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Professional Summary

Dr. Timothy J. Tardiff has more than 30 years of academic and consulting experience. He has participated in numerous legal and regulatory proceedings regarding telecommunications, economics, intellectual property antitrust, and regulation issues. His research consulting, and expert witness experience in telecommunications has addressed pricing and costing issues involving increasingly competitive services, such as wireless and traditional wireline services. This experience has also included extensive examination and economic evaluation of all facets of the costing methodologies used to establish prices in rate-regulated industries—including expert reports and testimonies in a U.S. Department of Transportation proceeding on the reasonableness from an economic perspective of the rates international carriers at Los Angeles International Airport pay for use of terminal space. His work has included the telecommunications, software, transportation, energy, and public utility industries, and he has published extensively in economics, telecommunications, and transportation journals.

From 2006 to 2009, Dr. Tardiff was a Managing Director at Huron Consulting Group. Prior to joining Huron, he served as a vice president in the telecommunication practice at NERA Economic Consulting. During his career, Dr. Tardiff has served as the director of Marketing Research and senior member of the transportation practice at Charles River Associates, Inc. and assistant professor in the Department of Civil Engineering and Division of Environmental Studies at the University of California, Davis.

Dr. Tardiff's research has addressed the demand, cost, and competitive aspects of converging technologies, including wireless and broadband. He has evaluated pricing policies for increasingly competitive telecommunications markets, including appropriate mechanisms for pricing access services to competitors and studied actual and potential competition for services provided by incumbent telephone operating companies. Most recently, he has analyzed the effects of convergence and growing intermodal competition on whether incumbent firms should be considered dominant in the provision of certain services and the regulatory and antitrust implication of such determinations.

Since the passage of the United States Telecommunications Act, Dr. Tardiff has participated in interconnection arbitrations, unbundled element proceedings, universal service investigation, applications by incumbent local exchange carriers for authorization to provide interLATA long-distance, and implementation of the Triennial Review Order rules for unbundling network elements in over 25 states and before the United States Federal Communications Commission. His international research and consulting experience includes studies and expert reports on telecommunication competition issues in Canada, Japan, New

Zealand, Peru, Australia, and Trinidad and Tobago, where he was an economic expert in an interconnection arbitration between two wireless carriers.

Education

- Ph.D., Social Sciences, University of California, Irvine, CA
- B.S., Mathematics, California Institute of Technology, Pasadena, CA

Testimony experience

- Reply Affidavit of Timothy J. Tardiff on presumptive just and reasonable rates for pole attachments, prepared for filing with the Federal Communications Commission on behalf of Frontier Communications, Commonwealth Telephone Company d/b/a Frontier Communications Commonwealth Telephone Company and CTSI, LLC d/b/a Frontier Communications CTSI Company, LLC, Complainants v. UGI Utilities – Electric Division, Respondent, File No. EB-14-MD-007, September 15, 2014.
- Reply Affidavit of Timothy J. Tardiff on presumptive just and reasonable rates for pole attachments, prepared for filing with the Federal Communications Commission on behalf of Frontier Communications, Commonwealth Telephone Company LLC d/b/a Frontier Communications Commonwealth Telephone Company, Frontier Communications of Breezewood, LLC, Citizens Telecommunications Company of West Virginia d/b/a Frontier Communications Company of West Virginia, and Frontier West Virginia Inc., Complainants, v. Metropolitan Edison Company, Pennsylvania Electric Company, West Penn Power Company d/b/a Allegheny Power, Monongahela Power Company, and the Potomac Edison Company, Respondents, File No. EB-14-MD-008, July 31, 2014.
- Supplemental Expert Report, Duke Energy Carolinas, LLC, Plaintiff v. Frontier Communications of the Carolinas LLC, Defendant, 2:13-cv-00040-MR-DLH, U.S. District Court for the Western District of North Carolina, June 27, 2014.
- Deposition Testimony, Florida Power & Light Company, Plaintiff v. Verizon Florida LLC, Defendant, Case No. 13-014808-CA-01, Circuit Court of the Eleventh Judicial District in and for Miami-Dade County, Florida, June 24, 2014.
- Affidavit of Timothy J. Tardiff on presumptive just and reasonable rates for pole attachments, prepared for filing with the Federal Communications Commission on behalf of Frontier Communications, Commonwealth Telephone Company LLC d/b/a Frontier Communications Commonwealth Telephone Company, Frontier Communications of Breezewood, LLC, Citizens Telecommunications Company of West Virginia d/b/a Frontier Communications Company of West Virginia, and Frontier West Virginia Inc., Complainants, v. Metropolitan Edison Company, Pennsylvania Electric Company, West Penn Power Company d/b/a Allegheny Power, Monongahela Power Company, and the Potomac Edison Company, Respondents, File No. EB-14-MD-008, June 11, 2014.
- Expert Report, Florida Power & Light Company, Plaintiff v. Verizon Florida LLC, Defendant, Case No. 13-014808-CA-01, Circuit Court of the Eleventh Judicial District in and for Miami-Dade County, Florida, May 15, 2014.
- Affidavit of Timothy J. Tardiff on presumptive just and reasonable rates for pole attachments, prepared for filing with the Federal Communications Commission on behalf of Frontier Communications, Commonwealth Telephone Company d/b/a Frontier Communications Commonwealth Telephone Company and CTSI, LLC d/b/a Frontier

