendment of 47 CFR Sec.73.658(j)(1)(i) and (ii), the Syndication and Financial
Interest Rules (BC Docket No. 82-345), January 25, 1983.
- Testimony before the Utility Diversification Committee of the Legislature of the State of New Mexico,
September 2, 1982.
- Testimony before the Ad Hoc Committee on Utility Diversification, National Association of
Regulatory Utility Commissioners, May 6, 1982.
- Testimony before Motor Carrier Ratemaking Study Commission, Orlando, Florida, April 2, 1982.
- Testimony before the State of Connecticut Department of Public Utility Control on methods of
regulating rates for basic television cable service, March 9, 1982.
- Testimony before the Committee of Energy and Public Utilities, The General Assembly of the State of
Connecticut on regulation of cable television, March 1, 1982.
- Testimony before the Public Utilities Commission of the State of California, for Pacific Power & Light
Company on methods of allocating aggregate revenue requirements, September 24, 1981.
- Verified Statement, Interstate Commerce Commission, Ex Parte No. 347 (Sub-No. 1), “Coal Rate
Guidelines-Nationwide,” September 1981.
- Testimony for the Department of Justice in the U.S. v. Standard Oil Co. (Indiana) et al. Civil Suit
40212, filed July 28, 1964.