PACKAGE ID - 001354IBMPC00 GTMAX

KWIC TITLE - Generation and Transmission Maximization Model

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LIMITATION CODE -COPY **AUDIENCE CODE -** LIM

COMPLETION DATE - 01/01/1996 **PUBLICATION DATE -** 01/01/1996

DESCRIPTION - GTMax was developed to study complex marketing and system operational issues facing electric utility power systems. The model maximizes the value of the electric system taking into account not only a single system's limited energy and transmission resources but also firm contracts, independent power producer (IPP) agreements, and bulk power transaction opportunities on the spot market. GTMax maximizes net revenues of power systems by finding a solution that increases income while keeping expenses at a minimum. It does this while ensuring that market transactions and system operations are within the physical and institutional limitations of the power system. When multiple systems are simulated, GTMax identifies utilities that can successfully compete on the market by tracking hourly energy transactions, costs, and revenues. Some limitations that are modeled are power plant seasonal capabilities and terms specified in firm and IPP contracts. GTMax also considers detaile operational limitations such as power plant ramp rates and hydropower reservoir constraints.

PACKAGE CONTENTS - Media Directory; Software Abstract; Media Includes Source Code, User Guide in MS Word 97;

SOURCE CODE INCLUDED? - Yes

MEDIA QUANTITY - 1 CD Rom

METHOD OF SOLUTION - The model uses the LINDO linear programming (LP) software package to determine the best (i.e., maximum revenue) solution.

COMPUTER - IBM PC

OPERATING SYSTEMS - Microsoft Windows 95 and Windows 98

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PROGRAMMING LANGUAGES - PowerBuilder (70%) C (5%0 LINDO (15%) Fortran (10%)

SOFTWARE LIMITATIONS - The GTMax solver is limited currently to 32,000 constraints and 100,000 variables. The limits on the number of variables and constraints can impose maxima for the number of power plants, demand nodes, spot market interconnections, and contract nodes employed in the model unless appropriate adjustments are made.

SOURCE CODE AVAILABLE (Y/N) - Y

UNIQUE FEATURES - GTMax embodies a detailed representation of power system generation, transmission, and distribution. Output data are presented in the form of easy-to-understand tables and graphs detailing which units should be dispatched, how much power should be generated and sold on an hourly basis, when to buy and sell power on the spot market, the cost of alternative power plant operations, the incremental value of water, and the value of demand-side management programs.

RELATED SOFTWARE - Early in-house versions of the software were known as the Hydro LP and SMN models.

OTHER PROG/OPER SYS INFO - The proprietary LINDO LP solver distributed by LINDO Systems, Inc, is used.

HARDWARE REQS - A 90MHz or faster IBM Pentium compatible PC with a minimum of 16 Mbytes RAM is recommended.

TIME REQUIREMENTS - GTMax takes approximately 3 to 20 minutes to simulate a week's activity. Time requirements vary as a function of the speed of the processor, size of the power system modeled, and the complexity of the operational constraints imposed.

SUBJECT CLASS CODE - T

EDB SUBJECT CATEGORIES -
990200

SPONSOR - DOE/ER

PACKAGE TYPE - AS - IS