Communications CTSI Company, LLC, Complainants v. UGI Utilities – Electric Division, Respondent, File No. EB-14-MD-007, May 14, 2014.

- Expert Report, Duke Energy Carolinas, LLC, Plaintiff v. Frontier Communications of the Carolinas LLC, Defendant, 2:13-cv-00040-MR-DLH, U.S. District Court for the Western District of North Carolina, April 1, 2014.
- Reply Affidavit of Timothy J. Tardiff on presumptive just and reasonable rates for pole attachments, prepared for filing with the Federal Communications Commission on behalf of Frontier Communications of the Carolinas, Frontier Communications of the Carolinas, LLC, Complainant v. Duke Energy Carolinas, LLC, Defendant, File No. File No. EB-14-MD-002, March 20, 2014.
- Reply Affidavit of Timothy J. Tardiff on presumptive just and reasonable rates for pole attachments, prepared for filing with the Federal Communications Commission on behalf of Frontier Communications of the Carolinas, Frontier Communications of the Carolinas, LLC, Complainant v. Duke Energy Carolinas, LLC, Defendant, File No. File No. EB-14-MD-001, March 18, 2014.
- Expert Report, Tampa Electric Company, Plaintiff v. Verizon Florida LLC, Defendant, Civil Action No. 12-016349, Circuit Court, Hillsborough County, Florida, Civil Division, February 24, 2014.
- Reply Affidavit of Timothy J. Tardiff on presumptive just and reasonable rates for pole attachments, prepared for filing with the Federal Communications Commission on behalf of Frontier Communications of the Carolinas, Frontier Communications of the Carolinas, LLC, Complainant v. Duke Energy Progress, Inc., Defendant, File No. EB-13-MD-007, February 11, 2014.
- Affidavit of Timothy J. Tardiff on presumptive just and reasonable rates for pole attachments, prepared for filing with the Federal Communications Commission on behalf of Frontier Communications of the Carolinas, Frontier Communications of the Carolinas, LLC, Complainant v. Duke Energy Carolinas, LLC, Defendant, File No. No. EB-14-MD-002, January 29, 2014.
- Affidavit of Timothy J. Tardiff on presumptive just and reasonable rates for pole attachments, prepared for filing with the Federal Communications Commission on behalf of Frontier Communications of the Carolinas, Frontier Communications of the Carolinas, LLC, Complainant v. Duke Energy Carolinas, LLC, Defendant, File No. File No. EB-14-MD-001, January 17, 2014.
- Affidavit of Timothy J. Tardiff on presumptive just and reasonable rates for pole attachments, prepared for filing with the Federal Communications Commission on behalf of Frontier Communications of the Carolinas, Frontier Communications of the Carolinas, LLC, Complainant v. Duke Energy Progress, Inc., Defendant, File No. EB-13-MD-007, December 9, 2013.
- Deposition Testimony, Tri-County Electric Cooperative, Inc., Plaintiff v. GTE Southwest d/b/a Verizon Southwest, Defendant, Cause No. CV-10-1865, District Court, Parker County, Texas, 43rd Judicial District, September 11, 2013.
- Expert Rebuttal Report, Tri-County Electric Cooperative, Inc., Plaintiff v. GTE Southwest d/b/a Verizon Southwest, Defendant, Cause No. CV-10-1865, District Court, Parker County, Texas, 43rd Judicial District, August 30, 2013.
- Expert Report, Tri-County Electric Cooperative, Inc., Plaintiff v. GTE Southwest d/b/a Verizon Southwest, Defendant, Cause No. CV-10-1865, District Court, Parker County, Texas, 43rd Judicial District, August 21, 2013.

