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**Grover**

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[54] **TELECOMMUNICATION TRAFFIC PRICING CONTROL SYSTEM**

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[58] **Field of Search** ..... 379/111, 112, 379/113, 114, 115, 121, 122, 127, 133, 134, 135, 136, 137, 93.01

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

4,207,598	6/1980	Reich et al.	379/93.01
5,163,042	11/1992	Ochiai	379/113
5,335,268	8/1994	Kelly, Jr. et al.	379/112
5,488,655	1/1996	Hamlen	379/137

**OTHER PUBLICATIONS**

Application of fuzzy logic to electricity pricing in a deregulated environment. M.G. Dondo, M.E. El-Hawary, in Proc. IEEE Can. Conf. Elect. and Computer Engineering, Calgary, May, 1996, pp. 388-391.

System Concept, Econometric Modelling, and Fuzzy Logic Controller for a Proposed Class of Delay-Tolerant Variably-Priced Network Services, W.D. Grover, J.S. Hayer, TR Labs, 22 pages, submitted for publication, but unpublished as of May 2, 1997.

Competition, Convergence, and Customer Choice—Finding New Paths to the Customer, by Rod Taylor, IEEE Canadian Review—Spring 1996, pp. 5-8.

Power Pool of Alberta Began Operation on Jan. 1, 1996, 18 pages. At least as early as May 1996.

Power Pool of Alberta Brochure, 4 pages, Not earlier than Jan. 1, 1996, but before filing of application.

Grid Company of Alberta Inc., 4 pages, Jan. 1, 1996, Not earlier than Jan. 1, 1996, but before filing of application.

Feasibility, Protocols and Benefits of a Real-time Bandwidth Auction Service: A new ISDN based application, W.D. Grover, 1990, 6 pages, unpublished research proposal.

A System Wide Approach to Forecast the Demand for Business Toll Services, Malcolm Mung, International Journal of Forecasting 4 (1988) 535-544, pp. 535-544.

Transport Auction: A New Service Concept, Issue II, Dec. 13, 1990, W.D. Grover, 7 pages, unpublished research proposal.

Fuzzy logic works with degrees of truth, David L. Brubaker, Mar. 1, 1991, Computer Design, 2 pages.

Stimulated Traffic Influence on Trunk Group Provisioning Base Load, Lansun Lee, AGT Limited, Canada, undated, 6 pages.

Some simple analytics of peak-lad pricing, Ted Bergstrom and Jeffrey K. MacKie-Mason, RAND Journal of Economics, vol. 22, No. 2, Summer 1991, pp. 241-249.

Modelling The Interactions Between New Telecommunications Services, M.H. Lyons, BT Laboratories, Martlesham Heath, IPSWICH, UK, Apr., 1992, 12 pages.

Abstract of U.S. Patent No. 4,654,867, Mar. 31, 1987, Labedz, et. al. 3 pages.

Abstract of U.S. Patent No. 5,280,630, Jan. 18, 1994, Wang, 2 pages.

Abstract of U.S. Patent No. 3,935,394, Jan. 27, 1976, Bulfer, 3 pages.

Abstract of U.S. Patent No. 5,502,714, Mar. 26, 1996, Sallberg, 3 pages.

M. Eng. Report of J. Hayer, unpublished.

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[57] **ABSTRACT**

Delay-tolerant calls access slack capacity in a telecommunications network under variable pricing controlled by the network so as to permit the network to pick up or stimulate background traffic loads as and when desired to gain revenue from background idle capacity.

**5 Claims, 2 Drawing Sheets**