- Direct Testimony of Timothy J. Tardiff on antitrust and community impacts, prepared for filing with the Montana Commissioner of Securities and Insurance on behalf of the Office of the Commissioner of Securities and Insurance, Case No: INS-2012-238, February 8, 2013.
- Deposition Testimony, Montana Commissioner of Securities and Insurance Case No: INS-2012-238, February 1, 2013.
- Deposition Testimony, Texas Public Utility Commission Docket No. 38389, July 16, 2012.
- Affidavit of Timothy J. Tardiff on presumptive just and reasonable rates for pole attachments, prepared for filing with the Federal Communications Commission on behalf of Frontier West Virginia, Frontier West Virginia, Inc., Complainant v. Appalachian Power and Wheeling Power, Defendants, File No. EB-12-MD-004, June 22, 2012.
- Rebuttal Testimony of Timothy J. Tardiff on the rate for wholesale services provided to competitive local exchange carriers, prepared for filing with the Texas Public Utility Commission on behalf of AT&T Texas, Docket No. 38389, May 11, 2012.
- Affidavit of Timothy J. Tardiff on statistical sampling issues, on behalf of Albert Pecherek, M.D., Medicare Appeal Number: 1-691874218, ALJ Appeal No. 1-750870135, September 16, 2011.
- Expert Report, Qwest Communications Corporation, Complainant v. Farmers and Merchants Telephone Company, Defendant, File No. EB-07-MD-001, Federal Communications Commission, November 30, 2010.
- Affidavit of Timothy J. Tardiff on the reasonableness of dominant carrier regulation for fixed line services, Telecommunications Services of Trinidad and Tobago, Claimant and Telecommunications Authority of Trinidad and Tobago, Defendant, Claim No. CV2010-02389, High Court of Justice, Republic of Trinidad and Tobago, September 29, 2010.
- "The Economics of Access Stimulation: Economic Evaluation of the 'Fact Report' by Drs. Alan Pearce and W. Brian Barrett," ex parte filing with the Federal Communications Commission on behalf of Qwest Communications International, WC Docket No. 07-135, August 5, 2010.
- Statement of Timothy Tardiff on the regulation of retail local telephone services, prepared for filing with the Commonwealth Public Utilities Commission, Commonwealth of the Northern Mariana Islands on behalf of the Micronesian Telecommunications Corporation, CPUC Docket No.09-3, July 30, 2010.
- Reply Declaration of Timothy J. Tardiff and Dennis L. Weisman on an analytical framework for evaluating the competitiveness of special access services, prepared for filing with the Federal Communications Commission on behalf of Qwest Communications International, WC Docket No. 05-25, RM-10593, February 24, 2010.
- Declaration of Timothy J. Tardiff and Dennis L. Weisman on an analytical framework for evaluating the competitiveness of special access services, prepared for filing with the Federal Communications Commission on behalf of Qwest Communications International, WC Docket No. 05-25, RM-10593, January 19, 2010
- Reply Declaration of Timothy J. Tardiff and Dennis L. Weisman on the economics of forbearance from regulating certain wholesale services, prepared for filing with the Federal Communications Commission on behalf of Qwest Communications International, WC Docket No. 09-135, October 21, 2009. (Includes Dennis L. Weisman and Timothy J. Tardiff, "Principles of Competition and Regulation for the Design of Telecommunications Policy").

- Deposition Testimony, Florida Power Corporation d/b/a Progress Energy Florida, Inc., Plaintiff v. Verizon Florida LLC, Defendant, Case No: 08-013358, Circuit Court in and for Hillsborough County, Florida Civil Division, August 27, 2009.
- Expert Rebuttal Report, Florida Power Corporation d/b/a Progress Energy Florida, Inc., Plaintiff v. Verizon Florida LLC, Defendant, Case No: 08-013358, Circuit Court in and for Hillsborough County, Florida Civil Division, August 4, 2009 (with Matthew G. Medlin).
- Expert Report, Florida Power Corporation d/b/a Progress Energy Florida, Inc., Plaintiff v. Verizon Florida LLC, Defendant, Case No: 08-013358, Circuit Court in and for Hillsborough County, Florida Civil Division, July 21, 2009.
- Reply Declaration of Timothy J. Tardiff and Dennis L. Weisman on the competitiveness of Commercial Mobile Radio Services, prepared for filing with the Federal Communications Commission, WT Docket No. 09-66, July 13, 2009.
- Declaration of Timothy J. Tardiff on the economics of whether traffic stimulation arrangements violate the prohibition in Section 254(k) of the 1996 Telecommunications Act against noncompetitive services subsidizing competitive services, ex parte filing with the Federal Communications Commission on behalf of Qwest Communications International, WC Docket No. 07-135, January 6, 2009.
- Direct Testimony on pole attachment rates prepared for filing on with the West Virginia Public Service Commission on behalf of Verizon, West Virginia, Inc., Case No. 07-1279-E-C (panel testimony), June 4, 2008.
- Direct and cross-examination of Timothy Tardiff on deregulation of single line retail telephone services, before the Iowa Utilities Board on behalf of Iowa Telecom, Docket No. INU-08-1, May 21, 2008.
- Counterstatement of Timothy Tardiff and Harold Ware on deregulation of single line retail telephone services, prepared for filing with the Iowa Utilities Board on behalf of Iowa Telecom, Docket No. INU-08-1, April 28, 2008.
- Statement of Timothy Tardiff and Harold Ware on deregulation of single line retail telephone services, prepared for filing with the Iowa Utilities Board on behalf of Iowa Telecom, Docket No. INU-08-1, March 17, 2008.
- Reply Declaration of Timothy J. Tardiff on reasonable carrier access rates for rural telecommunications carriers, prepared for filing with the Federal Communications Commission on behalf of Qwest Communications International, WC Docket No. 07-135, January 16, 2008.
- Declaration of Timothy J. Tardiff on reasonable carrier access rates for rural telecommunications carriers, prepared for filing with the Federal Communications Commission on behalf of Qwest Communications International, WC Docket No. 07-135, December 17, 2007.
- Reply Expert Report of Dr. Timothy J. Tardiff on interconnection costs and rates," prepared for filing with the Telecommunications Authority of Trinidad and Tobago on behalf of Telecommunications Services of Trinidad and Tobago Limited, Reference No: 4/7/06/4, September 25, 2007.
- Expert Report of Dr. Timothy J. Tardiff on interconnection costs and rates," prepared for filing with the Telecommunications Authority of Trinidad and Tobago on behalf of Telecommunications Services of Trinidad and Tobago Limited, Reference No: 4/7/06/4, August 24, 2007.

- Expert Report of Daniel P. Wikel and Timothy J. Tardiff on airport terminal rental rates, prepared for filing with the Office of the Secretary, United States Department of Transportation on behalf of Tom Bradley International Terminal Airlines, Docket No. OST-2007-28118, April 30, 2007.
- Joint Expert Supplemental Report of Daniel P. Wikel and Timothy J. Tardiff on airport terminal rental rates, prepared for filing with the Office of the Secretary, United States Department of Transportation on behalf of Tom Bradley International Terminal Airlines, Docket No. OST-2007-27331, April 6, 2007.
- Joint Expert Reply Report of Daniel P. Wikel and Timothy J. Tardiff on airport terminal rental rates, prepared for filing with the Office of the Secretary, United States Department of Transportation on behalf of Tom Bradley International Terminal Airlines, Docket No. OST-2007-27331, March 5, 2007.
- Expert Report of Daniel P. Wikel and Timothy J. Tardiff on airport terminal rental rates, prepared for filing with the Office of the Secretary, United States Department of Transportation on behalf of Tom Bradley International Terminal Airlines, Docket No. OST-2007-27331, February 23, 2007.
- Rebuttal Testimony of Timothy Tardiff and Harold Ware on predatory pricing and price discrimination allegations, prepared for filing with the Iowa Utilities Board on behalf of IowaTelecom, Docket No. FCU 06-48, December 1, 2006.
- Rebuttal Testimony of Timothy Tardiff and Harold Ware on predatory pricing and price squeeze allegations, prepared for filing with the Iowa Utilities Board on behalf of Iowa Telecom, Docket No. FCU 06-42, August 8, 2006.
- "Response to Digicel's Economic Analysis of Interconnection Costs and Rates," prepared for filing with the Telecommunications Authority of Trinidad and Tobago on behalf of Telecommunications Services of Trinidad and Tobago Limited, Reference No: 4/7/06/1 (with Agustin J. Ros), May 12, 2006.
- "Report on Interconnection Costs in Trinidad and Tobago," prepared for filing with the Telecommunications Authority of Trinidad and Tobago on behalf of Telecommunications Services of Trinidad and Tobago Limited, Reference No: 4/7/06/1 (with Agustin J. Ros), May 4, 2006.
- "Benchmarking Mobile Termination Rates: Evaluation of the .econ Report," prepared for filing with the Telecommunications Authority of Trinidad and Tobago on behalf of Telecommunications Services of Trinidad and Tobago Limited, Reference No: 4/7/06/1 (with Agustin J. Ros), February 10, 2006.
- Rebuttal Testimony of Timothy J. Tardiff on the use price floors for retail services, prepared for filing with the California Public Utilities Commission on behalf of Verizon California, Rulemaking 93-04-003, Investigation 93-04-0002, April 1, 2005.
- Rebuttal Testimony of Timothy J. Tardiff in support of the proposal of Pacific Bell Telephone Company (SBC California) to rebalance NIC Revenues, Rulemaking 03-08-018, March 21, 2005.
- Statement of William Taylor and Timothy Tardiff on alternative intercarrier compensation payment mechanisms for Voice over Internet Protocol long-distance calls, "Analysis of QSI Study," prepared for filing with the Federal Communications Commission on behalf of the United States Telecom Association, Docket No. 03-266, March 4, 2005.
- Panel Rebuttal Testimony of Timothy J. Tardiff, Francis J. Murphy, and Christian M. Dippon on the use of the HAI, Release 5.3 Model for unbundled network elements costs,

prepared for filing with the California Public Utilities Commission on behalf of Verizon California, Rulemaking 93-04-003, Investigation 93-04-0002, November 9, 2004.

- Reply Declaration of Alfred E. Kahn and Timothy Tardiff on alternative rules for unbundling network elements, prepared for filing with the Federal Communications Commission on behalf of Verizon, WC Docket No. 04-313, October 19, 2004.
- Declaration of Alfred E. Kahn and Timothy Tardiff on alternative rules for unbundling network elements, prepared for filing with the Federal Communications Commission on behalf of Verizon, WC Docket No. 04-313, October 4, 2004.
- Declaration of William E. Taylor, Timothy J. Tardiff, and Harold Ware on the sunset of BOC separate affiliate and related requirements, ex parte communication prepared for filing with the Federal Communications Commission on behalf of BellSouth, SBC, and Verizon, WC Docket No. 02-112 and CC Docket No. 00-175, August 10, 2004.
- Reply Testimony of Timothy J. Tardiff on the use of the HAI, Release 5.3 Model for unbundled network elements costs, prepared for filing with the California Public Utilities Commission on behalf of Verizon California, Rulemaking 93-04-003, Investigation 93-04-0002, August 6, 2004.
- Supplemental Reply Testimony of Timothy J. Tardiff on the use of the HAI, Release 5.3 Model for unbundled network elements costs, prepared for filing with the Washington Utilities and Transportation Commission on behalf of Verizon Northwest, Docket No. UT-023003, June 18, 2004.
- Rebuttal Testimony of Timothy J. Tardiff on the use of the HAI, Release 5.3 Model for unbundled network elements costs, prepared for filing with the Washington Utilities and Transportation Commission on behalf of Verizon Northwest, Docket No. UT-023003, May 12, 2004.
- Reply Declaration of Timothy J. Tardiff on the use of the HAI, Release 5.3 Model for unbundled network elements costs, prepared for filing with the Washington Utilities and Transportation Commission on behalf of Verizon Northwest, Docket No. UT-023003, April 26, 2004.
- Reply Testimony of Timothy J. Tardiff concerning geographic market definition, prepared for filing with the Indiana Utility Regulatory Commission on behalf of SBC Indiana, Cause No. 42500, February 13, 2004.
- Direct Testimony of Timothy J. Tardiff concerning geographic market definition, prepared for filing with the Oklahoma State Corporation Commission on behalf of SBC Oklahoma, Cause No. 200300646, February 11, 2004.
- Rebuttal Testimony of Timothy J. Tardiff concerning geographic market definition, prepared for filing with the Indiana Utility Regulatory Commission on behalf of SBC Indiana, Cause No. 42500, January 30, 2004.
- Reply Declaration of Howard Shelanski 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, January 30, 2004.
- Direct Testimony of Timothy J. Tardiff concerning geographic market definition, prepared for filing with the Indiana Utility Regulatory Commission on behalf of SBC Indiana, Cause No. 42500, January 16, 2004.

- Rebuttal Testimony of Timothy J. Tardiff concerning geographic market definition, prepared for filing with the Missouri Public Service Commission on behalf of SBC Missouri, Case No. TO-2004-0207 Phase I, January 16, 2004.
- Reply Testimony of Timothy J. Tardiff concerning geographic market definition, prepared for filing with the California Public Utilities Commission on behalf of SBC California, Rulemaking 95-04-043, Investigation 95-04-044, January 16, 2004.
- Direct Testimony of Timothy J. Tardiff concerning geographic market definition, prepared for filing with the Missouri Public Service Commission on behalf of SBC Missouri, Case No. TO-2004-0207 Phase I, December 18, 2003.
- 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.
- Direct Testimony of Timothy J. Tardiff concerning geographic market definition, prepared for filing with the California Public Utilities Commission on behalf of SBC California, Rulemaking 95-04-043, Investigation 95-04-044, December 12, 2003.
- Direct Testimony of Timothy J. Tardiff concerning geographic market definition, prepared for filing with the Public Utilities Commission of Ohio on behalf of SBC Ohio, Case No. 03-2040-TP-COI, November 12, 2003.
- Statement of Timothy J. Tardiff on the Commission's Telecommunications Service Obligation (TSO) Model, prepared for filing with the New Zealand Commerce Commission on behalf of Telecom Corporation of New Zealand, May 20, 2003.
- Rebuttal Declaration of Timothy J. Tardiff on the use of the HAI, Release 5.3 Model for unbundled network elements costs, prepared for filing with the California Public Utilities Commission on behalf of SBC California, Application Nos. 01-02-024, 01-02-035, 02-02-031, 02-02-032, and 02-03-002, March 12, 2003.
- Reply Declaration of Timothy J. Tardiff on the use of the HAI, Release 5.3 Model for unbundled network elements costs, prepared for filing with the California Public Utilities Commission on behalf of SBC California, Application Nos. 01-02-024, 01-02-035, 02-02-031, 02-02-032, and 02-03-002, February 7, 2003.
- Affidavit of Timothy J. Tardiff on the use of the FCC's Synthesis Model to calculate unbundled network switching and transport prices, prepared for filing with the Regulatory Commission of Alaska, on behalf of Alaska Communications Systems, Docket No. U-96-89, December 20, 2002.
- Declaration of Timothy J. Tardiff in support of the Petition of Verizon for Forbearance From The Prohibition Of Sharing Operating, Installation, and Maintenance Functions Under Section 53.203(a)(2) Of The Commission's Rules, CC Docket No. 96-149, September 24, 2002.
- Affidavit of Timothy J. Tardiff on unbundled network element pricing, prepared for filing with the Federal Communications Commission on behalf of ACS, WC Docket No. 02-201, July 24, 2002.
- Reply Declaration of Alfred E. Kahn and Timothy J. Tardiff in the triennial review of unbundled network elements, prepared for filing with the Federal Communications Commission on behalf of Verizon, CC Docket Nos. 01-338, 96-98, and 98-147, July 17, 2002.
- Statement of Alfred E. Kahn and Timothy J. Tardiff on funding the telecommunications service (universal service) obligation, prepared for filing with the New Zealand

Commerce Commission on behalf of Telecom Corporation of New Zealand, June 10, 2002.

- Supplemental Surrebuttal Testimony of Timothy Tardiff and Francis Murphy on the use of the FCC's Synthesis Model for evaluating the costs of unbundled network elements, prepared for filing with the Florida Public Service Commission on behalf of Verizon-Florida, Docket No. 990649B-TP, April 22, 2002.
- Surrebuttal Testimony of Timothy Tardiff and Francis Murphy on the use of the FCC's Synthesis Model for evaluating the costs of unbundled network elements, prepared for filing with the Florida Public Service Commission on behalf of Verizon-Florida, Docket No. 990649B-TP, March 18, 2002.
- Surrebuttal Testimony of Howard Shelanski and Timothy Tardiff on economic principles for determining the costs of unbundled network elements, prepared for filing with the Pennsylvania Public Utility Commission on behalf of Verizon-Pennsylvania, Docket No. R-00016683, February 8, 2002.
- Surrebuttal Testimony of Timothy J. Tardiff and Joseph A. Gansert on the application of the Modified Synthesis Model for the costs of unbundled network elements, prepared for filing with the Pennsylvania Public Utility Commission on behalf of Verizon-Pennsylvania, Docket No. R-00016683, February 8, 2002.
- Rebuttal Testimony of Howard Shelanski and Timothy Tardiff on economic principles for determining the costs of unbundled network elements, prepared for filing with the Pennsylvania Public Utility Commission on behalf of Verizon-Pennsylvania, Docket No. R-00016683, January 11, 2002.
- Rebuttal Testimony of Timothy J. Tardiff on the application of the Modified Synthesis Model for the costs of unbundled network elements, prepared for filing with the Pennsylvania Public Utility Commission on behalf of Verizon-Pennsylvania, Docket No. R-00016683, January 11, 2002.
- Declaration of Alfred E. Kahn and Timothy J. Tardiff submitted to the U.S. Federal Communications Commission on behalf of Verizon regarding broadband regulation, December 18, 2001.
- Supplemental Rebuttal Testimony of Timothy J. Tardiff on the application of the Modified Synthesis Model for the costs of unbundled network elements, prepared for filing with the Federal Communications Commission on behalf of Verizon-Virginia, CC Docket Nos. 00-218, 00-249, and 00-251, November 16, 2001.
- Declaration of Timothy J. Tardiff on the use of the HAI, Release 5.2a for deriving an unbundled switch cost reduction, prepared for filing with the California Public Utilities Commission on behalf of Pacific Bell, October 30, 2001.
- Declaration of Timothy J. Tardiff on the use of the HAI, Release 5.2a for deriving an unbundled loop cost reduction, prepared for filing with the California Public Utilities Commission on behalf of Pacific Bell, October 19, 2001.
- Surrebuttal Testimony of Howard Shelanski and Timothy J. Tardiff on economic principles for determining the costs of unbundled network elements, prepared for filing with the Federal Communications Commission on behalf of Verizon-Virginia, CC Docket Nos. 00-218, 00-249, and 00-251, September 21, 2001.
- Rebuttal Testimony of Timothy J. Tardiff on the application of the Modified Synthesis Model for the costs of unbundled network elements, prepared for filing with the Maryland Public Service Commission on behalf of Verizon-Maryland, Case No. 8879, September 5, 2001.

- Declaration of Timothy J. Tardiff on the use of the HAI, Release 5.2a and Modified Synthesis Models for unbundled loop and switch costs, prepared for filing with the California Public Utilities Commission on behalf of Pacific Bell, September 4, 2001.
- Rebuttal Testimony of Timothy J. Tardiff on the application of the Modified Synthesis Model for the costs of unbundled network elements, prepared for filing with the Federal Communications Commission on behalf of Verizon-Virginia, CC Docket Nos. 00-218, 00-249, and 00-251, August 27, 2001.
- Affidavit of Timothy J. Tardiff on the use of proxy costs models for unbundled network elements, prepared for filing with the Regulatory Commission of Alaska, on behalf of Alaska Communications Systems, Docket No. U-96-89, July 27, 2001.
- Rebuttal Testimony of Timothy J. Tardiff on the application of the Hatfield Model for the costs of unbundled network elements, prepared for filing with the Massachusetts Department of Telecommunications and Energy on behalf of Verizon-Massachusetts, Docket No. D.T.E. 01-20, July 18, 2001.
- Rebuttal Testimony of Timothy J. Tardiff on the application of the Hatfield Model for the costs of unbundled network elements, prepared for filing with the New Jersey Board of Public Utilities on behalf of Verizon-New Jersey, Docket No. TO00060356, October 12, 2000.
- Supplemental Rebuttal Testimony of Timothy J. Tardiff on the Hatfield Model of unbundled network elements, prepared for filing with the State of Maine Public Utilities Commission on behalf of Bell Atlantic-Maine, Case No. 97-505, October 10, 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 Alfred E. Kahn), July 24, 2000.
- Responsive Testimony on the HAI Model of unbundled network elements, prepared for filing with the New York Public Service Commission on behalf of Bell Atlantic-New York, Case 98-C-1357 (filed as part of panel testimony), June 26, 2000.
- Affidavit of Timothy J. Tardiff on avoided cost discounts for wholesale services, prepared for filing with the Regulatory Commission of Alaska, on behalf of Alaska Communications Systems, Docket Nos. U-99-141, U-99-142 and U-99-143, April 17, 2000.
- Third Affidavit of Timothy J. Tardiff on costs models for unbundled network elements, prepared for filing with the Regulatory Commission of Alaska, on behalf of Alaska Communications Systems, Docket Nos. U-99-141, U-99-142 and U-99-143, March 24, 2000.
- Second Affidavit of Timothy J. Tardiff on costs models for unbundled network elements, prepared for filing with the Regulatory Commission of Alaska, on behalf of Alaska Communications Systems, Docket Nos. U-99-141, U-99-142 and U-99-143, February 25, 2000.
- Rebuttal Testimony of Timothy J. Tardiff on collocation costs models, prepared for filing with the Delaware Public Service Commission on behalf of Bell Atlantic-Delaware, Docket No. 99-251, February 24, 2000.
- Affidavit of Timothy J. Tardiff on costs models for unbundled network elements, prepared for filing with the Regulatory Commission of Alaska, on behalf of Alaska Communications Systems, Docket Nos. U-99-141, U-99-142 and U-99-143, February 11, 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 (with Alfred E. Kahn), January 10, 2000.
- Rebuttal Testimony of Timothy J. Tardiff on collocation costs models, prepared for filing with the Pennsylvania Public Utility Commission on behalf of Bell Atlantic-Pennsylvania, Docket Nos. R-00994697 and R-00994697C0001, December 21, 1999.
- "Relaxed Regulation of High Capacity Services in Phoenix and Seattle: The Time is Now," prepared for filing with the Federal Communications Commission on behalf of US WEST Communications, Petitions of US WEST Communications for Forbearance from Regulation as a Dominant Carrier in the Phoenix and Seattle MSAs (with Alfred E. Kahn), July 21, 1999.
- Rebuttal Testimony of Timothy J. Tardiff on the HAI Model of unbundled network elements, prepared for filing with the Pennsylvania Public Utility Commission on behalf of Bell Atlantic-Pennsylvania, Docket Nos. P-00991648 and P-00991649, June 15, 1999.
- "High Capacity Competition in Seattle: 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 Seattle, Washington MSA (with Alfred E. Kahn), March 10, 1999.
- Rebuttal Testimony of Timothy J. Tardiff on collocation costs models, prepared for filing with the California Public Utilities Commission on behalf of Pacific Bell, February 8, 1999.
- Surrebuttal Testimony of Alfred E. Kahn and Timothy J. Tardiff filed with the Missouri 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 Missouri, Docket No. TO 99-227, February 4, 1999.
- Rebuttal Testimony of Timothy J. Tardiff on the HAI Model of unbundled network elements, prepared for filing with the Rhode Island Public Utilities Commission on behalf of Bell Atlantic-Rhode Island, Docket No. 2681, January 15, 1999.
- Reply Testimony of Timothy J. Tardiff on collocation costs models, prepared for filing with the California Public Utilities Commission on behalf of Pacific Bell, January 11, 1999.
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Professional Associations

- Member, American Economic Association
- Associate Member, American Bar Association
- Member, Federal Communications Bar Association

Fellowships, Grants and Awards

- First Place, Dissertation Contest of the Transportation Science Section of the Operations Research Society of America.
- National Science Foundation (NSF) Research Initiation Grant (Engineering Division), 1976-1978.
- NSF Grant for Improving Doctoral Dissertation Research in the Social Sciences, 1973-1974.
- NSF Predoctoral Fellowship, 1972-1974.
- Public Health Service Traineeship, 1971-1972.